Western Michigan University Course Catalogs (1904-present)

2017

Western Michigan University Undergraduate Catalog 2017-2018

Western Michigan University

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## University Calendar

### Fall Semester 2016
- **Sep 1-2**: Advising Days
- **Sep 5**: Mon Labor Day recess
- **Sep 6**: Tue Classes begin at 8 a.m.
- **Nov 23**: Wed Thanksgiving recess begins at noon
- **Nov 28**: Mon Classes resume
- **Dec 12-15**: Final examination week
- **Dec 17**: Sat Semester ends/Commencement

### Fall Semester, 2017
- **Aug 31-Sep 1**: Advising Days
- **Sep 4**: Mon Labor Day recess
- **Sep 5**: Tue Classes begin at 8 a.m.
- **Nov 22**: Wed Thanksgiving recess begins at noon
- **Nov 27**: Mon Classes resume
- **Dec 11-14**: Final examination week
- **Dec 16**: Sat Semester ends/Commencement

### Spring Semester, 2017
- **Jan 5-6**: Advising Days
- **Jan 9**: Mon Classes begin at 8 a.m.
- **Jan 16**: Mon MLK Day Recess, Convocation, and Activities
- **Mar 3**: Fri Spirit Day – no classes
- **Mar 6**: Mon Spring Break
- **Mar 13**: Mon Classes resume
- **Apr 24-27**: Final examination week
- **Apr 29**: Sat Semester ends/Commencement

### Spring Semester, 2018
- **Jan 4-5**: Advising Days
- **Jan 8**: Mon Classes begin at 8 a.m.
- **Jan 15**: Mon MLK Day Recess, Convocation, and Activities
- **Mar 2**: Fri Spirit Day – no classes
- **Mar 5**: Mon Spring Break
- **Mar 12**: Mon Classes resume
- **Apr 23-26**: Final examination week
- **Apr 28**: Sat Semester ends/Commencement

### Summer I, 2017
- **May 8**: Mon Classes begin at 8 a.m.
- **May 29**: Mon Memorial Day recess
- **Jun 28**: Wed Session ends
- **Jun 24**: Sat Commencement

### Summer I, 2018
- **May 7**: Mon Classes begin at 8 a.m.
- **May 28**: Mon Memorial Day recess
- **Jun 27**: Wed Session ends
- **Jun 23**: Sat Commencement

### Summer II, 2017
- **Jun 29**: Thu Classes begin at 8 a.m.
- **Jul 4**: Tue Independence Day recess
- **Aug 18**: Fri Session ends
  - No commencement exercises

### Summer II, 2018
- **Jun 28**: Thu Classes begin at 8 a.m.
- **Jul 4**: Wed Independence Day recess
- **Aug 17**: Fri Session ends
  - No commencement exercises
# Academic Calendar

Important dates for each semester or session, including registration dates, refund dates, withdrawal dates, finals, midterm grading, final grading and more. **Note: Academic calendars are subject to change without notice.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Fall – 2017</th>
<th>Spring - 2018</th>
<th>Summer - 2018</th>
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<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
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<tr>
<td>Course offerings open for viewing</td>
<td>Feb 20</td>
<td>Sep 18</td>
<td>Jan 22</td>
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<tr>
<td>Registration begins</td>
<td>Mar 13</td>
<td>Oct 9</td>
<td>Feb 5</td>
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<tr>
<td>Advising Days</td>
<td>Aug 31 – Sep 1</td>
<td>Jan 4 – 5</td>
<td>N/A</td>
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<tr>
<td>One-Stop Convenience Center</td>
<td>Aug 30 – Sep 8</td>
<td>Jan 8 - 10</td>
<td>N/A</td>
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<tr>
<td>Fall Welcome</td>
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<tr>
<td>Classes begin</td>
<td>Sep 5</td>
<td>Jan 8</td>
<td>May 7</td>
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<tr>
<td>Tuition and fees due</td>
<td>Aug 29</td>
<td>Jan 8</td>
<td>May 7</td>
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<tr>
<td>Last day to drop/add classes</td>
<td>Sep 11</td>
<td>Jan 12</td>
<td>May 11</td>
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<tr>
<td>Census</td>
<td>Sep 12</td>
<td>Jan 16</td>
<td>May 14</td>
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<tr>
<td>$100 Late Add fee begins</td>
<td>Sep 13</td>
<td>Jan 17</td>
<td>May 15</td>
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<tr>
<td>Begin recording withdraws as &quot;W&quot; on transcript</td>
<td>Sep 13</td>
<td>Jan 17</td>
<td>May 15</td>
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<tr>
<td>Last day to withdraw from classes</td>
<td>Nov 6</td>
<td>Mar 19</td>
<td>Jun 4</td>
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<tr>
<td>Final Exam Week</td>
<td>Dec 11 – 14</td>
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<td>N/A</td>
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<tr>
<td>Semester Ends</td>
<td>Dec 16</td>
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<td>Refunds</td>
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<tr>
<td>Last day to receive 100% refund</td>
<td>Sep 12</td>
<td>Jan 16</td>
<td>May 14</td>
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<tr>
<td>Last day to receive 90% refund for a complete withdrawal</td>
<td>Sep 14</td>
<td>Jan 18</td>
<td>N/A</td>
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<td>Last day to receive 50% refund for a partial withdrawal</td>
<td>Sep 18</td>
<td>Jan 22</td>
<td>N/A</td>
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<tr>
<td>Last day to receive a 50% refund for a complete withdrawal</td>
<td>Sep 29</td>
<td>Feb 5</td>
<td>May 18</td>
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<tr>
<td>Last day to receive a 25% refund for a complete withdrawal</td>
<td>Oct 25</td>
<td>Mar 2</td>
<td>Jun 1</td>
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<tr>
<td>Grades</td>
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<tr>
<td>Midterm grades due</td>
<td>Oct 30</td>
<td>Mar 12</td>
<td>N/A</td>
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<tr>
<td>Final grades due</td>
<td>Dec 19</td>
<td>May 1</td>
<td>Jul 3</td>
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<tr>
<td>Graduation</td>
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<td>Last day to apply for graduation</td>
<td>Aug 1</td>
<td>Dec 1</td>
<td>Feb 1</td>
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<tr>
<td>Commencement</td>
<td>Dec 16</td>
<td>Apr 28</td>
<td>Jun 23</td>
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<tr>
<td>Holidays and Recesses</td>
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<tr>
<td>Labor Day</td>
<td>Sep 4</td>
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<tr>
<td>Thanksgiving (begins at noon)</td>
<td>Nov 22</td>
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<td>Dr. Martin Luther King Jr. Day recess, convocation and activities</td>
<td>Jan 15</td>
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<td>Spirit Day</td>
<td>Mar 2</td>
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<tr>
<td>Spring Break</td>
<td>Mar 5 – 9</td>
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<tr>
<td>Memorial Day</td>
<td>May 28</td>
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<td>Independence day recess</td>
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The Western Michigan University Strategic Plan 2015-20

The Western Michigan University Commitment

With adoption of its first strategic plan in 2012, the University embraced three basic tenets developed to describe its identity and provide guideposts for the future. In 2016, as the University launches The Gold Standard 2020, a refined and expanded five-year version of its strategic plan, those three tenets remain at the very core of all that WMU is and aspires to be. The University is learner centered, discovery driven, and globally engaged. Every goal that it sets and every challenge it tackles is intended to maintain and enhance those three tenets. The Gold Standard 2020 is a planning tool for the future that is premised on that basic understanding.

As a premier, comprehensive, public research University, WMU will use this plan to recruit and nurture talented minds wherever they will be found. The University strives to add value to the lives of its learners and continuously improve the quality of its programming to meet the needs and expectations of the communities it serves. The strategic plan reflects a campus-wide commitment to academic rigor, service, inclusivity, collaboration, economic development, sustainability and good stewardship of institutional resources.

As an extension of the original Gold Standard, the Gold Standard 2020 is an affirmation of the University community's commitment to the values of shared governance, transparent and timely communication, and accountable and responsible behavior within an ethical, compassionate, diverse and respectful environment.

Western Michigan University has embraced the challenge of strategic planning to ensure that it will be a premier educational environment that provides opportunity for a diverse and globally representative community of learners. Those learners will be part of a setting in which discovery and innovation are used to enhance the economic vitality of the communities served and make the world a better and more hospitable place.

Mission

Western Michigan University is a learner-centered, research university, building intellectual inquiry and discovery into undergraduate, graduate, and professional programs in a way that fosters knowledge and innovation, and transforms wisdom into action. As a public university, WMU provides leadership in teaching, research, learning, and service, and is committed to enhancing the future of our global citizenry.

Vision

Nationally and internationally recognized, the University aspires to distinguish itself as learner centered, discovery driven, and globally engaged.

Learner centered.
Western Michigan University is a university where every member of our community is responsive to and responsible for the education of our students. We challenge and engage all members of our community with a university experience that creates skilled, life-long learners.

Discovery driven.
Western Michigan University offers experiences that enable discovery, and promote creativity and research. We are committed to pursuing inquiry, disseminating knowledge, and fostering critical thinking that encourages life-long learning. Our scholarship creates new knowledge, forms a basis for innovative solutions, leads to economic development, and makes substantial contributions to society.

Globally engaged.
Western Michigan University impacts the globe positively. We are a community of learners committed to human dignity, sustainability, social responsibility, and justice. Our campus embraces a diverse population of students, faculty and staff who develop learners and leaders who are locally oriented and globally competent, culturally aware and ready to contribute to world knowledge and discovery.
The Gold Standard 2020 Embraces Five Strategic Goals

The University Strategic Plan guides the way for the next five years and allows time for meaningful institutional goals to be achieved. Developing the goals, objectives and strategies that will serve the University community both now and in the future, demands that the University undertake honest, thorough and ongoing examinations of the challenges and risks the institution faces. This strategic plan acknowledges that both risk and opportunity must be balanced, assessed and reassessed and includes the mechanisms to meet those demands. Both risks and opportunities must be prioritized as time passes, and resources must be allocated according to that prioritization.

Objectives and strategies have annual benchmarks to measure progress and allow for responsiveness to internal and external changes impacting WMU. Institutional Effectiveness Measures will be used to monitor critical University functions, as well as provide evaluation for continuous quality improvement throughout the Strategic Plan’s implementation and resource allocation processes.

Upon formal adoption of the strategic plan by the University's Board of Trustees, the document will become Western Michigan University's roadmap into the future. Annual monitoring to ensure benchmarks are met will take place. Each unit and vice presidential area are expected to integrate the goals and objectives of the strategic plan into daily work.

Learner Success

Goal #1: Ensure a distinctive and supportive learning experience that fosters success.

WMU fosters learners who are critical thinkers, knowledge expanders, and solution providers. WMU students are provided a broad range of learning opportunities in a respectful, healthy and safe living-learning environment focused on student success. Curricular and co-curricular opportunities encourage engagement, prepare learners for the globalized world, and enhance student retention and degree completion. Each learner is encouraged to synthesize and translate WMU experiences into a unique Signature defining who they are as learners, professionals, leaders and globally engaged citizens.

Objective 1.1: A learner-centered culture maximizes student retention and degree completion.
Objective 1.2: The learning experience prioritizes critical thinking, application, and experiential learning.
Objective 1.3: Learning experiences are heightened through innovative and responsive co-curricular learning opportunities.
Objective 1.4: International learning experiences prepare all learners for the globalized world.
Objective 1.5: University community advances and sustains a respectful, healthy, and safe campus.
Objective 1.6: The student living-learning environment enhances learning, personal development, and engagement in campus communities.

Academic Excellence

Goal #2: Promote innovative learning, discovery, and service.

WMU pursues academic excellence through innovative approaches to learning, discovery, and service. WMU embraces collaboration and leverages resources to offer academic programs that are responsive to the needs of all students and society. A distinguished faculty and support staff offer high quality curricula in graduate and undergraduate education. Instruction is delivered through high-impact practices in learning platforms that meet the needs of contemporary learners.

Objective 2.1: WMU’s academic programs respond to student and global needs through innovative, high quality curricula.
Objective 2.2: The strategic hiring and retention of a distinguished faculty and staff ensures academic excellence, enhances innovation in discovery and pedagogy, and elevates the University’s stature.
Objective 2.3: Academic excellence will be maintained through the execution of best practices.
Objective 2.4 WMU will be positioned as leader in quality graduate education.
Objective 2.5: The delivery of learning platforms and locations reflect the breadth and diversity of enrollment that is supportive of the University’s mission and strategic goals.
Objective 2.6: Faculty research, scholarship, and creative activities enhance innovative teaching and discovery.
**Discovery and Collaboration**

*Goal #3: Progress as a Carnegie-classified higher research doctoral university that advances new knowledge and value-added discovery.*

WMU is flexible and responsive to the ever-changing demands of the world. To meet the needs of society, WMU investigates, develops, and produces new knowledge; contributes to technological and economic advancement; and elevates the human condition through community outreach and engaged scholarship.

Objective 3.1: WMU strengthens its position as a Doctoral University: Higher Research Activity in accordance with Carnegie Classification criteria.
Objective 3.2: WMU’s strengths in research and engaged scholarship create mutually beneficial partnerships that impact significant scientific, economic, and social problems.
Objective 3.3: WMU’s outreach is attentive to local and world needs.

**Inclusive Excellence and Equity**

*Goal #4: Promote a diverse, equitable, and inclusive University culture to ensure social sustainability and accessibility.*

WMU cultivates a diverse and inclusive community that recognizes the value of each individual and helps ensure civility and respect for all people. In doing so, WMU embraces diversity as a community value in which all stakeholders are prepared to understand the complexity of issues and perspectives needed to offer solutions to world challenges. A system of accountability and purposeful institutional reflection will promote a high level of social sustainability.

Objective 4.1: A system of continuous accountability and evaluation contributes to a culture of inclusive excellence.
Objective 4.2: A diverse student, faculty, and staff population enriches the learning and working environment.
Objective 4.3: WMU models a welcoming, accessible, and supportive university culture.
Objective 4.4: WMU advances as a viable setting for social sustainability.

**Sustainable Stewardship**

*Goal #5: Advance economic and environmental sustainability practices and policies.*

WMU supports a culture of sustainability by modeling practices and policies that result in increased flexibility to respond to economic and environmental challenges. Allocation of resources will be transparent and in accordance with strategic planning priorities creating stability across funding cycles, respecting the individual needs of all students and employees, reducing our environmental footprint, and relying on evaluation and accountability to ensure continuous improvement. A robust communication system will effectively promote the University distinctive mission to enhance marketing, advocacy and investment in WMU.

Objective 5.1: WMU continues to be a leader in responsible utilization of financial and human resource management, process, and deployment.
Objective 5.2: WMU utilizes available financial strategies to optimize enrollment management.
Objective 5.3: WMU is a national leader in achieving environmental sustainability.
Objective 5.4: Effective marketing and communication promotes the University’s distinctive mission.
Objective 5.5: Community support, advocacy, and philanthropic giving advance WMU

**Learner Success**

*Goal #1: Ensure a distinctive and supportive learning experience that fosters success.*

Objective 1.1: A learner-centered culture maximizes student retention and degree completion.

**Strategies**
- Operationalize and integrate evidence-based retention practices to increase first-year student retention.
b. Develop advising and retention efforts appropriate to the needs of sophomore, junior, and transfer students.
c. Improve support programming to help students with varying levels of academic preparation.
d. Enhance training to help WMU employees recognize how their roles can/do support student success.
e. Develop and operationalize best practices that promote persistence and degree completion of graduate students.

Objective 1.2: The learning experience prioritizes critical thinking, application, and experiential learning.

Strategies
a. Coordinate and promote off-campus, non-classroom, internship, and service-learning opportunities for all students.
b. Enhance career preparation services and provide more opportunities for professional development to boost post-graduation student success.
c. Use the development and articulation of learning outcomes in training and mentoring student employees to further their workforce readiness.
d. Promote greater involvement of undergraduate and graduate students in research and creative activities.

Objective 1.3: Learning experiences are heightened through innovative and responsive co-curricular learning opportunities.

Strategies
a. Develop and implement the Signature Designation to support student engagement and distinction.
b. Continue implementation and development of programming to increase student financial literacy.
c. Facilitate participation in benefit-supported learning opportunities for all employees.

Objective 1.4: International learning experiences prepare all learners for the globalized world.

Strategies
a. Increase feasibility of broad-based participation in study abroad programs and other globally focused learning opportunities.
b. Implement the faculty-adopted internationalize education initiative.
c. Provide enhanced living-learning support for the growing number of international students at WMU.
d. Increase recruitment of University employees with international experience and expertise.
e. Facilitate intercultural understanding through greater interaction between domestic and international students.

Objective 1.5: University community advances and sustains a respectful, healthy, and safe campus.

Strategies
a. Implement proactive outreach and intervention programs to enhance mental health and physical well-being of all students, faculty, and staff.
b. Promote collegiality through greater inter- and intra-departmental collaboration.
c. Implement recommendations from the Title IX Sexual Misconduct and Safety Survey to ensure a safe and supportive environment for all stakeholders.
d. Reinforce campus safety through informed modification in University policies and physical environment.

Objective 1.6: The student living-learning environment enhances learning, personal development, and engagement in campus communities.

Strategies
a. Revitalize University facilities to enhance informal space for student learning, personal development, and interaction with others.
b. Plan for a self-sustaining, award-winning student center known for its vibrancy, responsiveness, and aesthetic appeal.
c. Renovate aging facilities to create neighborhood environments that add value to the University experience.
d. Support and develop a championship athletic culture that promotes institutional pride and community connectedness, and also enhances the University experience for all stakeholders.
Academic Excellence

Goal #2: Promote innovative learning, discovery, and service.

Objective 2.1: WMU’s academic programs respond to student and global needs through innovative, high quality curricula.

Strategies
a. Increase flexibility within the curriculum development process to better respond to a rapidly changing world.
b. Revise general education curricula to respond to the needs of the 21st century student.
c. Develop and utilize University-wide student learning outcomes for University planning and assessment.
d. Develop stronger connections across colleges and among external constituents to facilitate interdisciplinary opportunities.
e. Identify and support growth in the number of programs that achieve national or international distinction.

Objective 2.2: The strategic hiring and retention of a distinguished faculty and staff ensures academic excellence, enhances innovation in discovery and pedagogy, and elevates the University’s stature.

Strategies
a. Promote academic excellence and innovative discovery through strategic investment in personnel.
b. Structure and align technology and operations to advance information resources and pedagogical innovations.
c. Support and recognize faculty and staff engagement in their professional disciplines.
d. Develop an operational succession plan for faculty, staff, and administrators.

Objective 2.3: Academic excellence will be maintained through the execution of best practices.

Strategies
a. Increase systematic assessment of student learning for continuous improvement of curricula.
b. Create and sustain a culture that supports the use of high impact practices for instruction in all academic units.
c. Enhance opportunities for instructional staff to engage in learning communities.
d. Incorporate early alert technology and holistic advising to support student success.
e. Advocate for proposed capital outlay projects, such as the College of Aviation expansion.

Objective 2.4 WMU will be positioned as leader in quality graduate education.

Strategies
a. Develop appropriate financial support strategies to assist graduate students.
b. Improve data systems to monitor, review, and assess graduate student success.
c. Strengthen the capacity of graduate programs to educate and graduate a diverse population of contemporary learners in a timely manner.
d. Promote cross-discipline learning and research opportunities to enhance the educational experiences of graduate students.
e. Provide relevant engagement opportunities and student support resources to meet the unique needs of graduate students.

Objective 2.5: The delivery of learning platforms and locations reflect the breadth and diversity of enrollment that is supportive of the University’s mission and strategic goals.

Strategies
a. Expand and optimize WMU’s recruitment and delivery of educational opportunities to new, targeted demographics and strategic geographic regions.
b. Implement a comprehensive enrollment management plan to maximize program capacity and achieve academic program goals.
c. Maximize use of technology to increase convenience and expand boundaries for delivery of degree programs.
d. Engage in new, non-traditional pathways to degree completion.
Objective 2.6: Faculty research, scholarship, and creative activities enhance innovative teaching and discovery.

Strategies
- Develop efficient mechanisms to gather and distribute faculty, staff, and student scholarship and discovery data.
- Establish clear expectations for faculty engagement and support of student research and creative activities.
- Strategically align staff and faculty expertise and strengths with available resources at the unit level to promote learning and discovery.
- Align support resources to increase discovery activity for all faculty in all disciplines.

Discovery and Collaboration

Goal #3: Progress as a Carnegie-classified higher research doctoral university that advances new knowledge and value-added discovery.

Objective 3.1: WMU strengthens its position as a Doctoral University: Higher Research Activity in accordance with Carnegie Classification criteria.

Strategies
- Expect University centers and institutes to stimulate externally funded research and creative activities through interdisciplinary discovery, encouraging innovation, and widespread dissemination of scholarship.
- Support implementation and accountability of discovery communities to increase both the aggregate and per-capita level of research activity supportive of a Carnegie-classified Doctoral University: Higher Research Activity.
- Foster a culture of collaboration by developing effective infrastructure for faculty and staff to share their expertise and research across disciplines and regional research entities.
- Enhance the delivery of doctoral programs to increase the number of doctoral degrees awarded.
- Enhance information technology and data management infrastructure to support research.

Objective 3.2: WMU’s strengths in research and engaged scholarship create mutually beneficial partnerships that impact significant scientific, economic, and social problems.

Strategies
- Foster investment in student, staff and faculty innovation, infrastructure and entrepreneurism.
- Actively support technology and knowledge transfer in partnership with WMU spin-off companies, industry, and community.
- Develop curricular programs that will contribute to incumbent and future workforce needs.
- Establish engaged scholarship systems to support research likely to impact public policy and community-based endeavors.
- Expand mechanisms for the dissemination of research and scholarship to stakeholders and the community at large.
- Continue to leverage resources through effective relationships with WMed and WMU Cooley, local affiliates, and global partnerships.

Objective 3.3: WMU’s outreach is attentive to local and world needs.

Strategies
- Develop and implement a renewed Campus Compact Action Plan, dedicating the University to work with other institutions to advance the public purposes of higher education.
- Review and improve outreach practices and policies to achieve the Carnegie Community Engagement Reclassification by 2020.
- Operationalize a unified vision to support the University’s public engagement mission.
- Develop rigorous, systematic evaluations of all outreach and community engagement programs to increase impact in conjunction with community agencies’ planning initiatives.
- Know, measure, tell, and increase WMU’s economic impact and social value.
- Assist all students with developing meaningful connections in their local and global communities.
Inclusive Excellence and Equity

Goal #4: Promote a diverse, equitable, and inclusive University culture to ensure social sustainability and accessibility.

Objective 4.1: A system of continuous accountability and evaluation contributes to a culture of inclusive excellence.

Strategies
a. Foster a shared understanding of University-wide definitions pertaining to diversity, equity, and inclusion.
b. Improve accountability to inform and advance equity, inclusivity, and accessibility, at every level of the University.
c. Ensure viable, safe avenues to report instances of inequitable behavior.

Objective 4.2: A diverse student, faculty, and staff population enriches the learning and working environment.

Strategies
a. Understand and work to remove systemic institutional barriers for recruitment, retention, and degree completion of students from historically underrepresented groups in higher education.
b. Employ institutional strategies so that hiring and retention practices encourage diversity in all its forms.
c. Continue to create opportunities for affinity groups to gather and develop a sense of community.

Objective 4.3: WMU models a welcoming, accessible, and supportive university culture.

Strategies
a. Expand educational and cultural programming to increase equity mindedness of all stakeholders.
b. Support professional development opportunities for all stakeholders that promote global understanding and cultural humility.
c. Promote human resource practices and programming that meet the needs of WMU employees to enhance workplace engagement.
d. Implement changes in student service facilities that create a barrier-free, welcoming environment for a diverse population.

Objective 4.4: WMU advances as a viable setting for social sustainability.

Strategies
a. Provide services and support networks that function to create a sense of place that provides a viable setting for human interaction, communication, and cultural development.
b. Identify and appropriately resource staffing levels in critical areas to support quality learner-centered service.
c. Offer and encourage participation in professional skills training to increase employee retention, advancement, and workplace satisfaction.
d. Develop and maintain a motivated workforce through leadership by example and recognition for contributions that exceed expectations.
e. Support strategies to foster faculty, staff, and student responsibility as active participants in University governance.

Sustainable Stewardship

Goal #5: Advance economic and environmental sustainability practices and policies.

Objective 5.1: WMU continues to be a leader in responsible utilization of financial and human resource management, process, and deployment.

Strategies
a. Expand use of a resource-effective integrative review processes for all programs and services.
b. Leverage multiple revenue streams to support clearly defined University goals and responsible budget forecasts.
c. Expand and improve integrated data-driven information systems for decision-making.
d. Promote transparency and University accountability in all institutional systems.
e. Prioritize the maximum utilization of facilities and fixed resources in campus planning and scheduling.
f. Develop proactive practices to meet the pace of change in emerging technology.

**Objective 5.2: WMU utilizes available financial strategies to optimize enrollment management.**

**Strategies**
- a. Develop regionally competitive tuition models for academically qualified students.
- b. Utilize innovative and competitive financial aid strategies to maintain the fundamental principle of providing access to an affordable, quality education for all admitted students.
- c. Implement new strategies at the program level that enhance yield of admitted students.
- d. Incorporate effective forecasting models that anticipate and respond to changes in regional, national, and global factors in managing enrollment.

**Objective 5.3: WMU is a national leader in achieving environmental sustainability.**

**Strategies**
- a. Maintain a leadership position in conservation efforts to reduce energy consumption and costs.
- b. Work with community partners to recycle, reuse, and reduce waste.
- c. Increase the number and scope of green programs that maximize return on University investment.
- d. Increase opportunities for sustainability education.
- e. Promote responsible acquisition and use of natural resources, increasing green space on campus.

**Objective 5.4: Effective marketing and communication promotes the University’s distinctive mission.**

**Strategies**
- a. Develop and execute an external and internal communication plan that effectively engages all stakeholders and reflects the shared narrative of the University.
- b. Define and disseminate a coherent and consistent brand identity to local, national, and global markets.
- c. Engage in new digital strategies that increase access to all stakeholders and advance the recruitment of prospective students and families.
- d. Implement a transformational wayfinding plan to improve navigation to and within WMU campuses.

**Objective 5.5: Community support, advocacy, and philanthropic giving advance WMU.**

**Strategies**
- a. Provide services that effectively connect and engage WMU’s global network of alumni and friends as advocates for the University.
- b. Raise external support for student scholarships, named professorships, innovation infrastructure, capital projects, and other University-identified priorities.
- c. Utilize WMU’s strategic plan and University-wide accomplishments to articulate WMU’s narrative and value to potential donors.
- d. Engage in development and promotion communication to increase donor retention and employee annual giving.

**Enterprise Risk Management and Strategic Planning**

Built into the 2020 University Strategic Plan are a number of specific strategies that directly address challenges identified in the planning process. Since these challenges affect all aspects of Western Michigan University’s mission and operations, they should be a critical tool in the implementation and oversight of the plan. This approach integrates risk management into the strategic deliberations of senior leaders and board members, positioning the University to accomplish its long term goals and objectives. The Gold Standard 2020 will begin the implementation process by focusing on how the challenges may impact achievement of the University strategic goals.
Admission Policies

Western Michigan University admits students whose educational backgrounds indicate a high probability for success in college work.

Freshman Applicants

Whether students apply online, mail the application, or have a one-on-one onsite admission, the major factors considered in the admission decision are grade point average, ACT/SAT scores (optional writing test recommended), college prep courses taken, and trend of grades. Additionally, other variables, such as letters of recommendation, and extra-curricular activities are reviewed.

WMU strongly recommends that applicants complete a rigorous college preparatory curriculum that would include minimally: four years of English; three years of mathematics, including Algebra I and higher (fourth year preferred); three years of social sciences; three years of science (at least two from biology, chemistry or physics); and two years of foreign language.

Offers of admission made to students still in high school are conditional pending graduation from high school and the University's review of final senior year grades. Poor performance may result in a change of admission status or withdrawal of the admission offer.

Transfer Applicants

In reviewing applications from prospective transfer students, the University makes decisions on the basis of previous work completed at all institutions, as well as the trend of the most recent grades. If fewer than 26 hours will be transferred, a high school transcript is also required for review.

Offers of admission made to students currently enrolled in another college or university are provisional, pending successful completion of work in progress. Poor performance may result in a change in admission status or withdrawal of the admission offer.

The University reserves the right to withdraw, revoke, and/or cancel an admission decision for any reason, and at any time, it deems warranted. This right shall also apply in instances when the University acquires information about an applicant or student after an admission decision is made.

Admission to Western Michigan University is non-discriminatory.

Readmission

Students who make an initial enrollment at Western but do not return the following semester/term will have one year's valid admission status in which to re-enroll, providing they left in good standing. After one year, students in good standing and with no college work since leaving WMU may reactivate their admission status by completing a readmission form.

Students who leave the University in good standing, are gone for more than one year and subsequently take additional college work must complete a readmission application and have official transcripts sent from each institution attended. The readmission decision will be made under existing transfer admission standards.

Dismissed students applying for readmission must complete a readmission application and obtain an authorized college advisor's approval for readmission before submitting a readmission application. University students who have been dismissed will normally not be readmitted for at least one fifteen week semester. The University will require evidence that the causes of past academic problems have been removed before approving readmission.
Forgiveness Policy

WMU undergraduate students who have not earned a degree and have not attended the University for at least four years may apply for academic forgiveness through the Office of the Registrar. Students who are granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of twelve graded hours of work attempted after the re-entry date.

All other University regulations apply. As a matter of course, the Registrar will advise students granted forgiveness to meet with a college advisor.

Admission Procedures for Domestic Students

Freshman Applicants

To be considered for freshman admission, with no previous college work (excluding dual enrollment while in high school), applicants should follow the steps below:

1. Complete either the online application at [www.wmich.edu/apply](http://www.wmich.edu/apply) or the paper application and pay the $40 non-refundable application fee;
2. Request a copy of your high school transcript. If you are using Parchment Exchange to electronically send your transcript to the Admissions Office, your school may wish to use the eSSR (Electronic Safety Report) available through Parchment Exchange. If your school prefers, they may ask that you print our High School Verification Form to send with a printed copy of your transcript. **Either form is optional**;
3. Make arrangements to take the examinations of the American College Testing (ACT) Program, or the College Board (SAT), with results sent directly to Western Michigan University (ACT College Code 2066; SAT College Code 1902); and,
4. For those who have completed a General Educational Development (GED) Test, submit official GED scores instead of a high school transcript. ACT or SAT scores are not required.

When to Apply

Students should submit applications for fall semester during the fall preceding their enrollment. High school students may apply for freshman admission after completion of the junior year. Applications that are complete (application, transcript, test scores, application fee) and received by October 15 will receive priority consideration for scholarships.

Admission Interviews

In order to make the best possible decision for an individual student, an admissions officer may require a personal interview to clarify or explain parts of the application materials.

Advanced Placement

The Advanced Placement Program (AP) of the College Board provides the opportunity for students to earn college credit while still in high school. WMU awards credit for all AP areas. To learn what AP exam score is required for credit in a subject, visit [http://wmich.edu/admissions/freshmen-ap](http://wmich.edu/admissions/freshmen-ap) for detailed information. For those wishing to participate, have AP send a score report to WMU, College Code 1902.

International Baccalaureate

Western Michigan University awards credit for IB higher level (HL) exam scores of 5 or better. Visit [http://wmich.edu/admissions/freshmen-ib](http://wmich.edu/admissions/freshmen-ib) to obtain information about the IB higher level subjects granted credit.
Campus Visits

Whether you will be a freshman or transfer student, visiting campus is an important step in learning more about WMU. The Office of Admissions offers a variety of visit programs throughout the year, which include general information presentation and a walking tour of the main campus. Visit www.wmich.edu/admissions/freshmen/visit for more information, or to arrange a visit.

Notification of Status

The University notifies freshman applicants of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, students will receive written notice. The decision may be to admit; to request additional grades, test scores, or an interview; or to ask the applicant to begin at another school and transfer to the University after establishing a successful college record.

Admission of students to freshman status while they are still in high school is conditional upon their graduation from high school and the University's review of their final grades. Poor performance in the senior year may cause a change in admission status or withdrawal of the admission offer.

Alpha Program

The Alpha Program is a one-year conditional admission academic support program for first-year students. The program provides developmental academic advising, alerts students to University resources, and requires attendance at skill-building workshops.

Consideration is given to those students who do not meet WMU’s regular admission criteria but who have demonstrated the potential for college-level work. The Office of Admissions determines eligibility of applicants for admission as Alpha students. Selected students and their parents or guardians are required to sign a program contract accepting conditions of admission.

Western Success Prep Program

The Western Success Prep Program (WSPP) includes an intensive five-day class designed to give some Alpha Program students a head start on a great first year at Western Michigan University. WSPP is held the week before Fall Welcome. When WSPP concludes, students will transition seamlessly into the Alpha Program Welcome and Fall Welcome with all of the first-year students. Students will receive one credit upon completion of the program.

Orientation

The mission of the Western Michigan University Orientation program is to provide a comprehensive experience which will aid new students in their transition to the institution, expose new students to the educational opportunities within WMU, integrate new students into the academic and campus life of the institution, increase the retention rate of new students, assist parents of new students to understand the University environment and services, and enhance parental awareness of issues facing college students.

Transfer Applicants

To be considered for admission as a transfer from another college or university, students should:

1. Complete either the online application at www.wmich.edu/apply or the paper application and pay the $40 non-refundable application fee;
2. Request that each college attended send an official transcript directly to the Office of Admissions at WMU. Transcripts delivered by the student in a college-issued, sealed envelope may also be accepted as official provided they are received within 90 days of the print date. Transcripts sent by the student cannot be accepted as official. Failure to report all colleges attended will invalidate the application and may subject an admitted applicant to dismissal, in addition to disqualifying the applicant from receiving transfer credit for work at schools not reported. Applicants currently enrolled at another institution should have a partial transcript sent to WMU. A provisional
admission decision and partial credit evaluation may be made to allow for advising and registration. A final transcript showing acceptable grades must be received within the first term of enrollment at Western; and,

3. If less than 24 transferable semester hours (39 quarter/term hours) have been completed at the time of application, applicants must also submit an official high school transcript, and ACT or SAT scores unless at least two years have elapsed between high school graduation and the requested WMU entry date. GED diploma students are required to submit GED scores, not ACT or SAT scores.

When to Apply

Applicants are strongly advised to submit all materials (application, fee, transcripts) by January to be considered for the Fall semester, in September for the Spring semester, and in December for Summer I or II sessions. The priority application deadlines are June 1 for fall semester and December 1 for spring semester. After these dates, admission will be deferred to a subsequent term.

Notification of Status

The University notifies transfers of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, students receive notification. The decision may be to admit, to hold a decision for work in progress at another institution, or to suggest a student complete more and/or better work before being accepted.

Admission of students attending another institution is provisional, dependent upon successful completion of the work in progress. Poor performance may change the admission status or cause withdrawal of the admission offer.

Credit Evaluation

Students Transferring to WMU

Students accepted for transfer to WMU will receive an evaluation of their previous college work, showing courses transferred with WMU equivalencies. Course equivalencies for Michigan's public community colleges and other transfer information are available on the web at www.wmich.edu/admissions/transfer/credit. Credit transfer information for other institutions is also available from the Office of Admissions. Transferable courses completed at another college will be accepted for credit only, and only courses in which a "C" (or 2.0) or better was earned (as determined by WMU) will be eligible for transfer. Grades earned in those classes will be used only to determine admissibility to the University; they will not be recorded on the WMU transcript. Credit earned by examination does not normally transfer to the University. Students who have taken AP or CLEP examinations should have official score reports sent to the Office of Admissions, according to the "Credit By Examination" information elsewhere in this catalog.

Western Michigan University typically only accepts credit from institutions of higher education that are accredited by a regional accrediting agency, such as the Higher Learning Commission (HLC) or the Southern Association of Colleges and Schools (SACS). Credits completed at an institution that is accredited by some other national or specialized program accreditor may only be accepted upon review and approval by faculty from the appropriate department(s) or areas of study. In order to accept the credit, the approving department or program must outline the exact credits that will transfer for specific courses, or as a block, in a Memorandum of Understanding with the sending institution, and transcribed by WMU prior to the student beginning classes at WMU. WMU is responsible for all credit it transcribes, whether earned on campus or transferred from another institution. Per HLC policy, by transcribing transferred credit, WMU attests to the relevancy, quality, and rigor of the coursework completed at the other institution.

College credit from foreign institutions will be evaluated by Haenicke Institute’s International Admissions Services Office and transfer credit awarded on a course-by-course basis depending on the result.

WMU Students Transferring Credit Back to WMU

All regulations and procedures concerning transfer of credit for new students also apply to WMU students who take work at other institutions to transfer back to Western. Before enrolling at another institution, WMU students should discuss course selection with their WMU academic advisor and a credit evaluator in the Office of Admissions to ensure transferability.
Advising/Registration

All admitted transfer students should make arrangements for an advising session with an appropriate WMU college advisor as soon as they have their admission materials and credit evaluation. At this session students will learn how transferred courses apply to the WMU major and will select courses for registration. Registration may be completed after the advising session. Transfer students should meet with their advisor and register during the registration periods available to current WMU students and should not wait until just before the beginning of classes.

Orientation

For students starting at WMU in the Fall or Spring semester, one-day Transfer Transition Programs will cover vital information about campus facilities, academic expectations, University services, and student activities. Information will be sent to students after admission.

Admission Procedures for International Students

The Haenicke Institute’s Office of International Admissions and Services (IAS) handles the special needs of international students by processing applications for admission, conducting orientation programs for new international students, assisting with housing arrangements, coordinating community programs involving international students, providing immigration advice, serving as liaison between students and their financial sponsors, and offering personal and social counseling.

International students interested in seeking admission to Western Michigan University apply on-line at www.wmich.edu/internationaladmissions/apply.

To qualify for admission, international students must show that they are academically, financially, and linguistically capable of succeeding at full-time study. Before an international student can be admitted and the Certificate of Eligibility for a visa issued, the student must:

1. Complete an application form at www.wmich.edu/internationaladmissions/apply.
2. Provide complete and official transcripts of secondary, undergraduate, and post-graduate studies (if completed) as well as copies of diplomas, certificates or degrees earned. These must be translated into English and list course titles and grades (marks) received for each. Upload and then send hard copies of the documents to the IAS at International Admissions and Services, Western Michigan University, 1903 W Michigan Avenue, Kalamazoo, Michigan 49008-5246 U.S.A.
3. Provide proof of adequate funding per academic year. This funding amount includes tuition, room and board, books, and health insurance. Personal/family savings must be verified by a bank statement. If sponsored by a government, or other agency, an official letter must be submitted showing that the scholarship is valid for use at WMU, and indicating beginning and ending dates of validity. Complete costs may be viewed at http://wmich.edu/sites/default/files/attachments/u64/2016/2015-16%20Application%20folder.pdf.
4. Complete the Student and Dependent Information form and provide a copy of passport I.D. page.
5. Provide proof of English competency. Students who have completed English-medium schooling from the countries on the list here may be exempted from providing test scores www.wmich.edu/internationaladmissions/apply/proficiency.

The following tests and scores are accepted at Western Michigan University as measures of English competency:

**Test of English as a Foreign Language (TOEFL)** A score of 500 PBT (61 IBT) is required for restricted admission (part-time academic English and part-time academics during the first semester) or 550 PBT (80 IBT) for unrestricted admission.

**Michigan English Language Assessment Battery (MELAB)** A score of 69 is required for restricted admission or 77 for unrestricted admission.

**General Certificate of Education Advanced Level Pass** in English with grade of A, B, or C from one of the five
British-based examining boards only. This is equivalent to a 550 TOEFL.

**International English Language Testing System (IELTS)** Academic Module. A score of 6 is required for restricted admission or 6.5 for unrestricted admission.

**International Baccalaureate (IB)** A grade of 5 in English is required at the Higher Level for unrestricted admission.

**Successful completion of ELS Level 112** from one of the ELS Language Centers.

**Pearson Test of English Academic Module.** A score of 45 is required for restricted enrollment and 53 required for unrestricted enrollment.

**CELCIS** Successful completion of the advanced level and instructor recommendations from CELCIS, Western Michigan University's ESL program. A prospective student may enroll in CELCIS until achieving the required TOEFL score for academic enrollment or completion of the advanced level with instructor recommendations. For more information, see the CELCIS information at [http://www.wmich.edu/internationaladmissions/eslatwmu](http://www.wmich.edu/internationaladmissions/eslatwmu).

Note: some graduate programs have higher score requirements.

Applications for admission from applicants classified as international students ([http://wmich.edu/apply/international](http://wmich.edu/apply/international)) must be submitted no later than June 15 for the Fall Semester, October 15 for the Spring Semester, and March 15 for the Summer I Session. Many programs have earlier deadline dates, and not all programs admit students for all semesters. Applicants are advised to read the program's admission requirements section or consult the relevant program office or advisor to learn the application deadline date and other information for a specific program.

It is advisable to apply well before the application deadline since some programs have earlier deadline dates for admission consideration and/or departmental assistantship awards. Departmental information and requirements may be found at [www.wmich.edu/academics/undergraduate](http://www.wmich.edu/academics/undergraduate).

**INTERNATIONAL STUDENTS ARE REQUIRED TO HAVE HOSPITAL, MEDICAL AND SURGICAL HEALTH INSURANCE**

All international students are required to carry health insurance. There is no University-sponsored program. Health insurance must be in effect on the first day of classes. International students must show proof of coverage including effective dates and a copy of the insurance card, front and back during the first two weeks of a semester/session. Office of International Admissions & Services will approve the policy. The insurance coordinator is available to assist students via email at ias-insurance@wmich.edu.

**Nontraditional Admission Programs**

**Non-degree Admission**

Students who do not seek a degree and only wish to take classes should request this admission status. Students who have been enrolled in any academic institution within the preceding five years must meet the same admission requirements and follow the same admission procedures as degree-seeking students. Acceptance for non-degree status does not constitute degree admission to WMU. If a non-degree admitted student subsequently decides to apply to a specific WMU degree program, the applicant will be expected to meet all University and program-specific admission requirements. The time period for any "Non-degree Admission" status may not exceed four years from the time such admission status is granted. Applicants for non-degree admission:

1. Should complete a regular application for admission and indicate non-degree status for program choice;  
2. May register for any course for which the prerequisites and/or course restrictions have been met; and
3. May enroll in subsequent terms for up to four years in non-degree status, providing they meet University probation and dismissal standards (see Academic Standards in the Registration, Records, and Regulations section of this catalog).

Certain University courses and financial aid may not be available to non-degree students.

Non-degree Undergraduate Certificate Program

Admission to an undergraduate certificate program is typically for students who are not seeking an undergraduate degree. Hence, applicants will obtain “Non-degree Admission.” Students seeking non-degree status who have been enrolled in any academic institution within the preceding five years must meet the same admission criteria as degree-seeking students.

Acceptance for non-degree status does not constitute degree admission to WMU. If a non-degree admitted student subsequently decides to apply to a specific WMU undergraduate degree program, the applicant will be expected to meet all University and program-specific admission requirements. The time period for any “Non-degree Admission” status may not exceed six years from the time such admission status is granted. Applicants for non-degree admission should:

1. Complete an Application for Undergraduate Admission along with a non-refundable application fee of $40;
2. Request that each academic institution attended within the preceding five years send an official transcript to the Office of Admissions;
3. Register for any course for which the prerequisites and/or course restrictions have been met; and,
4. Enroll in subsequent terms for up to six years in non-degree status, providing they meet University probation and dismissal standards.
5. Be a high school graduate or have earned the equivalent degree.

Certain University courses and financial aid may not be available to non-degree students. Courses taken for an undergraduate certificate program may be counted towards a subsequent WMU undergraduate degree program, if approved by the appropriate academic advisor and/or academic program unit.

If the requirements of an undergraduate certificate are embedded within the courses a student has taken to complete a degree program, a student must apply for the certificate at the time of graduation from the bachelor's degree. In the case where a student completes some of the requirements of an undergraduate certificate upon graduation, the student may return at a later date (in accordance with current University Policy), complete the requirements for the certificate and be awarded the certificate.

Individual certificate programs may allow transfer credits for no more than half the program.

Guest Students

Students who are currently in attendance and in good academic standing (at least a 2.0 grade point average) at another college or university may apply to Western Michigan University to take classes as a guest student. Guests should work with their home institution in advance to determine the appropriate classes to be taken at WMU. Guest admission does not constitute degree admission to WMU. Students seeking Guest status should use the guest application available from the Office of Admissions website www.wmich.edu/apply or their current institution.

High School Dual Enrollees

Students who wish to take courses at the University while still in high school should submit a High School Dual Enrollment application (available from the Office of Admissions or from the Office of Admissions website). Admission as a high school dual enrollment student does not constitute degree admission. Students who wish to continue their studies at WMU and apply for degree admission must meet regular admission standards.

Project Scope (Senior Citizens’ Opportunity Program in Education)

The following are the key features of the Senior Citizen's Opportunity in Education Program:

1. Senior citizens (persons 62 years of age or older) may qualify.
2. Enrollees may register in one regularly scheduled class, tuition free, each semester or session on a seat-available basis during the drop/add period (in the Office of the Registrar). The late registration fee is waived.

3. Enrollees may not register for credit.

4. Only academic facilities necessary for the performance in class are accessible to SCOPE participants. SCOPE enrollees do not have access to normal services available to regular students such as the Sindecuse Health Center, Student Recreation Center, student discounts, etc. Special identification cards are issues to SCOPE participants.

5. The admission application fee is waived because regular, degree-seeking admission is not extended to enrollees.

6. Special course fees for materials, trips, etc. are assessed.

7. Specific courses may not be available to SCOPE students due to space availability.

In the event the account is referred to a collection agency, the student will be responsible for any collection costs, collection fees, and collection charges and/or legal fees incurred in collecting the account balance (in addition to the fees assessed per #6 above).

Questions concerning current fee schedules should be directed to the Office of the Director of Accounting Services.

The Western Edge™

The Western Edge is a strategic plan for promoting student success and keeping the quality of education offered by WMU affordable. It reflects Western's commitment to building a culture that puts students first. There are four independent components to the Western Edge:

**Enhanced Academic Advising**
Enhanced academic advising will help move students smoothly and quickly through their degree programs.
http://www.wmich.edu/edge/enhanced-advising

**Accelerated Graduate Degree Programs**
Three year bachelors programs and five year bachelors-to-masters programs give student the opportunity to accelerate their time to degree as well as the opportunity to get ahead in their careers.
http://www.wmich.edu/edge/five-year-degree

**Degree Works**
Degree Works is a web based tool available to help students plan their plan to graduation. Degree Works brings WMU degree requirements and a students completed coursework together to provide a complete view of progress toward degree completion.
http://wmich.edu/registrar/students/degreeworks

**Career Edge**
The Career Edge gives students the opportunity to extend their education beyond the classroom by helping them develop the skills and competencies that will help them graduate career-ready.
http://www.wmich.edu/edge/career-edge

**Plan It 4-Ward**
WMU believes that every student should have 4 plans: Academic Plan, Career Plan, Financial Plan, and an Engagement Plan. These intersecting plans are used to facilitate the pursuit of a student's dreams. Students can jump start their Plan It 4-Ward by checking out the planning worksheet found online.
http://wmich.edu/firstyear/resources
Students are encouraged to select the components of the Western Edge that work best for them - we realize that no two students are the same. Some students will want to enjoy the benefits of all these components; others may want to select only those components that fit their current educational objectives.

For more information about the different components of the Western Edge, go to www.wmich.edu/edge
Tuition and Fees

For the current tuition and fee rates, go to www.wmich.edu/registrar/tuition/. These rates are subject to change without notice by action of the Board of Trustees.

Residency Policy of Western Michigan University

The governing board at each university in Michigan has the authority to establish a residency policy for admissions and/or tuition and fee purposes. Therefore, residency policies will vary between institutions and are independent of those used by the State to determine residency for purposes such as income and property tax liability, driving and voting.

Any Western Michigan University undergraduate student who has been admitted as a degree seeking student and began enrollment as of the Spring 2017 semester or earlier, may apply for in-state resident status for any semester/session in which they are enrolled in on-campus courses by completing a residency application in accordance with University procedure. Graduate students may apply for in-state resident status for any semester/session in which they are enrolled in on-campus courses by completing a residency application in accordance with university procedure.

Any Western Michigan University undergraduate student who has been admitted as a degree seeking student and began enrollment effective with the Summer 1 2017 semester or later, will have their residency status determined at the time of admission and it will remain the same throughout the student’s enrollment at Western Michigan University.

Any Western Michigan University undergraduate student who has been admitted as a degree seeking student and began enrollment effective with the Summer 1 2017 semester or later, will have their residency status determined at the time of admission and it will remain the same throughout the student’s enrollment at Western Michigan University. Since a student normally comes to Western Michigan University for the primary purpose of attending the University rather than to establish a domicile in Michigan, one who enrolls in the University as a non-resident shall continue to be deemed a non-resident, unless and until the student demonstrates that his/her previous domicile has been abandoned and a Michigan domicile established.

Domicile is defined as the place where an individual's true, fixed and permanent home and principle establishment is and to which the individual returns whenever absent from the University. Twelve consecutive months of physical presence immediately preceding the first day of classes is a strong indicator of domicile.

A. Residence of Student

A student may be considered domiciled in Michigan if the student is in continuous physical presence in this state for one year (12 consecutive months) immediately preceding the first day of classes of the term for which resident status is sought and intends to make Michigan his/her permanent home and has no domicile elsewhere. The year of continuous presence is never the only criterion used for determining in-state residency status and, by itself, will not qualify a student for residency status for tuition paying purposes at Western.

B. Residence of Parents

The domicile of a dependent student is presumed to be the same as that of the student's parents. Regardless of whether the parent is the student's custodial parent, a dependent student with one or both parents domiciled in Michigan, according to Western's Residency Policy, is presumed to be eligible for resident status as long as the student has not taken steps to establish a domicile outside of Michigan or any other action inconsistent with maintaining a domicile in Michigan.

The domicile of a dependent student's legal guardian(s) has the same evidentiary effect as that of a dependent student's parent(s), and references to parents in this policy shall include legal guardians, only when the student is the dependent of the legal guardian, and such guardianship has been established due to complete incapacity or death of the student's natural parent(s). A parent's inability to provide funds necessary to support a college education does not qualify as complete incapacity.
A dependent student who is living in Michigan and who is, according to Western's Residency Policy, permanently domiciled in Michigan would maintain resident status if the parents leave Michigan provided: (1) the student has completed at least the junior year of high school prior to the parent's departure; (2) the student remains in Michigan, enrolled as a full-time student in high school or an institution of higher education and (3) the student has not taken steps to establish a domicile outside of Michigan or any other action inconsistent with maintaining a domicile in Michigan.

C. Residence of Spouse

The residence of a student who otherwise would be classified as a non-resident will follow that of his/her spouse if the spouse qualifies as a resident for tuition-paying purposes.

D. Michigan High School Enrollment and Graduation

A Michigan high school graduate who completes his/her senior year at a Michigan high school, remains physically present in Michigan immediately following high school graduation to the first day of classes of the term in which the student is enrolled in on-campus courses, and provides the required State of Michigan tax documents of parent(s) or guardian(s) (for dependent student) or student (if independent) qualifies as a resident student for tuition and fee purposes at Western.

E. In-state Tuition for Military and Dependents

Western Michigan University will grant in-state tuition to all individuals who are eligible for VA educational benefits.

Western Michigan University will also grant in-state tuition to all individuals who are not eligible for VA educational benefits but have honorably served or are serving in the Reserve or Active Components of the U.S. Armed Forces.

Western Michigan University will additionally grant in-state tuition to dependents of those individuals who have honorable served or are serving in the Reserve or Active Components of the U.S. Armed Forces, but would otherwise not be eligible for VA educational benefits. For this purpose, a child is a dependent as defined by IRS income tax regulations. This term also includes a spouse, widow or widower of a service member or veteran who has honorably served.

F. Individuals Holding Visas

International students attending on a student visa of F1, J1, or M1 and H (work) visas are in Michigan on a temporary basis. By definition, these students are not able to establish a permanent domicile in Michigan and should not apply for Michigan resident tuition unless they qualify for residency under another provision of this policy such as residence of spouse.

Persons entitled to reside permanently in the United States may be eligible to obtain resident status. These individuals must still prove that they have established a Michigan domicile as defined in this policy. Currently, individuals will qualify under this classification only if they hold and can provide one of the following: 1) a fully processed Permanent Resident Alien Card or passport stamp verifying final approval by the filing deadline established for the applicable term 2) an I-94 card with "Refugee" designation; or 3) an A, E (primary), G or I visa.

G. Migrant Worker (Seasonal/Agricultural Employment)

If an independent student, or the parent of a dependent student, has been employed as a migrant worker in Michigan for a minimum of two (2) months each year for three (3) of the five (5) years prior to the date of the proposed in-state classification or for a minimum of three (3) months each year for two (2) of the five (5) years prior to the date of the proposed in-state classification, the student shall be classified as resident. Proof and verification of employment is required. A migrant worker in Michigan is defined as one who travels to Michigan to pursue agricultural or related industry employment.
H. In-State Tuition Rates Required by Law

Western Michigan University will comply with all state and federal laws that require a student to be classified as a Michigan resident for the purpose of tuition and fees.

I. Misrepresentation and Falsification of Information

Students who provide false or misleading information or who intentionally omit relevant information on their admissions application or the residency application or any other document relevant to residency eligibility may be subject to disciplinary and/or legal measures. Decisions made based upon misrepresented or falsified information may be revoked.

J. Appeal Process

Any student may appeal the decision on their residency application by following the prescribed appeal process. Failure to comply with the procedure shall constitute a waiver of all claims to reclassification or rebates for the applicable semester/session. The student will receive a written response on the appeal request. The decision on the residency appeal shall be the final recourse within the University.

K. Required Documentation

A student must provide the following documentation when applying for residency.

- A copy of their valid Michigan driver's license and a copy of the Michigan driver's license of the person(s) upon whom the applicant is basing the claim to resident eligibility.
- Verification of U.S. citizenship or of visa status if the applicant was born outside of the United States. This verification may be based upon information already provided by the student to the University through the admission process.
- Any other documentation requested by the University that is deemed necessary to support the applicant's claim to residency eligibility.

When applicable, applicants claiming in-state residency will be asked to provide documentation verifying the 12-month consecutive domicile requirement of Western's policy. Types of documentation that may be requested include proof of employment, proof of Michigan personal income taxes being withheld, copies of recent Michigan and federal tax returns and W2 or 1099 forms, and enrollment verification at a Michigan school, if applicable. Additional documentation may also be requested. The application procedure for residency specifies additional detail on the nature of documentation that is required. In addition, the documentation provided must apply to the person(s) upon whom the applicant is basing the claim to resident eligibility.

L. Initial Residency Classification

A student enrolling at Western for the first time shall be classified as a resident or non-resident for tuition paying purposes. The student is responsible for reading the Residency Policy and to register under the proper residency classification. Admissions reviews the residency classification at the time of application. If an application does not denote residency status, a status of non-resident will be assigned. If an applicant indicates Michigan residency on the admissions application and Admissions questions this status then the applicant will be classified as a non-resident. Additionally, if an applicant previously attended Western as a non-resident and reapplies for admission, he/she will be classified as a non-resident at the time of readmission. Questions raised regarding a student's Michigan residency do not necessarily mean that the student will be ineligible for in-state residency. It simply means that the student's circumstances must be documented by completing an application for a change in residency status.
M. Establishing a Michigan Domicile

The circumstances and activities described in sections A through H above may demonstrate Michigan domicile, though not conclusive or exhaustive, they may lend support to a claim of eligibility for resident status.

The following circumstances, standing alone, shall not constitute sufficient evidence of domicile to effect classification of a student as a resident under these regulations; however, they do provide some supporting evidence.

- A Michigan's driver license
- Enrollment in a Michigan educational institution
- Michigan employment
- Payment of Michigan income or property taxes
- Ownership of property in Michigan
- 12-month lease in Michigan
- Presence of relative(s) in Michigan (other than parent(s) for dependent student)

N. Administration of the Policy

The Office of the Vice President for Business and Finance will administer this policy and is authorized to establish procedures to effectuate and interpret the Residency Policy. The Vice President and Associate Vice President for Business and Finance may grant residency status based upon the use of professional judgment in applying this policy.

Residency Application Submission Dates

You must be registered for on-campus classes for the semester/session that you are applying for a change in residency status. Your application must include your WESTERN IDENTIFICATION NUMBER (WIN). Applications for residency reclassification for tuition-paying purposes must be received in the Accounts Receivable Office, Western Michigan University, 1903 W. Michigan Avenue, Kalamazoo, MI 49008-5210 according to the schedule below.

<table>
<thead>
<tr>
<th>Application for:</th>
<th>Earliest Date to Turn in Application:</th>
<th>Deadline Date to Turn in Application:</th>
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</thead>
<tbody>
<tr>
<td>Spring Semester</td>
<td>December 1</td>
<td>First Day of Classes</td>
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<tr>
<td>Summer I Session</td>
<td>April 1</td>
<td>First Day of Classes</td>
</tr>
<tr>
<td>Summer II Session</td>
<td>June 1</td>
<td>First Day of Classes</td>
</tr>
<tr>
<td>Fall Semester</td>
<td>August 1</td>
<td>First Day of Classes</td>
</tr>
</tbody>
</table>

Applications are generally processed within a three week time period. Incomplete information and/or lack of required documents could result in immediate denial and/or delay the processing of your application. All official actions concerning the review of your residency application for tuition-paying purposes will be sent to you at your WMU email address.

The application form and additional information are online at wyich.edu/accounting-services/receivable/index.html. Click on "For Students" and then select "Residency Classification Policy and Application" to access these documents. Frequently Asked Questions (FAQs) on the residency policy are at the same web site. To access, click on "FAQ" and then select the "Residency" tab toward the center of the page.

(Policy as approved 7/23/2010)

Auditing Courses, Tuition for

Students who audit courses (who register for classes but do not desire credit) are governed by the same regulations and tuition and fees as students desiring credit.
Drop, Withdraw and Tuition Refund Policy

Students who reduce their number of credit hours or withdraw from Western Michigan University may be eligible for a refund. The date for refund purposes will be determined based on the date when a course was dropped or withdrawn in GoWMU or the date the Registrar’s Offices received a request.

Students dropping a class before census are eligible to receive a 100% refund. There is a 24-hour grace period provided to students who drop a class that meets for the first time on, or after, census. Students who withdraw from all their classes after census may qualify for a 90%, 50% or 25% refund. The percentage is based on dates published in the Academic Calendar.

During fall and spring semesters, student who withdraw from some, but not all, of their classes may qualify for a 50% refund based on the dates published in the Academic Calendar. No refunds are available for partial withdraws after census during summer sessions.

Students who drop or withdraw from any or all classes and are eligible for a refund will receive the refund within 30 days of the drop or withdraw date. Withdrawing from classes may affect current and future financial aid, veteran benefits and academic standing. Please consult your academic advisor, Financial Aid counselor or your VA certifying official before reducing credit hours or withdrawing.

Complete Withdrawal from All Courses, Effect on Tuition

The Registrar’s website should be consulted for the refund policy that pertains to complete withdrawal, for a particular semester/session.

Students completely withdrawing from all classes must enter this information into GoWMU or by going to the Registrar's office during the official drop/add days in order to process their withdrawal and assure a refund. The withdrawal date for refund purposes will normally be determined by the date that the Registrar receives a withdraw request.

Students who are unable to access the registration system due to a hold on their account can withdraw in the Registrar's Office. If the student is not on campus, they can contact the Registrar's Office at (269) 387-4300 for assistance.

Student Fees Other Than Tuition

Admission Application Fee

A non-refundable fee of $40 must accompany each application for admission.

Admission Validation Deposit

Entering Students: A $100 deposit applicable to fall student fees is required for all admitted beginner and transfer students. The deposit must be paid by May 1 for those admitted before that date, and upon admission for those admitted after that date. The deposit is not refundable after May 1. Detailed information is provided on the Certificate of Admission from the Office of Admissions.

Class Fees

Some courses have class-specific fees for which the student will be responsible. These fees will be viewable on the course section or the course offerings page.
Collection Fees

In addition to the tuition and fees, in the event the account is referred to a collection agency, the student will be responsible for any collection fees, which may be based on a percentage at a maximum of 39% of the debt, and all costs and expenses, including reasonable attorney fees, that WMU incurs in such collection efforts.

Enrollment Fee

For all students registered in on-campus courses, the enrollment fee incorporates all required fees with the exception of the student organizations' assessment fee and the sustainability fee into a single per capita assessment. The enrollment fee for students registered in on-campus classes can be found on www.wmich.edu/registrar/tuition/

Extended University Programs Fees (effective fall 2013)

Regional Location Courses
A $20 per course technology fee will be assessed for courses taken at regional sites.

Online Education Courses
A $60 per credit hour support fee will be charged for all undergraduate students. Graduate students will be charged a $20 per course technology fee.

Students enrolled in a combination of courses on the main campus and online, who fall in the flat rate credit hour range, may see an adjustment on their account to reflect the flat rate (less the online support fee of $60/credit hour). The $20 per course EUP technology fee will not be charged for the undergraduate online courses.

Flight Instruction Fee
Fees for flight instruction courses in the College of Aviation range broadly. For specific course fee information, consult the College of Aviation.

Refund of flight instruction fees will be made in accordance with the policy established by the College of Aviation. For specific course fee information, consult the College of Aviation.

International Student Fee

International students will be charged a $25.00 fee each semester or $12.50 fee each session.

Late Add Fee

Students who are not registered for at least one class the day after census will be charged a late add fee of $100 per course. For the specific dates that this fee begins, look on http://www.wmich.edu/registrar.

Lee Honors College Program Fee

Lee Honors College students are assessed a Lee Honors College Program Fee of $100.00 per semester during the fall and spring semesters. This fee enables the Lee Honors College to offer additional honors-style courses, reduce the number of large classroom courses, and to attract the highest quality instructors.

Liability Insurance Fee

Students enrolled in courses requiring participation off-campus for field experience or practicums will be charged a liability insurance fee. This fee will be assessed each semester/session. Students registered in classes that require more than one type of liability insurance will be charged for each type one time.
Records Initiation Fee

A one-time fee of $300.00 is assessed for each entering (undergraduate, graduate, or transfer) student who is degree-seeking. This fee helps to subsidize the establishment of each student's official academic record at the University, and supports related activities such as integrated web course registration, online grade and program reviews, degree progress tracking, student accounts receivables, and the provision of an individual electronic portfolio that reflects the learning, educational growth, and personal accomplishments for each student.

Student Assessment Fee

A student assessment fee (SAF) of $42.00 per semester (Fall and Spring) and $21.00 per session (Summer I and Summer II) will be collected from all undergraduate and graduate students at the time of registration. This assessment is for the support of student organizations and agencies. The student organizations and agencies use this money to enhance the out of classroom experience on campus.

Sustainability Fee

In 2010 the Western Student Association (WSA) voted in favor of introducing a sustainability fund fee of $8.00 per semester and $4.00 per summer session. The funds are to be used to enrich course offerings, create student green jobs, support a Sustainability Office, support student-driven initiatives, and provide research grants, fellowships, scholarships and awards for students. A student-majority committee will work in consultation with the President's University-wide Sustainability Office and the Vice President of Student Affairs to determine the appropriate allocation process.

Transcript

Complete information on how to obtain a Western Michigan University transcript and transcript fees can be found at http://www.wmich.edu/registrar.

Residence Hall and Dining Fees

For current rates go to http://wmich.edu/housing

These fees and rates are subject to change without notice by action of the Board of Trustees. The Board of Trustees reviews annually the room and dining rates and may increase the rates if, in its opinion, such an increase is necessary.

Newly admitted undergraduate students are automatically sent information about residence hall offerings for the semester they anticipate coming to the University. Individuals returning to the University as re-entries, and newly admitted graduate students, will receive information by return mail upon requesting details from the Manager of Residence Hall Facilities, Student Services Building. Residence hall accommodations are not automatically made as a result of admission to the University.

Student Financial Aid

Financial assistance is available for those who qualify. At Western, we encourage every student to apply for Federal Financial Aid FIRST. Federal financial aid is the best, most cost-efficient way to pay for college. Financial aid comes in several forms. Your aid package may include a grant, which is "free money" you don't have to repay. It can also include work-study and federal student loans. Federal student loans offer the lowest interest rates and allow you to defer repayment. Your parents can also help with expenses by applying for a Federal Parent Loan for Undergraduate Students, or PLUS. This loan is another type of financial aid. Other types of financial aid may come from private sources.

The information in this section is based on the 2016-17 award year criteria. Should federal, state, or university regulations and procedures change, Student Financial Aid will administer programs according to updated regulations.
We are dedicated to meeting the needs of our diverse and talented campus community by providing excellent customer service in an accurate and timely manner through the use of advanced technology and a knowledgeable staff. To view the most current information about opportunities and application procedures, visit the Student Financial Aid website: www.wmich.edu/finaid. If you have questions, you may visit Bronco Express in the lower level of the Bernhard Center, email finaid-info@wmich.edu or call (269) 387-6000.

Types of Financial Aid

Grants

These financial aid programs provide free assistance to eligible undergraduate students.

Federal Pell Grant - provides grants up to $5,920 per academic year to eligible undergraduate students who have not obtained a bachelor's degree.

Federal Supplemental Educational Opportunity Grant (SEOG) - a federal grant with limited funding and is not repaid. Provides grants to eligible, undergraduate students who have not obtained a bachelor's degree. Funds are limited and the amount may vary.

Western Grant – based on financial need and provides grants up to $2,000 per academic year to eligible, undergraduate students.

Teacher Education Assistance for College and Higher Education (TEACH) - provides federally funded grants of $3,724 per academic year ($16,000 total for undergraduate programs) to full-time juniors and seniors who are enrolled in TEACH-eligible programs. In exchange for receiving a TEACH grant, students must agree to serve as a full-time teacher in a high-need field in a public or private elementary or secondary school that serves low-income students. As a recipient of a TEACH grant, students must teach for at least four academic years within eight calendar years of completing the program of study for which they received a TEACH grant. If students fail to complete the service obligation, all funds received from TEACH grants will be converted to a federal direct unsubsidized loan. Students must then repay this loan to the U.S. Department of Education. Students will be charged interest from the date the grants were disbursed.

Scholarships

Medallion Scholarships - The full Medallion Scholarship can be used toward graduate studies at WMU. For more details, visit: http://wmich.edu/medallion.

New Student Scholarships – awarded at the time of admission. All students are considered for these awards when they are admitted. Scholarships are based on full-time enrollment and are awarded for fall and spring semesters. For information and questions regarding these scholarships, please contact the Office of Admissions at (269) 387-2000, or visit http://wmich.edu/finaid/scholarships-grants/new-students.

Community College Competitive Transfer Scholarships – There are a variety of scholarship opportunities available to students who are transferring to WMU. For complete and up-to-date details, visit: http://wmich.edu/finaid/scholarships-grants/transfer.

WMU Scholarships for Currently Enrolled Students – For complete and up-to-date information about scholarship opportunities, please visit: http://wmich.edu/finaid/scholarships-grants.

Work-Study

College work-study is a need-based financial aid program funded by the Federal Government and Western Michigan University. It is awarded to eligible students who are enrolled at least half-time during the period of their employment. Unlike grants and scholarships, work-study awards are earned and paid through the payroll process in the form of a bi-weekly
paycheck. Work-study awards and amounts are subject to eligibility requirements and fund availability. Early application is very important. For more information, visit the work-study website: http://wmich.edu/finaid/workstudy.

Loans

These financial aid programs are designed to assist students, allowing them to borrow at a lower interest rate with opportunities to defer principal payments and possibly interest payments until after enrollments ends. Federal interest rates are subject to change and were current as of the time of publication.

Federal Perkins Loan - allows undergraduate and graduate students with unmet need to borrow funds on an annual basis with an interest rate of 5 percent. The annual amount ranges up to $5,500 per academic year for undergraduate students. Interest and principal payments are deferred as long as a student is enrolled at least half-time. Repayment of the loan plus interest begins nine months after the student ceases to be enrolled at least half-time.

Federal Direct Subsidized (FDS) Loan - allows undergraduate students with financial need to borrow funds on an annual basis with a fixed interest rate of 3.76 percent. The annual amount is dependent upon cost of attendance, expected family contribution, grade level, and other resources received. Payments are deferred as long as a student is enrolled at least half-time. Borrowers pay an origination fee of 1.069 percent that is deducted from each disbursement. Repayment of the loan plus interest begins six months after the student ceases to be enrolled at least half-time.

Federal Direct Unsubsidized (FDU) Loan - allows undergraduate and graduate students to borrow funds on an annual basis with a fixed interest rate of 3.76 percent. The annual amount is dependent upon cost of attendance, grade level, and other resources received. Interest accrues while the student is enrolled in school and the student has the option of paying the interest payments or letting the interest payments be added to the loan amount. Loan principal payments are deferred as long as a student is enrolled at least half-time. Borrowers pay an origination fee of 1.069 percent that is deducted from each disbursement. Repayment of the loan plus interest begins six months after the student ceases to be enrolled at least half-time.

Federal Direct Parent Loan (PLUS) - not based on need and allows parents of dependent students to borrow funds on an annual basis with a fixed interest rate of 6.32 percent. The annual amount is dependent upon cost of attendance and other resources received. Repayment of interest and principal payments are due within 60 days of the last disbursement of the loan. Deferment options are available by contacting the Direct Loan servicer. Borrowers pay an origination fee of 4.276 percent that is deducted from each disbursement. Borrowers must pass a credit check. Dependent students whose parents have been denied a PLUS loan due to an adverse credit history may borrow additional FDU loan funds.

Private Alternative Loans – available through a variety of private loan programs. These loans supplement financial aid. Each program will vary. For more information about how to choose a private loan lender, see our website: http://wmich.edu/finaid/loans/private.

Procedures

Applying for Financial Aid

To receive any federal aid, most state aid, and WMU need-based grants, you will need to complete the Free Application of Federal Student Aid (FAFSA) which can be found online at fafsa.ed.gov. Remember, you MUST reapply each year to receive aid. Some aid programs have limited funding, so be sure to apply early. You can apply for the upcoming year beginning October 1. The FAFSA-filing deadline to qualify for Michigan state aid is March 1. When completing FAFSA, please enter school code 002330 when prompted to make sure we receive your information. Some scholarships require FAFSA to be complete by February 15. Other types of aid are awarded until funds are exhausted, so apply as early as possible. Returning students should file a renewal FAFSA each year as well.

The FAFSA gathers income, asset and other information from the parents and the students. This information is used to establish the student’s Expected Family Contribution (EFC). The EFC determines a student’s need-based eligibility versus the estimated cost of attendance (COA). The COA is based on tuition, fees, books, supplies, housing, food, transportation and
personal expenses. Financial aid may be awarded up to the cost of attendance. The amount of need-based aid may be affected by other financial aid resources. The cost of attendance, net price calculator and a personal budget worksheet can be found on our website at http://wmich.edu/finaid/costs.

Along with the FAFSA, other documents and processes may be required before an award notice or payment is processed. Notification of these additional requirements will be emailed to students through their WMU email address. Students may also check on the status of their financial aid online through GoWMU at any time.

**Awarding Process**

Student Financial Aid automatically considers applicants for all types of federal, state and institutional grants, work-study, and loans. Any scholarships, stipends, or other resources will be assessed first before awarding need-based financial aid. Additional eligibility factors will be considered in determining the type and amount of aid in the award package.

In general, the eligibility factors that are reviewed include citizenship, residency, class and grade level, enrollment hours, semesters of enrollment, degree status, default status, academic merit and satisfactory academic standing.

Most financial aid programs require a minimum enrollment equivalent of half-time. Awards are initially based on full-time enrollment; however, payments to the student’s account will be based on actual enrollment.

Any additional resources, changes to funding or regulations may affect a student's financial aid awards. If the information received affects student's financial aid awards, a revised award letter will be emailed to the student’s WMU email address.

**Payment Process**

Disbursement of financial aid payments to a student’s WMU account begin as early as 10 days before the beginning of the semester, if all requirements have been met. Payments are disbursed based upon program eligibility requirements and enrollment. Payments will be applied to tuition, fees, housing, food and other authorized charges. Any excess funds remaining will be refunded to students (or parents if requested for the Parent PLUS loan) via direct deposit or a mailed check. For complete details on the refund policy and procedures, please visit http://wmich.edu/finaid/costs/payments.

**Maintenance Requirements**

In accordance with federal and state regulations, Student Financial Aid must monitor academic progress toward graduation. Standards of satisfactory academic progress are applied to all students who wish to establish or maintain financial aid eligibility at Western Michigan University, regardless of whether or not they have received financial aid funds in the past. SAP is monitored term by term. Students must:

1. Complete at least 67 percent of attempted hours at WMU.
2. Maintain a minimum 2.00 cumulative grade point average by the end of the second academic year as an undergraduate.
3. Complete all degree requirements (this includes credit hours transferred to WMU) within 150% of the minimum numbers of credits to graduate (i.e. 122 minimum x 150% = 183 credits).

The standards are established to encourage students to progress toward their educational objective and complete their degree within a reasonable time frame and with the least amount of loan debt. If the standards are not met, students are not eligible for most types of financial aid. Students who lose financial aid eligibility and who have experienced unusual circumstances may submit a written appeal with the documentation to Student Financial Aid to be considered by an appeal committee.
Withdrawing or Dropping from Courses

Financial aid recipients considering a partial or complete withdrawal should discuss their plans with a financial aid counselor first. Make an appointment by calling Bronco Express, (269) 387-6000.

Financial aid recipients who drop some classes during the drop/add period (or indicate having never attended some classes) may lose some or all financial aid eligibility. Financial aid recipients who drop all classes prior to the start of the semester (or having never attended any classes) are no longer eligible for financial aid for that semester. All scholarship, grant and loan payments and refunds of financial aid must be returned to Western Michigan University.

A federal financial aid recipient who completely withdraws from all classes after the beginning of the semester will have the amount of federal aid earned up to that point determined by a specific formula. If more federal aid was received than earned, the excess aid must be returned. The amount of federal aid earned is determined on a pro-rata basis. For example, if 30 percent of the semester is completed, then 30 percent of the federal aid is earned. Once a student has completed more than 60 percent of the semester, all of the federal aid is earned.

Admittance Status

Students must be admitted to a degree-seeking program or an eligible certificate program to receive most types of financial aid. Students who are admitted to WMU in a non-degree program are not eligible for federal or state financial aid programs but may be eligible for other types of financial aid such as alternative loans.

Eligibility

A student who wants financial aid must meet certain eligibility requirements. The student must be a regular admitted, degree-seeking student enrolled in courses at WMU. Once the student has completed degree requirements, he is no longer eligible for aid. Guest students are not eligible. Certificate programs are not eligible, except for the Specialty Program in Alcohol and Drug Abuse. Students who are completing hours for professional teacher certification are eligible for undergraduate loans.

International Students

International students are not eligible for federal or state aid. There may be scholarships or grants available through WMU departments. International students may also be eligible for an alternative loan if a U.S. citizen who is credit-worthy is willing to co-sign the loan.

Consumer Information

As a consumer, students have the right to certain disclosures and information per federal regulations. Students may view a list of rights and responsibilities, as well as other consumer disclosures related to financial aid on our website: http://wmich.edu/finaid/resources/consumerinfo. A request for printed information may be submitted in writing to:

WMU Student Financial Aid
1903 W. Michigan Avenue
Kalamazoo, MI 49008-5337
Degrees

The Board of Trustees, on recommendation of the Faculty and President of Western Michigan University, confers the following degrees:

Baccalaureate Degrees

Bachelor of Arts
Bachelor of Business Administration
Bachelor of Fine Arts
Bachelor of Music
Bachelor of Musical Arts
Bachelor of Science
Bachelor of Science in Engineering
Bachelor of Science in Nursing
Bachelor of Social Work

Graduate Degrees

Master of Arts
Master of Business Administration
Master of International Development Administration
Master of Fine Arts
Master of Music
Master of Public Administration
Master of Public Health
Master of Science
Master of Science in Accountancy
Master of Science in Engineering
Master of Science in Medicine
Master of Science in Nursing
Master of Social Work
Specialist in Education
Doctor of Audiology
Doctor of Education
Doctor of Philosophy

Undergraduate Majors

Majors by College

College of Arts and Sciences:

Students selecting a communication or psychology program will be placed in the "Pre-Communication" (CMUP) or "Pre-Psychology" (PRPP) program respectively until requirements have been met. See the Department of Communication or Department of Psychology section for complete information on admission requirements.

AASJ  American and African Studies
ANTJ  Anthropology
MAAJ  Applied Mathematics
BCHJ  Biochemistry
BYLJ  Biology
Coordinate Majors: (These are majors to be selected only along with a standard major.)
ESSJ Environmental and Sustainability Studies

College of Aviation:

Students selecting the Flight Science major in the College of Aviation will be placed in the "Pre-Flight Science program (PRFL)" until requirements have been met. See the College of Aviation section for complete information on admission requirements.

AFSJ Aviation Flight Science
MTCJ Aviation Maintenance Technology
AMOJ Aviation Management and Operations

Haworth College of Business:

Students selecting the Business Administration program will be placed in the "Pre-Business Administration" (PRBA) program until requirements have been met. See the Haworth College of Business section for complete information on admission requirements.

ACTJ Accountancy
ADVJ Advertising and Promotion
BUAJ Business Analytics
LAWJ Business Law
CMIJ Computer Information Systems
ECBJ Economics
EBMJ eBusiness Marketing
ENTJ Entrepreneurship
FINJ Finance
FMKJ Food and Consumer Packaging Goods Marketing
FNPJ Personal Financial Planning
HIBJ Health Informatics and Information Management
HRMJ Human Resource Management
ISUJ Integrated Supply Management
MGTJ Management
MKTJ Marketing
SBMJ Sales and Business Marketing
**College of Education and Human Development:**

Students selecting teacher certification programs/majors will be placed in one of the "Pre-Education" programs until requirements have been met. See the College of Education and Human Development section for complete information on admission and program requirements.

Students selecting Occupational Educational Studies will be placed in the "Pre-Occupational Studies" (PROE) major until requirements have been met.

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<tr>
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<tr>
<td>MHEJ</td>
<td>Elementary/Middle School Mathematics</td>
</tr>
<tr>
<td>ESEJ</td>
<td>Elementary/Middle School Social Studies</td>
</tr>
<tr>
<td>EPEJ</td>
<td>Elementary Professional Education Program</td>
</tr>
<tr>
<td>ENSJ</td>
<td>English, Secondary Education</td>
</tr>
<tr>
<td>PXDJ</td>
<td>Exercise Science</td>
</tr>
<tr>
<td>FSDJ</td>
<td>Family Studies</td>
</tr>
<tr>
<td>FCSJ</td>
<td>Family and Consumer Sciences Teacher Education, (Secondary)</td>
</tr>
<tr>
<td>FDDJ</td>
<td>Fashion Merchandising and Design: Design and Development</td>
</tr>
<tr>
<td>FMEJ</td>
<td>Fashion Merchandising and Design: Merchandising</td>
</tr>
<tr>
<td>FOSJ</td>
<td>Food Service Operations and Sustainability</td>
</tr>
<tr>
<td>FHSJ</td>
<td>French: Secondary Education</td>
</tr>
<tr>
<td>GRSJ</td>
<td>German: Secondary Education</td>
</tr>
<tr>
<td>CHDJ</td>
<td>Health Education, Community</td>
</tr>
<tr>
<td>HESJ</td>
<td>Health Education, School, (Secondary)</td>
</tr>
<tr>
<td>HYSJ</td>
<td>History: Secondary Education</td>
</tr>
<tr>
<td>IDDJ</td>
<td>Interior Design</td>
</tr>
<tr>
<td>TNSJ</td>
<td>Industrial Technology Education, Non-Vocational (Secondary)</td>
</tr>
<tr>
<td>TVSJ</td>
<td>Industrial Technology, Vocational (Secondary)</td>
</tr>
<tr>
<td>LTSJ</td>
<td>Latin: Secondary Education</td>
</tr>
<tr>
<td>MHSJ</td>
<td>Mathematics: Secondary Education</td>
</tr>
<tr>
<td>OEUJ</td>
<td>Occupational Education Studies</td>
</tr>
<tr>
<td>PDEJ</td>
<td>Physical Education, Teacher/Coach</td>
</tr>
<tr>
<td>PHSJ</td>
<td>Physics: Secondary Education</td>
</tr>
</tbody>
</table>
PSSJ Political Science: Secondary Education
RCMJ Recreation: Recreation Management
RCSJ Recreation: Sport Management
SKSJ Secondary Education in Marketing
ISSJ Secondary Integrated Science Education
SLSJ Social Studies: Secondary Education
SPSJ Spanish: Secondary Education
SELJ Special Education and Elementary Education: Learning Disabilities and Emotional Impairments K-12

**College of Engineering and Applied Sciences:**

Students selecting engineering programs will be placed in a "Pre-Engineering" (PREG) program until requirements have been met. See the College of Engineering and Applied Sciences section for complete information on admission and program requirements.

ASPJ Aerospace Engineering
CHGJ Chemical Engineering
CIVJ Civil Engineering
CEGJ Computer Engineering
CENJ Construction Engineering
CSIJ Computer Science
EENJ Electrical Engineering
EDTJ Engineering Design Technology
UEMJ Engineering Management Technology
GPRJ Graphic and Printing Science
IEEJ Industrial and Entrepreneurial Engineering
MFTJ Manufacturing Engineering Technology
MEGJ Mechanical Engineering
PPRJ Paper Engineering

**College of Fine Arts:**

Students selecting Graphic Design will be placed in the Art major until requirements have been met. See the Art section for complete information on admission requirements. Students selecting any other Fine Arts major will be placed in a pre-program until requirements have been met. See the departmental section for complete information on admission requirements.

MUAJ Applied Music
ARTJ Art, B.A. program
ARFJ Art, B.F.A. program
AEFJ Art Education
ARSJ Art Education, Secondary
AHIJ Art History
DACJ Dance, B.A. program
<table>
<thead>
<tr>
<th>Code</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAFJ</td>
<td>Dance, B.F.A. program</td>
</tr>
<tr>
<td>GDFJ</td>
<td>Graphic Design, B.F.A. program</td>
</tr>
<tr>
<td>MATJ</td>
<td>Multimedia Arts Technology - Music</td>
</tr>
<tr>
<td>MSCJ</td>
<td>Music</td>
</tr>
<tr>
<td>MSMJ</td>
<td>Music: BMA Degree</td>
</tr>
<tr>
<td>MUCJ</td>
<td>Music Composition</td>
</tr>
<tr>
<td>MCSJ</td>
<td>Music Education, Choral/General, Secondary</td>
</tr>
<tr>
<td>MISJ</td>
<td>Music Education, Instrumental, Secondary</td>
</tr>
<tr>
<td>MUIJ</td>
<td>Music Performance: Instrumental</td>
</tr>
<tr>
<td>MUJJ</td>
<td>Music Performance, Jazz Studies</td>
</tr>
<tr>
<td>MUKJ</td>
<td>Music Performance: Keyboard</td>
</tr>
<tr>
<td>MUVJ</td>
<td>Music Performance: Vocal</td>
</tr>
<tr>
<td>MUYJ</td>
<td>Music Therapy</td>
</tr>
<tr>
<td>MTFJ</td>
<td>Music Theatre Performance</td>
</tr>
<tr>
<td>APDJ</td>
<td>Product Design</td>
</tr>
<tr>
<td>TACJ</td>
<td>Theatre: Acting</td>
</tr>
<tr>
<td>TDTJ</td>
<td>Theatre, Design and Technical Production, B.F.A. program</td>
</tr>
<tr>
<td>TSMJ</td>
<td>Theatre, Stage Management, B.F.A. program</td>
</tr>
<tr>
<td>TSTJ</td>
<td>Theatre, Theatre Studies</td>
</tr>
</tbody>
</table>

**College of Health and Human Services:**

Students selecting any Health and Human Services program will be placed in a "Pre-Program" until all requirements have been met [i.e., Pre-Interdisciplinary Health Services (PRIH), Pre-Nursing (PRNG or PRPR), Pre-Occupational Therapy (PROT), Pre-Social Work (PRSW), and Pre-Speech Pathology and Audiology (PRSA)]. See the College of Health and Human Services sections for complete information on admission requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIHJ</td>
<td>Health Informatics and Information Management</td>
</tr>
<tr>
<td>HSAJ</td>
<td>Interdisciplinary Health Services, Audiology</td>
</tr>
<tr>
<td>HSOJ</td>
<td>Interdisciplinary Health Services, Occupational Therapy</td>
</tr>
<tr>
<td>HSVJ</td>
<td>Interdisciplinary Health Services</td>
</tr>
<tr>
<td>NURJ</td>
<td>Nursing</td>
</tr>
<tr>
<td>RNNJ</td>
<td>Nursing, RN Progression Track</td>
</tr>
<tr>
<td>PBHJ</td>
<td>Public Health</td>
</tr>
<tr>
<td>SPNJ</td>
<td>Speech Pathology and Audiology</td>
</tr>
<tr>
<td>SWKJ</td>
<td>Social Work</td>
</tr>
</tbody>
</table>

**Extended University Programs:**

Specific information about the programs listed below may be found in the Extended University Programs section of this catalog.

<table>
<thead>
<tr>
<th>Code</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>STCJ</td>
<td>Student Planned Curriculum</td>
</tr>
<tr>
<td>UNSJ</td>
<td>University Studies</td>
</tr>
</tbody>
</table>
Other Curricula:

- GST  Guest Student
- HSG  High School Guest
- NDU  Non-degree, Undergraduate
- SCP  S.C.O.P.E.
- UNV  Undecided, University Curriculum

Students not selecting a curriculum will be placed in the Undecided, University Curriculum (UNV) program until a selection can be made. Students are encouraged whenever possible to select a specific curriculum.

First-Year Experience Programs

Dr. Toni Woolfork-Barnes, Director
Seibert Administration Building
(269) 387-2167

The First-Year Experience (FYE) programs are learner-centered programs designed to reinforce and foster a learning environment that fully engages students academically and socially in ways that encourage student persistence and retention through graduation from Western Michigan University. The FYE Seminar, described below, is the credit portion of the FYE program for new, first-time, first-year and transfer students.

The purpose of the FYE Seminar is to develop an intellectually engaged and socially integrated first-year student. This will greatly enrich academic and campus life and help to positively impact university retention. The FYE Seminar is restricted to first-year, first-time students only, and has no prerequisites. The FYE Seminar will be offered fall and spring semesters of the academic year.

First-Year Experience Course (FYE)

FYE 2100 First-Year Seminar
The First-Year Experience Seminar is designed to help students develop a sense of responsibility for their own education and learning. This seminar will introduce students to University resources and will provide support during the first and second semester of transition to the University. Taught in a small group setting, students will interact with a faculty/staff member and a student leader either once or twice a week. The FYE 2100 Seminar will include weekly class meetings, sharing a common reading and research experience, project-based assignments, written assignments, service-learning and attendance at selected University events. The importance of writing skills, critical thinking skills, communication skills, and study skills will be emphasized, as well as exploration of major and career opportunities. FYE 2100 will be offered during fall and spring semesters and is restricted to freshmen and transfer students. Students will earn a letter grade for this course.  2 hours

University Curriculum

Randy Ott, Director
1260 Ellsworth Hall
(269) 387-4410
University Curriculum/Exploratory Advising provides first-year students who wish to explore academic and career options with advising, assessment, and referral services designed to help them select a curriculum. The program is designed with sensitivity to students' developmental as well as academic needs.

Students in the University Curriculum/Exploratory Advising are assigned advisors who are specialists in academic planning, human development, and career planning. Help is provided for course selection, academic program planning, interpreting skills and interest assessments, exploring academic and career alternatives, and establishing goals.

In addition to academic advising and career counseling, opportunities available for students include:

- Career Exploration and Career Resource Center
- Skills and Interest Assessments
- Specially-designed freshman curriculum options suited to skills and interests.

University Courses (UNIV)

**UNIV 1010  Freshman Seminar**
This course is designed to assist students to encounter experientially, intellectually, and emotionally the various avenues of learning, and to foster the academic, personal, social, and career development of each student. The activities and assignments of the course aid students in the development of an intellectual awareness and provide the skills and self-management required for a successful transition from high school to the University. The course is intended to excite students about learning and living in the new and challenging world of Western Michigan University. *For freshmen only.* 1 to 3 hours

**UNIV 1020  Career Exploration and Development**
This course is designed to help students through the career development process by assessing and developing skills in self-awareness, career awareness, decision-making, and planning. It will include activities to identify and explore the following areas: values, interests, career information, decision-making, University resources, and the world of work. Assignments will involve taking a career assessment, written exercises, networking, resume development and career research. 1 hour

**UNIV 1030  Special Topics within Academic Success**
UNIV 1030 is open only through instructor or department approval. The department overseeing UNIV 1030 will be the Center for Academic Success Programs. Courses will vary by topic and be chosen based on student need. The goals of the course will range from academic preparation for special populations, academic improvement, career exploration and skill building. 1 to 3 hours

**Undergraduate Certificate Programs**

An undergraduate certificate is awarded for the satisfactory completion of a non-degree undergraduate program designed around a narrow, applied, and coordinated curriculum with a professional focus. Any new course that is developed for an undergraduate certificate program must be approved through the curriculum process. An undergraduate certificate program may be either multidisciplinary or uni-disciplinary in organization and may be taken separately or in conjunction with an undergraduate degree program. The undergraduate certificate is not an award of license, accreditation, or certification to render professional services; rather, it signifies that a student has satisfactorily completed an approved undergraduate certificate program curriculum. Certificates generally focus on necessary professional training requirements in a specific area of study and may serve as enhancements to existing undergraduate degree programs. Certificate programs will normally range from a minimum of 15 hours to a maximum of 24 credits/semester hours. However, individual certificate programs may exceed these boundaries commensurate with the breadth and depth of the program's topic (e.g., the needs of the intended professional training).

**Delivery Methods**
Undergraduate certificates may consist of traditional instruction, hybrid, or fully online instruction. Applicants should check with their academic advisor or program director of the academic unit for specific information regarding delivery methods in their choice of certificate programs.
Pre-Professional Programs

Every professional school has prescribed the nature and amount of academic work to be completed as a prerequisite to the professional training for a particular vocation. Four years of higher education are generally required by most professional schools for entrance. Western Michigan University is able to offer its students courses of study that meet the requirements for this pre-professional training. It should be noted, however, that the courses outlined are only suggested plans to illustrate in general the kinds of programs that pre-professional students should follow.

In every case, students should plan their course of study according to the requirements of the school to which they plan to attend for professional training.

It cannot be emphasized too strongly that the student should exercise care to make certain that the specific requirements of a particular school will have been met.

Pre-Health

Pre-Health Advisors
Tammi Smith, Coordinator
Jacquelyn Bizzell
Kerrie Jo Harvey
College of Arts and Sciences Academic Advising Office
2318 Friedmann Hall
(269) 387-4366
www.wmich.edu/arts-sciences/advising/pre-health

The College of Arts and Sciences offers several Pre-Health Professions designations including Pre-Medical, Pre-Dental, Pre-Pharmacy, Pre-Optometry, Pre-Chiropractic, Pre-Physical Therapy, Pre-Physician Assistant, Pre-Veterinary. These designations are definitely not majors, per se…rather they are themes to a student’s degree. They are the ultimate career plan that a student may have.

Most Pre-Health Professions students at Western Michigan University major in biomedical sciences or biochemistry, but any major may be pursued, provided that the basic science and other admission requirements are met. Regardless of the major chosen, the Pre-Health Professions student should take the minimal required courses listed below. All science courses require laboratory work. Some health professions schools require one course in psychology and one in sociology or anthropology. Some also require course(s) in calculus and biochemistry.

Detailed guides for Pre-medicine and Pre-dentistry are available at the College of Arts and Sciences website: www.wmich.edu/arts-sciences/advising/pre-health. There are additional guides being written for the other Pre-Health professions listed above and should be uploaded to that website soon.

Students should meet with a Pre-Health advisor on a regular basis for guidance on making a plan to complete admission requirements, be ready to take required admission tests, and apply for admission by the end of their junior year.

Required Core

1. General Chemistry (CHEM 1100/1110 and 1120/1130).
2. Organic Chemistry (CHEM 3750/3760 and 3770/3780).
3. General Biology (BIOS 1600, BIOS 1610, BIOS 1620).
4. Two advanced Biology courses (BIOS 2500 and 3500 are recommended).
5. General Physics (PHYS 1130/1140 and 1150/1160 or 2050/2060 and 2070/2080).
6. Two semesters of English (ENGL 1050 and 1100 or 3050 or 3060).
7. Critical Thinking skills (PHIL 2200 or PHIL 2250).
Pre-Law
Pre-Law Advisors
Lindsey Millet
Thomas Mills
College of Arts and Sciences Academic Advising Office
2318 Friedmann Hall
(269) 387-4366
www.wmich.edu/arts-sciences/advising/pre-law

Though law schools do not require a specific major or degree program, they do recommend completion of an academically rigorous four-year bachelor's degree program. Courses in critical analysis, logical reasoning, and written and oral communication can be found in a number of majors. Some typical majors are English, business, political science, and history, but other disciplines can also be suitable majors. Pre-law students should discuss possible majors and major/minor combinations with their advisor to determine which one best suits them. It is very important that Pre-law students see their advisor on a regular basis for curriculum guidance.

Courses with a strong writing or oral communication component are ideal preparation, as are courses that require legal reasoning, like business law and constitutional law. Courses that allow the student a broader understanding of the structure and processes of government (such as national government, the legal environment, and judicial processes) are also valuable, as are those that focus on the American historical experience.

Students interested in pursuing the further study of law should see a Pre-law advisor as early as possible to select a curriculum.
Accreditation

University Accreditation

Western Michigan University is accredited by the Higher Learning Commission, 230 South LaSalle Street, Suite 7-500, Chicago, IL, 60604-1411; Web site: www.hlcommission.org; Telephone: 800-621-7440.

Disclosure of Academic Program Accreditation and Certification Status

The Professional Education Unit at Western Michigan University is accredited by the Council for the Accreditation of Educator Preparation, http://www.caepnet.org. This accreditation covers:

- baccalaureate programs for preparation in art education (B.F.A. program); elementary professional education; elementary middle school integrated science, language arts, math, and social studies; family/consumer sciences teacher education; health education: school; industrial technology; music education (B.M. program); occupational education studies; secondary education; and special education and elementary education: LD and EI K-12; at the Kalamazoo and Southwest locations;
- graduate certificate in English as a second language teacher education at the Kalamazoo locations;
- master's programs in art education, career and technical education; counselor education (concentration in school counseling); educational foundations; educational leadership; English teaching; literacy studies; mathematics education; music education; physical education; practice of teaching; science education; special education; the practice of teaching; and teaching at the Kalamazoo, Battle Creek, Grand Rapids, Muskegon, Southwest, and Traverse City locations; master's programs in art education, career and technical education, physical education, and science education and are also offered through online education;
- master's programs in education, career and technical education, physical education, and science education offered through online education;
- educational specialist program in educational leadership at the Kalamazoo and Grand Rapids locations; and
- doctoral programs in educational leadership, mathematics education, science education, and special education at the Kalamazoo and Grand Rapids locations.

However, the accreditation does not include individual education courses that the institution offers to P-12 educators for professional development, relicensure, or other purposes.

The B.S.E. programs in aerospace, chemical, civil, computer, construction, electrical, industrial and entrepreneurial, mechanical, and paper engineering are accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

All baccalaureate programs in art, art education, art history, and graphic design, and M.A. in Art Education are accredited by the National Association of Schools of Art and Design.

The B.S. in Athletic Training (professional program) is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The program has been placed on Probation as of February 19, 2016 by the CAATE, 6850 Austin Center Blvd, Suite 100, Austin, TX 78731-3101.

The B.S. in Aviation Flight Science is accredited by Aviation Accreditation Board International (AABI) under the Flight Education criteria, as well as certified by the Federal Aviation Administration as an FAA Part 141 Flight School and licensed by the State of Michigan Department of Transportation. The B.S. in Aviation Maintenance Technology is accredited by Aviation Accreditation Board International (AABI) under the Aviation Maintenance criteria, as well as certified by the Federal Aviation Administration as a FAA Part 147 Aviation Maintenance Training School. The B.S. in Aviation Management and Operations is accredited by Aviation Accreditation Board International (AABI) under the Aviation Management criteria.

The M.A. in Psychology (concentration in behavior analysis) and the Ph.D. in Psychology (concentration in behavior analysis) are accredited by the Association for Behavior Analysis International. (The Association for Behavior Analysis International is not recognized by the Council for Higher Education Accreditation or the U.S. Department of Education.)
All B.B.A. and M.B.A. programs in the Haworth College of Business are accredited by the Association to Advance Collegiate Schools of Business International. In addition, the The B.B.A. and M.S.A. programs in accountancy are accredited by the Association to Advance Collegiate Schools of Business International – Accounting Accreditation.

The Center for English Language and Culture for International Students (CELCIS) at Western Michigan University is accredited by the Commission on English Language Program Accreditation (CEA) for the period 2016 through 2025 and agrees to uphold the CEA Standards for English Language Programs and Institutions. CEA is recognized by the U.S. Secretary of Education as a national accrediting agency. For further information about this accreditation, please contact the Commission on English Language Program Accreditation, 801 N. Fairfax St., Suite 402A, Alexandria, VA 22314, (703) 519-2070, www.cea-accredit.org.

The Ph.D. in Psychology (concentration in clinical psychology) is accredited by the Commission on Accreditation, American Psychological Association, c/o Office of Program Consultation and Accreditation, 750 First Street NE, Washington, DC 20002-4242, (202) 336-5979.

The M.A. in Coaching Sport Performance is accredited by the National Council on Accreditation of Coaching Education. (The National Council on Accreditation of Coaching Education is not recognized by the Council for Higher Education Accreditation or the U.S. Department of Education.)

The M.A. in counselor Education (concentrations in clinical mental health counseling, college counseling, and school counseling), as well as the Ph.D. in Counselor Education, are accredited by the Council for Accreditation of Counseling and Related Educational Programs.


The Ph.D. in Counseling Psychology is accredited by the Commission on Accreditation, American Psychological Association, c/o Office of Program Consultation and Accreditation, 750 First Street NE, Washington, DC 20002-4242, (202) 336-5979.

The baccalaureate programs in dance are accredited by the National Association of Schools of Dance.

The B.S. in Dietetics and the dietetic internship-non-degree program are accredited by the Accreditation Council for Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics.

The B.S. programs in engineering design technology, engineering management technology, and manufacturing engineering technology are accredited by the Engineering Technology Accreditation Commission ETAC of ABET, http://www.abet.org.

The B.S. in Fashion Merchandising and Design (concentrations in design and development, and merchandising) is accredited by the National Association of Schools of Art and Design.


The B.S. in Interior Design is accredited by the Council for Interior Design Accreditation, www.accredit-id.org, 206 Grandville Avenue, Suite 350, Grand Rapids, MI, 49503-4014, and by the National Association of Schools of Art and Design. It is also accredited by the National Association of Schools of Art and Design. Western Michigan University is certified for metal casting by the Foundry Educational Foundation (FEF).

The baccalaureate programs in composition, music, music education, music performance, and music therapy, and the M.M. in Music (concentrations in composition, conducting, music, music education, music performance, and music therapy) are accredited by the National Association of Schools of Music.

The Bachelor of Science in Nursing (B.S.N.) and Master of Science in Nursing (M.S.N.) are accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202) 887-6791.

The M.S. in Occupational Therapy, offered in Kalamazoo and Grand Rapids, is accredited by the Accreditation Council for
Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 4720 Montgomery Lane, Suite 200, Bethesda, MD 20814-3449. ACOTE's telephone number c/o AOTA is (301) 652-2682. The Master of Science in Medicine (M.S.M.) in Physician Assistant is accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc. located at 1200 Findley Rd., Suite 150, Johns Creek, GA 30097. The Master of Public Administration (M.P.A.) is accredited by the Network of Schools of Public Policy, Affairs, and Administration.
The M.A. in Counselor Education: Rehabilitation Counseling is accredited by the Council on Rehabilitation Education, Inc.
The Bachelor of Social Work (B.S.W.) and Master of Social Work (M.S.W.) are accredited by the Council on Social Work Education.
The master's education program in speech-language pathology and the doctoral education program in audiology at Western Michigan University are accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association, 2200 Research Boulevard #310, Rockville, Maryland 20850, 800-498-2071 or 301-296-5700. The M.A. in Family and Consumer Sciences (emphasis in Textile and Apparel Studies) is accredited by the National Association of Schools of Art and Design.
The baccalaureate programs in theatre are accredited by the National Association of Schools of Theatre.
Graduates of the B.S. in Recreation must demonstrate one year of full-time experience in the field to be eligible to apply for the Certified Park and Recreation Professional (CPRP) exam. The program is not accredited by the Council on Accreditation of Parks, Recreation, Tourism and Related Professions.
Copies of accreditation and certification documents are available for review upon request in the Office of Institutional Effectiveness.

Additional Specialized Program Recognition Leading to Post-Graduation Certification or Licensure of Students

Graduates of the following programs are eligible for initial teacher certification through the State of Michigan Department of Education:

Baccalaureate programs for preparation in art education (B.F.A. program); elementary professional education, elementary/middle school integrated science, language arts, math, and social studies; family and consumer sciences teacher education; health education: school; industrial technology, music education (B.M. program), occupational education studies, secondary education; and special education and elementary education LD and EI K-12; and, the M.A. in Career and Technical Education.

Graduates of the following programs are eligible for advanced teacher certification or an endorsement through the State of Michigan Department of Education:

Master's programs in art education, educational foundations, educational leadership, English teaching, literacy studies, mathematics education, music education, physical education, school counseling, science education;

Educational specialist program in educational leadership; and

Doctoral programs in educational leadership, mathematics education, and science education.

Graduates of the B.B.A. in Accountancy are eligible to take the following exams, among others: Certified Public Accountant (CPA); Certified Management Accountant (CMA); Certified Internal Auditor (CIA). The requirements to sit for the various professional exams differ by exam and state. It is each student's responsibility to determine the requirements for a particular exam. The student should be aware that the exam requirements may change over time.
The M.S. in Accountancy program enables graduates interested in public accounting careers to meet the American Institute of Certified Public Accountants' (AICPA) educational requirements required to obtain a Certified Public Accountant (CPA)
license. In addition, the AICPA and the State of Michigan require a total of 150 hours of college credit to obtain a CPA license.

Graduates of the B.S. in Athletic Training (professional program) are eligible to sit for the Board of Certification for the Athletic Trainer (BOC) certification exam. In order to qualify as a candidate for the BOC certification exam, an individual must be endorsed by the recognized program director.


Graduates of the B.S. in Aviation Maintenance and Technology are qualified to take the Federal Aviation Administration (FAA) Airframe and Powerplant written and practical examinations required to earn the Federal Aviation Administration (FAA) Airframe and Powerplant Mechanic Certificate.

The master's and doctoral programs in psychology (concentration in behavior analysis) are pre-approved by the Behavior Analyst Certification Board as meeting coursework and experience eligibility requirements. Graduates of these programs are eligible to sit for the Board Certified Behavior Analyst® (BCaBA®) certification examination.

The B.S in Psychology (concentration in behavioral science) is pre-approved by the Behavior Analyst Certification Board as meeting coursework and experience eligibility requirements. Graduates are eligible to sit for Board Certified Assistant Behavior Analyst™ (BCaBA®) certification examination.

The baccalaureate programs in child and family development and in family studies, and the M.A. in Family Studies – Family Life Education option are approved by the National Council on Family Relations (NCFR). Graduates of NCFR-Approved academic programs who have completed all courses with a grade of C- or better can apply to NCFR for Provisional or Full Certification through the Abbreviated Application Process. Applicants applying through the Abbreviated Application Process do not need to take the Certified Family Life Education (CFLE) Exam.

Graduates of the M.A. programs in clinical mental health counseling; college counseling; marriage, couple and family counseling; school counseling; and, rehabilitation counseling; as well as the Ph.D. in Counselor Education, are eligible to become Licensed Professional Counselors (LPC) in Michigan after first becoming Limited Licensed Professional Counselors (LLPC). The LPC is granted after 3000 hours of supervised experience (by an LPC) and a passing score on either the National Counselor Examination (NCE) developed by the National Board for Certified Counselors (NBCC) or the Certified Rehabilitation Counselor Examination (CRC) developed by the Commission on Rehabilitation Counselor Certification. The NCE and CRCE are the State of Michigan Counselor License Examinations. Graduates from the clinical mental health counseling; college counseling; marriage, couple, and family counseling; and, school counseling concentrations are eligible to become Nationally Certified Counselors (NCC). Graduates from the rehabilitation counseling concentration are eligible to become Certified Rehabilitation Counselors (CRC).

Graduates of the M.A. program in Counseling Psychology are eligible to become Limited License Psychologists (LLP) in Michigan after first becoming Temporary Limited License Psychologists (TLLP). The master's level LLP is granted after 2,000 hours of supervised experience (by a doctoral level Licensed Psychologist (LP) and a passing score on the Examination for the Professional Practice of Psychology (EPPP). In Michigan, master's level Limited License Psychologists must practice under the supervision of a doctoral level Licensed Psychologist (LP).

The Ph.D. in Counseling Psychology prepares students to become fully-licensed psychologists (LP). Doctoral graduates first apply for a doctoral level Limited License. The LP is granted after 2,000 hours of supervised experience (by a doctoral level Licensed Psychologist (LP) and a passing score on the Examination for the Professional Practice of Psychology (EPPP).

Graduates of the baccalaureate didactic program in dietetics are eligible to sit for the Dietetic Technician, Registered (DTR) Registration Examination, a national credentialing examination, administered by the Commission on Dietetic Registration (CDR) of the Academy of Nutrition and Dietetics. Further, those graduates who successfully complete the post-baccalaureate, non-degree dietetic internship are also eligible to apply and take the Registered Dietitian (RD) Credentialing Examination administered by the Commission on Dietetic Registration (CDR) of the Academy of Nutrition and Dietetics.
Graduates of all programs accredited by the Engineering Accreditation Commission of ABET are eligible to sit for the Fundamentals of Engineering (FE) Exam administered by the National Council of Examiners for Engineering and Surveying® (NCEES). This is the second of four steps to earning a professional license in engineering.

Graduates of the Interdisciplinary Teacher Education Program for Health Professionals (ITEP) receive a Certificate in Teaching from the Bronson School of Nursing at Western Michigan University. This certificate can be used to enhance one's employment opportunities in teaching other health professionals in a university setting or health institution. In addition, graduates who are registered nurses are eligible to sit for the Certified Nurse Educator (CNE) examination administered by the National League for Nursing (NLN).

The B.M. in Music Therapy is approved by the American Music Therapy Association (AMTA) as meeting AMTA's standards of clinical practice. Graduates are eligible to sit for the national board certification exam administered by the Certification Board for Music Therapists (CBMT), to obtain the credential MT-BC (Music Therapist - Board Certified).

Students completing the nonprofit leadership minor, and completing additional requirements from the Nonprofit Leadership Alliance, are eligible to earn certification from Nonprofit Leadership Alliance (NALA).

Graduates of the Bachelor of Science in Nursing (B.S.N.) are eligible to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN®) administered by the National Council of State Boards of Nursing, Inc. (NCSBN®). The program has also received endorsement from the American Holistic Nursing Certification Corporation, the credentialing body for holistic nursing. This endorsement enables graduates of the program to be exempt from prerequisites should they choose to sit for the National Certification Examination in Holistic Nursing.

Graduates of the M.A. in Occupational Therapy are eligible to sit for the national certification examination for occupational therapists administered by the National Board for Certification in Occupational Therapy (NBCOT). After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In addition, most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination.

The M.A. in Blindness and Low Vision Studies (concentration in orientation and mobility and vision rehabilitation therapy), is approved by the Association for Education and Rehabilitation of the Blind and Visually Impaired (AER) University Review Program through the Association for Education and Rehabilitation of the Blind and Visually Impaired, 1703 N. Beauregard Street, Suite 440, Alexandria, VA 22311. As such, graduates are eligible to sit for the Certified Orientation and Mobility Specialist (COMS) exam administered by the Academic for Certification of Vision Rehabilitation and Education Professionals (ACVREP).

Graduates of the B.B.A. in Personal Financial Planning who have completed FIN 3600 Risk and Insurance, FIN 4710 Applications in Personal Financial Planning, FIN 3720 Estate Planning, FIN 3730 Retirement Planning and Employee Benefits, and ACTY 3240 Introductory Tax Accounting are eligible to sit for the CFP® Certification Exam administered by the Certified Financial Planner Board of Standards, Inc.

Graduates of the Master of Science in Medicine (M.S.M.) in Physician Assistant are eligible to sit for the Physician Assistant National Certifying Examination (PANCE) administered by the National Commission on Certification of Physician Assistants (NCCPA).

Graduates of the M.S. in Engineering Management are eligible to sit for the Project Management Institute's® Certified Associate in Project Management (CAPM®) certification exam, and the Project Management Professional (PMP)® certification exam. WMU is a Registered Education Provider (REP) to the Project Management Institute®.

Graduates of the M.A. in Counselor Education (concentration in rehabilitation counseling) are eligible to sit for the Certified Rehabilitation Counselor (CRC) exam administered by the Commission on Rehabilitation Counselor Certification (CRCC).

Graduates of the Bachelor of Social Work (B.S.W.) are eligible to apply for the Michigan Limited License Bachelor's Social Work. Graduates of the Master of Social Work (M.S.W.) are eligible to apply for the Michigan Limited License Master's Social Work.
Graduates of the M.A. in Speech-Language Pathology and the Doctor of Audiology (Au.D.) are eligible to take the Praxis specialty exam administered by the Education Testing Service as required for the Certification of Clinical Competence from the American Speech-Language-Hearing Association. They are also able to apply for state licensure in the state in which they intend to practice. They should, however, consult the state licensing board for the specific requirements for that state.

Graduates of the M.S. in Vision Rehabilitation Therapy are eligible to sit for the Certified Vision Rehabilitation Therapist (CVRT) exam administered by the Academic for Certification of Vision Rehabilitation and Education Professionals (ACVREP).

**Statement of Legal Control**

State Constitution (Excerpt) of Michigan of 1962

§ 6 Other institution of higher education, controlling boards.

Sec. 6. Other institutions of higher education established by law having authority to grant baccalaureate degrees shall each be governed by a board of control which shall be a body corporate. The board shall have general supervision of the institution and the control and direction of all expenditures from the institution’s funds. It shall, as often as necessary, elect a president of the institution under its supervision. He shall be the principal executive officer of the institution and be ex-officio a member of the board without the right to vote. The board may elect one of its members or may designate the president, to preside at board meetings. Each board of control shall consist of eight members who shall hold office for terms of eight years, no more than two of which shall expire in the same year, and who shall be appointed by the governor by and with the advice and consent of the senate. Vacancies shall be filled in like manner.


Graduation Requirements

When a student satisfactorily completes all academic requirements for a degree, fulfills all financial and legal obligations to the University, and meets all relevant processing deadlines, the student is eligible for graduation and to receive the appropriate degree. An eligible student may graduate at the end of a semester or a session—in December, April, June, or August; however, a Commencement Ceremony is held only following Fall, Spring and Summer I terms.

Students should contact their college advisor to receive approval to submit an application for graduation. Once cleared, students may apply in GoWMU. The deadlines for submitting the application are listed below.

The graduation audit, initiated by the submission of the Application for a Graduation Audit form, is a process by which a student's academic record is examined to make sure all University obligations and all academic requirements for the degree have been met. The audit is conducted by a graduation auditor in the Registrar's Office, and its outcome depends greatly on the completeness and appropriateness of the materials contained in the student's academic record.

Graduation Application Deadlines

**Fall Semester Graduation (December)** – August 1  
**Spring Semester Graduation (April)** – December 1  
**Summer I Session Graduation (June)** – February 1  
**Summer II Session Graduation (August)** – February 1

**Graduation Fee** - A $55 fee will be applied to the student account when the application is submitted to the Registrar's Office.

Final Date for Completion of Work

All work taken either on or off the campus must be completed by graduation day. Students who fail to meet academic standards or complete all degree requirements will be removed from graduation lists automatically. Such students will be placed in the class of the succeeding semester or session only after they change their graduation date with the Registrar's Office, assuming requirements can then be met. No fee is charged for submitting a Change of Graduation Date form. The graduation auditor will not automatically move the student to another graduation class. **Under no circumstances** will any student be graduated with a class if his/her academic record does not show complete fulfillment of all requirements within 30 days after the established commencement date.

Graduation Requirements

General Requirements, Bachelor's Degree

Any curriculum leading to a bachelor's degree consists of at least 122 hours of credit. The student must meet the following requirements or their equivalent.

1. The requirements in at least one of the University approved curricula must be fulfilled before graduation.
2. The student must complete a major with a minimum of 24 hours and, if required by the curriculum, a minor with a minimum of 15 hours. Specific departmental major and minor requirements may exceed these minimums; please refer to the departmental sections in this catalog that identify the specific major or minor requirements. Students interested in the elementary and secondary education curricula should refer to both the departmental sections and the College of Education and Human Development section that list the major and minor requirements for elementary and secondary teaching curricula. **Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor.** Some students may be excused from the requirement of declaring a regular major and/or minor field if they satisfy the requirements of their curriculum as set forth in the catalog, or that curriculum as modified by substitutions approved through normal channels.
3. Each student must complete the required General Education program. Students who are graduating with an Associate of Science degree from Michigan two-year colleges and start WMU prior to Fall 2014, are signatory to the Michigan Transfer Agreement, will automatically have fulfilled the first and second year General Education requirements. General Education requirements of two courses at the junior and senior levels will continue to be required.

4. A minimum grade point average of 2.0 must be obtained in any major or minor(s) presented for graduation. Individual colleges, departments, or programs may have additional University approved requirements including a higher minimum grade point average.

5. A student must also have an overall University grade point average of 2.0 or higher to graduate. If a student fails to meet minimum University academic standards, he/she is placed on academic probation or is dismissed.

6. Each student will fulfill all requirements of the Intellectual Skills Development Program as outlined in this section.

7. Minimum residence requirements. All candidates must present a minimum of 30 hours through Western Michigan University. Ten of the last 30 hours must be taken through Western Michigan University. Correspondence credit and credit by examination may not be used to satisfy any of the minimum requirements. Individual colleges and departments may have additional residency requirements.

8. A maximum of 8 hours of general physical education (PEGN) courses may be counted toward graduation.

9. Students transferring from an accredited two-year institution must complete a minimum of 60 credit hours of the academic work required at an accredited four-year, degree-granting institution. Exceptions to this policy, for specific programs, can be approved only if there is a formal Memorandum of Understanding and articulation agreement, as approved by the Faculty Senate Undergraduate Studies Council, between Western Michigan University and the participating accredited two-year institution.

10. Students may graduate under the WMU catalog in effect at the time of their initial registration or any succeeding catalog providing the catalog is not more than ten years old upon the completion of requirements for graduation. Students who have been gone from the University for ten years or more must enter the University under the catalog in effect at the time of re-entry. For exception, see special policy under “Graduation Requirements-Bachelor of Science in Engineering” listed in the College of Engineering and Applied Sciences section of this catalog.

11. In cooperation with community colleges, a student who transfers to Western Michigan University within three years upon leaving the community college may elect to graduate under the WMU catalog in effect at the time of the initial registration at the two-year institution.

Requirements for Earning a Second Bachelor’s Degree

WMU Graduates

Students wishing to pursue two or more baccalaureate degrees either concurrently or otherwise from WMU must also meet these minimum requirements:

1. Completion of a minimum of 30 credits in residency beyond the requirements for the first degree.
2. Completion of new major requirements as well as all specified University, college, and program requirements.
3. Generally, no second degree will be granted from the discipline in which the first degree was earned. Rather than seeking a second bachelor's, students may enroll as post-baccalaureate students and have the completion of an additional major recorded on the transcript.
4. NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally does not qualify the student for a second degree.

Non-WMU Graduates

Students, who received a bachelor's degree from an institution other than Western Michigan University, must meet the following minimum requirements:

1. Possession of a prior bachelor's degree from a regionally accredited college or university.
2. Completion of a minimum of 30 credits in residency beyond the requirements for the first degree.
3. Completion of new major requirements as well as all specified University, college, and program requirements, including general education, proficiencies, and a minimum 2.0 grade point average.
4. Generally, no second degree will be granted from the discipline in which the first degree was earned.
5. NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally does not qualify the student for a second degree.

Major and Minor Requirements

A major is a sequence of related courses totaling a minimum of twenty-four hours. A minor is a sequence of related courses totaling a minimum of fifteen hours. However, since not all majors and minors require the same number of hours, students should consult the departmental advisor to be assured of the requirements.

1. The student's major and minor will be the subject specialization, such as mathematics or accounting.
2. Departmental requirements for a number of majors and minors are listed elsewhere in this catalog. Where requirements are not specified, students should consult the departmental advisors for approval of a major or minor program as soon as possible but not later than the student's reaching junior status.
3. Most candidates for a degree must complete a major and a minor. There are some exceptions, which the student's advisor will explain.
4. In certain cases "group" majors and "group" minors are permitted. The student's academic advisor can explain the circumstances.
5. Under certain conditions General Education courses may be counted toward major and minor requirements. (See departmental requirements.)
6. The following courses are not to be counted as satisfying major and minor requirements:
   a. Required professional courses in education.
   b. Required courses in general physical education.
7. A combination of foreign language courses, or of English or American Literature courses with a foreign language, is not a permissible method of constructing a major or minor.
8. Mathematics courses may not be counted towards a science (physics, geography, or chemistry) major or minor sequence, but may be required to satisfy curricula requirements.
9. Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor.
10. Only approved majors and minors listed in the catalog can be placed on a student record.
11. Any program change occurring after the last day of the drop/add period will be effective for the following semester or session.

Intellectual Skills Requirements

The Baccalaureate degree at Western Michigan University includes proficiency in the intellectual skills of writing, reading, and quantification. In order to insure development of students' abilities in these skills, the University maintains an Intellectual Skills Development Program. New students entering WMU will participate in the program.

The first phase of the program occurs upon entry to the University, typically at Orientation, when student competencies are assessed via ACT scores and/or University-developed tests. Skills requirements for each student are determined at this time.

Writing

Students whose test results indicate weak writing skills must pass a basic writing course before proceeding to the required college-level writing course. All WMU students are required to pass a college-level writing course. Students who demonstrate superior writing skills may be exempted from the college-level writing course requirement.

Basic writing course option:

- ENGL 1000

College-level writing course options are:


- ENGL 1050
- BIS 1420 (Business students)
- IEE 1020 (Engineering and Applied Sciences students)

In addition to the college-level writing requirement, each student must also demonstrate writing proficiency by successfully meeting a baccalaureate-level writing requirement as designated by the student’s major department or program. It is recommended that students complete this requirement after attaining junior standing. Existing guidelines regarding repeating a course will apply. Credit for course work from four-year institutions only will fulfill this requirement. This requirement meets General Education Proficiency 2.

Reading

On the basis of test scores, certain students are required to pass LS 1040, Effective College Reading. This course is designed to improve comprehension, vocabulary, and study skills, and thus prepare students for further college work.

Quantification

On the basis of scores on a test of basic mathematical skills, certain students are required to pass MATH 1090. Students must earn a "C" or better in MATH 1090 in order to proceed to fulfill other mathematics requirements.

Guidelines for Writing, Reading, Quantification Skills

ENGL 1000, LS 1040, and MATH 1090 carry academic credit, and grades earned are included in calculating the student's grade point average. The credits for these courses, however, constitute an additional graduation requirement beyond the total number of credit hours required for a student's curriculum. Students who are placed into any of these courses must pass the course(s) before registering for their thirty-third credit hour at Western Michigan University.

Students who fail to demonstrate competency by test or by course by the time of enrollment in the thirty-third credit will be permitted to enroll only in the above-named skill-building course(s).

Students may resume regular course enrollment only after all entry-level competencies are demonstrated.

A college-level writing course must be completed before a student registers for the sixty-second credit hour at Western and before the baccalaureate-level course is attempted.

Intellectual Skills Requirements for International Students

Writing and Reading

Beginning undergraduate international students are placed into, or exempted from, English 1600/1610 or 3600/3610 based on the results of either the MTELP (Michigan Test of English Language Proficiency) or the TOEFL (Test of English as a Foreign Language). Scores of 75-84 on the MTELP or 500-549 on the TOEFL warrant placement into this language program.

The Diether H. Haenicke Institute of Global Education requires completion of the language program during the student's first enrollment period at WMU. The student may then proceed to fulfill the college-level writing requirement.

International students who are not required to take the language program will proceed to fulfill all Intellectual Skills requirements in writing, beginning with the college-level writing course and proceeding through the baccalaureate-level requirement.

Quantification
International students will fulfill all Intellectual Skills Requirements in quantification (see above).

Failure to enroll in the Intellectual Skills Program as outlined above will result in cancellation of admission.

*Intellectual Skills Requirements for Transfer Students, Including International Transfer Students*

Domestic and international transfer students will abide by the Intellectual Skills Requirements for transfer students. See immediately below for the specific requirements.

**Writing**

who transfer a college-level writing course of 2.7 or more semester hours credit (or a sequence of courses that satisfies the college-level writing requirement at the transfer institution), will be exempted from the writing assessment upon entry. These students will be considered to have met the Intellectual Skills Program college-level writing course requirement. All other transfer students will be placed into a remedial or college-level writing course according to assessment results.

**Reading**

Students who transfer twenty-six semester hours or more of credit with a GPA of 2.0 or better, or who transfer the equivalent of LS 1040, are exempted from the reading assessment upon entry. All other transfer students will have their reading skills evaluated by standardized test and will either place into or be exempted from LS 1040, Effective College Reading.

**Quantification**

Students who transfer a mathematics course at the level of MATH 1100 or higher are considered to have entry-level computation skills and need not take the computational skills assessment test upon entry. All other transfer students will place into or be exempted from MATH 1090 according to assessment results.

**Computer Usage**

A computer or technology usage requirement, if applicable to a student's curriculum, is described in the departmental or college sections of this catalog. Entering students should contact their college advising office for specific information concerning any applicable requirement and/or option for fulfilling the requirement.

**Foreign Language Requirement**

The Foreign Language Requirement for students who will graduate through the College of Arts and Sciences is described in the Arts and Sciences section of this catalog.

**Non-degree Undergraduate Certificate Programs**

Students should contact their college advisor to receive approval to submit an application for graduation. Once cleared, students may apply in GoWMU. The undergraduate certificate program of study will then be audited in the same manner as a degree program. For a student concurrently pursuing a degree program and an Undergraduate Certificate Program, the application should be submitted separately from the undergraduate degree application.

The student must apply, through the Registrar’s Office, to be awarded as Undergraduate Certificate. The following general requirements must be met:

1. Completion of the requirements, as stated on the program of study, of the Undergraduate Certificate Program with a “C” (2.0) or better average within a six-year period;
2. A grade of “C” or better must be earned in every required course listed on the program of study; and
3. Completion of departmental requirements, if any,
To signify that a student has satisfactorily completed an approved curriculum in an Undergraduate Certificate Program, a certificate of completion is awarded.

**General Education Requirements**

This general education program incorporates the University's college-level and baccalaureate-level writing requirements, eliminates the former physical education requirement, and lets the University computer usage (literacy) requirement continue to be enforced separately.

The program has two parts, proficiencies and distribution. What follows describes these elements of the program. However, all descriptions of course content and structure presuppose the individual professor's freedom to teach the course according to personal professional judgment. Stated requirements are not intended to impinge upon academic freedom, but only to specify a range of content within which the course should be structured. Matters of interpretation and pedagogy are the sole prerogative of the individual professor.

**Proficiencies**

The general education program requires each student to develop proficiency in writing and mathematics or quantitative reasoning and, beyond that, to enhance one of these proficiencies or to develop another foundational skill. Each student must complete:

1. college-level writing course;
2. baccalaureate-level writing or writing-intensive course in one's major or curriculum;
3. college-level mathematics or quantitative reasoning course beyond MATH 1100 (not satisfied by MATH 1110), not limited to courses in the Departments of Mathematics or Statistics;
4. course or courses in one of the following categories (one of these options may be required by the student's major and/or curriculum):
   a. advanced writing, 3-4 hours,
   b. mathematics or quantitative reasoning, 3-4 hours,
   c. critical thinking, 3-4 hours,
   d. oral communication, 3-4 hours,
   e. American Sign Language, 3-4 hours,
   f. computer programming and applications, 3-4 hours, or
   g. courses to advance proficiency in a language other than English to at least second semester, college-level, 6-8 hours.
5. Satisfy both the college-level writing (1. above) and college-level mathematics or quantitative reasoning (3. above) proficiency requirements before registration in any upper-division-level course. Upper-division-level courses are defined as those courses with a course number of 3000 or above.

**Distribution Areas**

The general education program defines a comprehensive and balanced distribution of eight content areas and requires that a student take a course from each area:

- Area I, Fine Arts, 3-4 hours
- Area II, Humanities, 3-4 hours
- Area III, The United States: Cultures and Issues, 3-4 hours
- Area IV, Other Cultures and Civilizations, 3-4 hours
- Area V, Social and Behavioral Sciences, 3-4 hours
- Area VI, Natural Sciences with Laboratory, 4-5 hours
- Area VII, Natural Science and Technology: Applications and Implications, 3-4 hours
- Area VIII, Health and Well-Being, 2 hours
Other Requirements

In addition to meeting the proficiencies and distribution area requirements, the following requirements apply to the general education program:

- Course work must total a minimum of 37 hours, not counting the baccalaureate-level writing course except for designated majors. If a student completes all requirements by completing fewer than 37 credit hours, the remaining required credits may be selected from any course approved for general education.
- A minimum of six hours must be taken from 3000- or 4000-level courses in the distribution areas.
- No more than two courses from any one department may be used to satisfy distribution requirements.

General Education Requirements for Transfer Students

All students graduating from WMU must meet the 37 semester hour requirements of the General Education Program. This must include at least two courses at the 3000-4000-level in the distribution areas and, in addition, the baccalaureate-level writing requirement.

1. Students who have fulfilled the requirement of the Michigan Transfer Agreement (MTA) and are transferring from participating Michigan community colleges:
   Colleges listed below have signed the Michigan Transfer Agreement. Transfer students from these schools whose transcripts have been appropriately identified and certified as having fulfilled the requirements of the Michigan Transfer Agreement by their respective community college will have satisfied WMU's lower level General Education requirements. Such students need only satisfy Western's requirement of six hours of 3000-4000-level General Education course work from the distribution areas, and complete the baccalaureate-level writing course (Proficiency 2). In addition, the University will determine the equivalence and applicability of transferable community college courses in meeting other graduation requirements. Visit: http://wmich.edu/admissions/transfer-mta for more information.

   Michigan community college Michigan Transfer Agreement (MTA) signators:
   Alpena Community College
   Bay de Noc Community College
   Delta College
   Glen Oaks Community College
   Gogebic Community College
   Grand Rapids Community College
   Henry Ford College
   Jackson College
   Kalamazoo Valley Community College
   Kellogg Community College
   Kirtland Community College
   Lake Michigan College
   Lansing Community College
   Macomb Community College
   Mid Michigan Community College
   Monroe County Community College
   Montcalm Community College
   Mott Community College
   Muskegon Community College
   North Central Michigan College
   Northwestern Michigan College
   Oakland Community College
   St. Clair County Community College
   Schoolcraft College
   Southwestern Michigan College
2. **Transfer students without MTA certification**
   Students who transfer from Michigan community colleges and who have not fulfilled the requirements of the Michigan Transfer Agreement will have their course work evaluated according to the General Education requirements as described in Western's *General Education Program Transfer Guides* available at the WMU Office of Admissions website. In order to determine remaining General Education requirements, students should consult their curriculum advisor.

3. **Transfer students from all other colleges**
   Students will have their transfer work evaluated according to the General Education requirements as described in the General Education Policy section of this catalog. In order to determine remaining General Education requirements, students should consult their curriculum advisor.

4. **Waiver of junior-senior requirement for transfer students with advanced standing**
   A student transferring ninety or more semester hours may be eligible to have the junior-senior General Education requirement waived, provided that a minimum of thirty semester hours are from a four-year college or university. Such students should contact their curriculum advisor for further information.

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**General Education Program Courses**

The General Education Courses can be found [here](#).

**Graduation Rate**

Number of first-time, full-time, degree-seeking beginning freshman, Class of 2010: 3,354.

After six years, the number (and percentage) of those in the Class of 2010 who graduated: 1,765 (52.74%).

**Academic Advising**

The faculty and administration of Western Michigan University believe that academic advising is a necessary part of undergraduate education. The University has committed many faculty and staff to this essential service, and strongly urges all students to make full use of the available resources in order to receive the best possible education.

All students should consult with their curriculum advisors who will help them plan their degree programs. Curriculum advisors offer academic advising, which includes General Education requirements, specific curriculum requirements, career opportunities, etc. In addition, they offer academic guidance, that is, exploration of alternatives and other educational possibilities. This is a useful and productive means of attempting to match a student's interests and abilities with an academic program. Curriculum advisors will make referrals to other advising facilities and departmental advisors when it is appropriate. *It should be emphasized that it is the student's responsibility to arrange to meet with curriculum and/or departmental advisors.*

A listing of curriculum advisors may be found on the advising website: [http://wmich.edu/registrar/students/advising](http://wmich.edu/registrar/students/advising). Students not certain of their curriculum or advisor should contact the Advising Office of the College to which they have been admitted. Students should refer to their Admission Certificates to find out to which curriculum and College they have been admitted.

**Academic Advising for Freshman Students**

Freshmen students admitted for the Fall Semester will receive a written invitation to attend one of the Orientation sessions held during the summer. Attendance is mandatory. During this program, students will have the opportunity to meet with their
curriculum advisors, at which time they will receive academic information and assistance in requesting classes for their first semester. Orientation provides comprehensive advising, as well as important campus information.

Students who have been admitted for Spring, Summer I, or Summer II must make individual appointments for advising prior to registering. Appointment should be with curriculum advisors.

**Academic Advising for Transfer Students**

Transfer students should arrange appointments for advising shortly after admissions. Students will be advised as to how transfer courses apply to programs at Western. In addition, students will receive curriculum and major/minor advising, as well as Intellectual Skills Program advising. It is important that transfer students bring their most recent Credit Evaluations to these meetings. Transfer students are urged to obtain advising before registering for classes.

**Academic Advising for Graduation**

Students must receive approval from a college advisor before they are eligible to apply for graduation. Advisors will assist students with the application process, and students should visit regularly with their advisors to ensure that their progress toward degree completion conforms with all University and degree requirements.

**College Advising Offices**

- College of Arts and Sciences  
  2318 Friedmann Hall, 387-4366
- College of Aviation  
  Aviation Education Center, 964-6375
- Haworth College of Business  
  2130 Schneider Hall, 387-5075
- College of Education and Human Development  
  2421 Sangren Hall, 387-3474
- College of Engineering and Applied Sciences  
  E102 Floyd Hall, 276-3270
- College of Fine Arts  
  2132 Dalton Center, 387-4672
- College of Health and Human Services  
  2125 Health and Human Services Building, 387-2656
- University Curriculum  
  203 Moore Hall, 387-4410
- Lee Honors College  
  Lee Honors College Building, 387-3230
Registration, Records and Academic Regulations

Registration at Western Michigan University is conducted via the schedule and procedures as found on the Registrar’s website, http://www.wmich.edu/registrar. This website should be consulted for information on registration dates, the priority registration schedule, drop/add dates, refund dates, final exam schedules, deadlines and methods of payment, and all policies related to registration. **Registration by students signifies an agreement to comply with all regulations of the University whenever approved by Western Michigan University.**

To begin registration, the student will log in to GoWMU at http://gowmu.wmich.edu and follow the script displayed.

**Advance Registration**

Western Michigan University offers advance registration for each enrollment period as described on the Registrar’s website. Students are encouraged to take advantage of advance registration but are cautioned that any subsequent change in their schedules should be made before the final day of the drop/add period. See the sections below for more information about changing registration schedules.

**Forgiveness Policy**

WMU undergraduate students who have not earned a bachelor’s degree and have not attended the University for at least four years, and have reapplied to the University, may apply for academic forgiveness through the Office of the Registrar. Students who are granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of twelve graded hours of work attempted after the reentry date. All other University regulations apply. Students must meet with an advisor to obtain a signature on the Forgiveness Form.

**Research Subject Protection and Registration**

Students conducting research that involves human or animal subjects, biohazards, genetic materials, or nuclear materials/radiation must have prior approval of the research proposal by the appropriate University board, thus assuring compliance with the regulations for the protection of such subjects or for the use of such materials. There are no exceptions to this requirement. **Registration for courses in which research is conducted that requires such prior approval should not be attempted until the approval is granted by the appropriate University board.** The department requiring the course is responsible for assuring that the student has complied with federal, state, and WMU requirements. The student completing such regulated research for a course report, paper, project, or thesis must include the written approval or exemption letter from the appropriate board as an addendum to the report, paper, project, or thesis. For more information, call the Office of the Vice President for Research, 387-8298.

**University Tuition Scholarship Waiver**

Undergraduate students interested in taking advantage of the University Tuition Scholarship Waiver must report to the Registrar's Office, Seibert Administration Building to pick up the authorization form.

Students who meet the following criteria are eligible to participate in this program:

1. Must have previously *earned* thirty hours of credit from WMU.
2. Must *presently* be enrolled and have paid for fifteen hours of credit for the semester they are seeking the tuition waiver.
3. Must have an overall G.P.A. of 3.25 at Western Michigan University.
4. Must be an undergraduate student in a degree program.
Undergraduate students who meet the qualifications may select one course per semester outside their major, in under-enrolled courses, during the drop/add week only.

Once the students have ascertained that they would like to participate in this program and meet all the criteria, they should go to the Registrar's office for the authorization form. The student will present the signed authorization card to Cashiering, 1270 Seibert Administration Building as their payment.

**Withdrawing from or Adding Classes before the Final Date to Drop**

Students may enroll in (add) any course through the first five days of classes of a semester or session. The final date for adding courses is published on the Registrar’s website [www.wmich.edu/registrar](http://www.wmich.edu/registrar).

Only students who have a class that is not officially scheduled to meet during the five-day drop/add period will be given an additional opportunity to drop/add.

Students may withdraw (drop) classes through the fifth (5th) day of the semester or session and the course will not be reflected on the student's official transcript. **All withdrawals** received after the drop/add period will be reflected on the student's academic record as a non-punitive "W" (Official Withdrawal), as long as the withdrawal complies with the policy explained directly below.

**Dropping Classes and Withdrawing from All Classes**

Students may withdraw from one course, several courses, or all courses, without academic penalty from the day after the last day of the drop/add period for the semester or session, through the Monday of the tenth week (Fall/Spring semesters) and through the Monday of the fifth week (Summer I/II sessions). These withdrawals can be processed by the student online, through GoWMU. A non-punitive “W” will be recorded on the student’s transcript for any classes the student withdraws from after the drop/add period.

Students are encouraged to discuss a withdrawal with their instructor before withdrawing as the student may not re-enroll.

Students should also be aware that there may be financial implications following a withdrawal. A withdrawal from any course or courses which changes a student’s status from full time to part time may have insurance or other implications.

Withdrawal from a course at any time after the end of the student-initiated withdrawal period is effectively a grade change. As such it will be permitted only through the Grade Appeals Process, as described in the section Students Rights and Responsibilities, "Course Grade and Program Dismissal Appeals." To change an assigned grade to "W," documented hardship must be determined to have existed by a GAPDAC Hardship Assessment Panel, as described in the section Students Rights and Responsibilities, "Hardship Status".

Except for documented and exceptional circumstances, hardship petitions will not be accepted more than one year after the end of the term or session for which the hardship was documented. All petitions filed after the one year timeline must be granted an exception by the Office of the Provost prior to consideration by the Hardship Assessment Panel.

The student is strongly encouraged to consult with the University Ombuds before initiating a hardship-based withdrawal appeal.

After a semester or session has ended, a student wishing to withdraw from a course may file an appeal for a late withdrawal, as described in the Course Grade and Program Dismissal Appeals section, in the Student Rights and Responsibilities section of this catalog.

The Registrar’s Office will record the drop or withdrawal if approvals are given as listed above.
Records

Identification Card

The Bronco Card is the student's photo identification card at WMU. In addition, the Bronco Card is the student's access card for the library, dining areas, Student Recreation Center, and computer centers and is a security access card for buildings on campus.

The Bronco Card also enables the student to ride for free on the Metro Bus Service on any route around the Kalamazoo area.

The Bronco Card has the size, look, and feel of a credit card. Included on the card are the student's picture and signature. On the back of the card is a magnetic strip, used for authentication.

The Bronco Card will serve the student as a University ID for as long as the student remains at WMU.

Name Change

Students may maintain academic records under the name used at the time of admission. However, any active student desiring to make an official name change must report to the Registrar's Office, third floor Seibert Administration Building to record the change. Legal proof is required.

Preferred Name

Western Michigan University recognizes that some students use first names other than their legal names to identify themselves. As an inclusive and diverse community, WMU allows students to use a preferred first name different than their legal name for certain purposes and records in the course of university business, communication, and education.

The legal name must still be submitted at the time of application and will continue to be used where required by law or university requirements. Appropriate WMU senior administration is authorized to make revisions, develop, manage and enforce guidelines to implement this policy to comply with the law, other university requirements, and collective bargaining agreements.

Students are expected to be respectful and appropriate in the use of preferred name. The use of the preferred name is not permitted to avoid legal obligations or for misrepresentation purposes. Any misuse can result in discipline as permitted under the Student Code. The University reserves the right to deny the use of or remove the preferred name if it deems the use is inappropriate.

Transcripts

A student's transcript from Western Michigan University is a document listing, at minimum, all courses taken and credit hours and grades earned in the courses.

Academic Regulations

Academic Standing

Notwithstanding the Academic Standing policy outlined below, a student admitted with Conditional Admission or Provisional Admission status must meet the specified performance level within the time frame identified in the letter of admission or may not continue to enroll in University courses. Further, the Academic Standing policy inherently presumes the student will first meet satisfactorily any obligations or requirements specified in the letter of admission before the Academic Standing policy shall have any effect on the continuing enrollment of the student.
1. **Good Standing**
   A student is in good standing whenever the student's overall grade point average is at least 2.0.

2. **Warning**
   Whenever the grade point average for any enrollment period is less than 2.0, but the overall grade point average is 2.0 or above, the student will be warned.

3. **Probation**
   The student will be placed on probation whenever the student's overall grade point average falls below 2.0.
   A student who is admitted (with Conditional Admission status) to the University on academic probation and receives at least a .01 grade point average, but less than a 2.0 grade point average at the end of the first enrollment period, will be placed on Final Probation. A first semester grade point average of 0.00 will result in Dismissal.

4. **Probation Removed**
   Whenever the conditions of Good Standing are restored, Probation will be removed.

5. **Extended Probation**
   The student will be placed on Extended Probation when, following a semester on probation, the student's overall grade point average is below 2.0 and the grade point average for the enrollment period is 2.0 or above.

6. **Final Probation**
   The student will be placed on Final Probation when, following a semester on Extended Probation, the student's overall grade point average is below 2.0 and the student's grade point average for the enrollment period is 2.0 or above.

7. **Admitted on Probation**
   An undergraduate student admitted to the University on academic probation who earns a first semester grade point average below the required 2.0 minimum, but as least 0.01, will be placed on final probation. A first semester GPA of 0.00 will result in academic dismissal. Once placed on final probation an undergraduate student must receive a cumulative GPA of at least 2.0 the next semester. Failure to do so will result in academic dismissal and enrollment in future classes will be prohibited.

8. **Dismissal**
   Students on Probation or Extended Probation who fail to achieve at least a 2.0 grade point average for the enrollment period, or students on Final Probation who fail to achieve a 2.0 overall grade point average will be dismissed from the University.

### Attendance

Students are responsible directly to their instructors for class and laboratory attendance, and for petitions to excuse absences.

### Course Grades and Grading System

The student receives one grade in each course taken. This grade combines the results of course work, tests, and final examinations. Grades are indicated by letters, to each of which is assigned a certain value in honor points per hour of credit, as shown in the table below.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Significance</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Outstanding, Exceptional, Extraordinary</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td></td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>Very Good, High Pass</td>
<td>3.0</td>
</tr>
<tr>
<td>CB</td>
<td>Satisfactory, Acceptable, Adequate</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td>DC</td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>D</td>
<td>Poor</td>
<td>1.0</td>
</tr>
<tr>
<td>E</td>
<td>Failing</td>
<td>0.0</td>
</tr>
<tr>
<td>X</td>
<td>Failure (Unofficial Withdrawal)</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Official Withdrawal</td>
<td></td>
</tr>
</tbody>
</table>
Credit/No Credit System

The regulations of a system supplementing the A, B, C, D, and E grading system for undergraduate students but not replacing it, except as the student wishes, are as follows:

1. The name of the program shall be "Credit/No Credit."
2. "Credit" will be posted for each undergraduate student who earns the grade of "C" or better. "No Credit" will be posted for any grade below a "C." Faculty members will not be notified whether a student is taking a course for a grade or for Credit/No Credit.
3. A student may elect for "Credit/No Credit" any course approved for General Education or General Physical Education credit, as well as other courses not counting toward his/her major or specified in his/her curriculum as defined in the University Undergraduate Catalog. Intern Teaching, a required course, is, however, taken on a credit/no credit basis.
   Acceptance of "Credit/No Credit" in required courses may be permitted on an individual basis by the head of the department or dean of the college requiring the course.
4. A student may change only during the drop/add period from "Credit/No Credit" to letter grade or from letter grade to "Credit/No Credit."
5. All undergraduate students, regardless of classification or probationary status, will be allowed to enroll "Credit/No Credit."
6. "Credit/No Credit" courses, while counting toward a degree, will not be used to determine the overall grade point average (GPA) of the individual student.

Important: Students should be fully aware of the implications of this system for acceptance in graduate schools. It has been ascertained that most graduate schools will accept students who have elected to take courses on a "Credit/No Credit" basis, but that if courses taken on this basis are sufficient in number on the transcript, the Graduate Record Examination may be utilized to determine the student's acceptability. Graduate schools, in general, do tend to favor those applicants who have good letter grades on their transcripts.

AU - Audit

The symbol "AU" is used to indicate that a student has enrolled in a course as an auditor, has attended at least three-fourths of the class or laboratory sessions, and has given evidence to the course instructor that the role as auditor has been satisfactory.
A student who registers for a graduate course as an auditor, with the permission of the instructor, is not eligible to sit for examinations, earns no credit hours for the registration, and pays full tuition. The student must enroll in the audit status at the time of registration, and may not be transferred from the audit status after the drop/add period has ended.

"I" - Incomplete

This is a temporary grade, which the instructor may give to an undergraduate student when illness, necessary absence, or other reasons beyond the control of the student prevent completion of course requirements by the end of the semester or session. The grade of "I" (Incomplete) may not be given as a substitute for a failing grade.

A grade of "I" must be removed by the instructor who gave it or, in exceptional circumstances, by the department chairperson. If the unfinished work is not completed and the "I" grade removed within one calendar year of the assignment of the "I," the grade shall be converted to an "E" (failure). Students who receive an incomplete grade in a course must not reregister for the course in order to remove the "I."
An instructor who assigns a grade of "I" will submit a Report of Incomplete Grade Form located on the faculty menu in GoWMU indicating the remaining requirement for removal of the incomplete grade and indicating the time allowed, if less than one year. An e-mail will be automatically generated to the student, the Registrar’s Office as well as an e-mail confirmation sent to the instructor.

"W" - Official Withdrawal

A grade of "W" is given in a course when a student officially withdraws from that course or from the University before the final withdrawal date in the semester or session specified on the Registrar’s website. The "W" is a non-punitive grade.

"X" - (Failure) Unofficial Withdrawal

The symbol "X" is used to indicate that a student has never attended class or has discontinued attendance and does not qualify for the grade of " I." The "X" will be computed into the student's grade point average, as a 0.0, the same as an “E”.

Grade Change

A student who believes an error has been made in the assignment of a grade must follow the procedures described under "Grade Appeals“ on the Ombudsman website http://www.wmich.edu/ombudsman/. The policy describes the appeal procedures, the stages of appeal, and the time deadlines for submitting the appeal at the various stages. Faculty who determine outside of the student course grade appeals process, that an error was made in the assignment of a grade must submit a Change of Grade form (located on the faculty menu in GoWMU) within one calendar year of the original grade assignment and must provide a rationale for the change. Instructors should not provide additional work to student after the semester has ended and after a final grade has been assigned.

Grade Point Average

A grade point average is obtained by dividing the total number of honor points earned by the total number of semester hours of work for which the student is officially enrolled during any period. For example, a total of thirty-two honor points earned in a semester by a student officially enrolled for sixteen hours of work, gives a grade point average of 32 ÷ 16 or 2.0 for the semester.

Honor Points

The number of honor points earned in a course is the number of semester hour credits given by the course multiplied by the honor points assigned to the grade earned in the course. (See the "Grading System" table above.) For example, a grade of B (3 honor points) in a 4 credit hour course gives 4 x 3, or 12 honor points.

Credit by Examination

Advanced Placement Program (AP)

Western Michigan University participates in the Advanced Placement Program (AP) of the College Board. Students who earn the required score on an AP exam will receive college credit in the appropriate subject. For information about AP score requirements and equivalent credit awarded at Western, visit http://wmich.edu/admissions/freshmen-ap. Students should have College Grade Reports of their test scores sent to the Office of Admissions at Western Michigan University (college code 1902).

After AP College Grade Reports of examination scores are received and evaluated, the Office of Admissions and Orientation will notify students of the specific decisions regarding any credit award. After students' enrollment at Western, the Office of the Registrar will post course credit to students' transcripts.

College Level Examination Program (CLEP)
This program provides the opportunity to earn college credit by examination in a variety of areas of study. There are two types of tests offered—general examinations and subject examinations. Western Michigan University's credit award policies for each type are noted below. Interested students should check with their WMU academic advisors before making testing plans. Official score reports of CLEP testing should be sent to Western (college code 1902) by the Educational Testing Service (ETS). In reference to CLEP credit granted by Western Michigan University and the University's graduation requirements, CLEP credit is not applicable to the required hours completed at an accredited four-year, degree-granting institution.

General Examinations

1. Students may take the general CLEP examinations only before completing 24 hours after entering or re-entering WMU.
2. The following eligibility rules apply to nontraditional students who wish to take the general CLEP examinations:
   - Students who have already received credit for a college writing class cannot receive credit by passing the College Composition examination.
   - Students who have already received credit in a college mathematics course cannot receive credit by passing the College Mathematics examination.
   - Students who completed a WMU course or transfer equivalent that applies to the General Education Distribution Area of Fine Arts, Social and Behavioral Sciences, or Natural Sciences cannot receive credit for the corresponding CLEP examination.
3. The following guidelines shall apply in the earning of CLEP credit.
   - If a student passes the Humanities examination with a score of 50 or above, three hours of credit will be awarded in Area I (fine arts) of the General Education Program.
   - If a student passes the Social Sciences and History examination with a score of 50 or above, six hours of credit will be awarded to Area V (social and behavioral sciences) of the General Education Program.
   - If a student passes the College Composition examination with a score of 50 or above, three hours of credit for ENGL 1050 will be awarded in Proficiency 1 of the General Education Program.
   - If a student passes the Natural Sciences examination with a score of 50 or above, three hours of elective credit will be awarded in Area VI (natural sciences) of the General Education Program, but will not satisfy the lab course requirement for Area VI.
   - If a student passes the College Mathematics examination with a score of 50 or above, three hours of credit will be awarded in Proficiency 3 (mathematics) of the General Education Program.

Subject Examinations

CLEP subject examinations test specific knowledge areas and, unlike the general examinations, any Western student may take them and receive credit with appropriate scores. The University awards credit for only a limited number of the CLEP subject examinations. Students may not receive CLEP subject credit if they have already received college credit for an equivalent course. Visit the Office of Admissions website at http://wmich.edu/admissions/transfer-clep for detailed information about Western's score requirements and CLEP credit policy.

Comprehensive Examinations

Each department shall have the authority, with the approval of its dean, to establish a procedure for granting credit for any course in that department through comprehensive examinations. All comprehensive examinations should be administered by authorized personnel determined by the department. Each department should determine those courses for which the comprehensive examination procedure applies.

All credit by examination is subject to the following requirements:

1. All credit will be posted as credit only, without grade or honor points. Students who do not achieve a sufficient score for credit will have no entry made.
2. Credit by comprehensive examination in courses numbered 3000 or higher can be used to meet the requirement that one-half of all academic work must be completed at a four-year degree-granting institution.
3. Credit by comprehensive examination can be used to meet all other University graduation requirements, except the minimum residence requirements.
4. Credit by comprehensive examination can be posted only for admitted students who have either previous or current enrollment.
5. All credit by comprehensive examination is normally considered undergraduate credit.

Examination fees are assessed on a credit hour basis and are the same for all students. The current fee schedule: less than four credit hours, $50.00 Four credit hours to eight credit hours, $100.00.

By special arrangement, some course examinations may require higher fees.

**Final Examinations**

All students enrolled in a course in which a final examination is given must take the examination.

Student requests for an examination at any other time than that scheduled may not be honored.

**Full-Time/Part-Time Student Status**

Full-time undergraduate students are defined by credit hours enrolled in a given semester or session as follows:

**Fall/Spring Semester**
Undergraduate 12 hours

**Summer I/Summer II Session**
Undergraduate 6 hours

Part-time undergraduate students are defined as taking fewer than twelve hours during a semester or fewer than six hours during a session.

Three-quarter time undergraduate students are defined as taking nine to eleven hours during a semester and five hours during a session.

University Housing has its own regulations on the definition of hours needed to be eligible for housing contracts. Students should contact the University Housing Office for this information [http://wmich.edu/housing](http://wmich.edu/housing).

The above definitions are Western Michigan University regulations and may or may not be accepted by other agencies.

**Credit Hour Cap**

All undergraduate student enrollments will not exceed 19 hours for the fall or spring semesters and will not exceed 10 hours for the summer I or summer II sessions.

These enrollment caps can only be increased for a given semester or session by prior permission from a student's college advisor.

**Honors**

**Dean's List**

To gain a place on the Dean's List for a semester, a student must:

1. Have completed at least twelve semester hours of work during the fall or spring semester for letter grade.
To gain a place on the Dean's list for a Summer I or II session, a student must:

1. Have completed at least six semester hours of work during the Summer I or Summer II for letter grade.
2. Have a grade point average of at least 3.50 for the session.

**Honors Upon Graduation**

Honors are conferred upon graduating students who have displayed a high level of performance during their University career.

Recipients of honors receive their degrees:

- **Cum laude**: when their grade point average is 3.50 to 3.69, inclusive
- **Magna cum laude**: when their grade point average is 3.70 to 3.89, inclusive
- **Summa cum laude**: when their grade point average is 3.90 to 4.00, inclusive

In computing the grade point average for honors, the following rules will apply:

1. All credits and honor points earned at Western Michigan University will be counted.
2. All students must have earned at least fifty semester hours of course work at Western Michigan University which was graded by a letter grade and computed into the final cumulative grade point average.

The graduation program will list as candidates for honors all students who have earned a point-hour average of 3.50 through the next-to-last semester of residence (based on a minimum of forty-five semester hours of credit earned at Western of which thirty-five hours must be in courses with grades.) Final determination of honors and level of awards will be based upon all work and will appear on the final transcript.

**Independent Study**

Independent Study refers to enrollment in an appropriately designated, variable-credit course for a specific plan of study, authorized and supervised by a designated, consenting faculty member.

Independent Study is not a substitute for regular courses, but an enrichment opportunity. Normally, it is a project designed to allow students to investigate an area of interest not within the scope of a regular course, to probe in more depth than is possible in a regular course, or to obtain an educational experience outside that normally offered by a regular course.

Since individual Independent Study projects are not normally reviewed through the usual departmental and University processes, it is essential that the academic adequacy of such projects be assured by some other means applied consistently throughout the University.

The following policy guidelines are intended to serve that function.

**Proposals for Independent Study**

Independent Study requires an adequate description of the work to be undertaken, requiring planning in advance of the registration period. Sufficient time, therefore, must be allowed for such planning and for obtaining the necessary faculty and administrative approvals.
While the Independent Study project is normally student-initiated, early interaction with faculty is essential in the development of a mutually acceptable project description. At a minimum, such a description should contain an outline of the study topic, specification of the work to be done and the materials to be read, the credit to be given, the type and frequency of faculty-student contacts, and a statement of the evaluative criteria to be used by the faculty member.

**Approval Process**

The faculty member must accept and approve the student and the project, and then submit the agreed-upon proposal on the appropriate University form to the department chairperson for approval. If the chairperson approves, information copies of the form must be submitted to the dean and the Registrar.

The granting of approval by the department chairperson may involve considerations, such as faculty workload, which go beyond the merits of the project.

**Faculty Responsibility**

Independent Study is basically a tutorial process, necessarily involving substantial faculty participation. In that respect, it should be distinguished from "credit by examination," a different option in which the role of the faculty member is primarily evaluative.

A student is on his/her own in Independent Study in that it involves no class meetings or formal lectures, but the faculty member is the responsible custodian of the project, obliged to provide guidance, assistance, criticism, suggestion, and evaluation, and shall be the instructor of record who is responsible for turning in a grade to the Registrar's Office.

**Repeated Course**

The following is the general University policy regulating repeated courses. Some academic Colleges, however, have a somewhat different policy regulating students in academic programs within those Colleges. You are advised to seek the counsel of the academic advisors in the College advising offices regarding the specific repeated course policy for that College.

Any course in which a student may have been enrolled more than once is considered a repeated course. A grade must be presented for each course, and any course first elected for a letter grade must be elected for a letter grade when repeated. If a student wishes to repeat a course taught by an overseas institution during WMU sponsored study abroad, the pre-approved WMU equivalent course may be repeated for credit if the student's department approves.

Only the most recent grade for a repeated course is used in calculating a student's grade point average. However, if a student receives a letter grade in the first enrollment and then enrolls again in the course and receives a grade of "W," "Cr," or "NC," the previous grade will remain in the grade point average.

The number of times a course can be taken is limited to three, although courses in which grades of "W," "Cr," or "NC" are received will not count as attempts in limiting the maximum number of times a student can register for a course. Appeals may be addressed to the department chairperson.

There is no limit on the number of different courses that can be repeated.

A repeated course is not removed from the student's record. All grades earned are shown on the transcript.

Many graduate and professional schools recalculate the grade point average using grades from all classes taken, including repeats, in determining eligibility for admission. This fact should be carefully considered by students who are attempting to increase their grade point average by repeating courses in which they have received a passing grade.

**Repeated Courses in the College of Engineering and Applied Sciences**
Students in the College of Engineering and Applied Sciences may enroll in a course that is required in their curriculum only three times. Any additional enrollments require prior written approval of their department chair.

**Service-Learning, Co-Curricular Learning and Volunteerism**

Service-learning, co-curricular learning and volunteerism are all forms of experiential learning that do not include financial remuneration. Experiential learning is an important aspect of a student's academic career and includes pedagogies that incorporate practical application and hands-on experiences into learning.

**Service-Learning:** Service-learning, while enrolled at Western Michigan University, is a mutually beneficial endeavor in which course learning objectives are met by addressing community-identified needs--putting academics into practice. The criteria for the service-learning course designation are as follows:

- Service project must enhance understanding of course learning objectives
- Students provide at least 15 hours of service during the semester. Project-based learning is determined by completion of project goals rather than number of hours. *Hours must be logged*
- Must include critical reflection of student's experiences
- Projects must serve a community-identified need
- Must be a reciprocal partnership among community partners, students, and professors/instructors/staff
- Projects must be arranged by university faculty or staff
- Only courses in which service-learning is required for all students will receive the service learning designation
- To receive the designation, the course must include the service-learning requirement every time it is taught

**Co-Curricular Learning:** Co-curricular learning, while enrolled at Western Michigan University, takes place outside formal academic studies. The criteria for co-curricular learning include:

- Learning objectives are determined by the organizing body, and are not associated with course content and objectives
- Number of hours is set by the organizing body-Registered Student Organizations (RSO's), Resident Assistants (RA's), other student groups, etc.
- Includes structured reflection
- Service enhances student learning and meets community needs

**Volunteerism:** Volunteerism refers to work done to give back to the community and may be completed by individual students or by organized group activities. It may be done on a voluntary basis or as required for an academic course, program or other campus organization while enrolled at Western Michigan University. Volunteerism:

- Is usually not related to an academic course
- Has no minimum or maximum number of hours; hours should be logged in GoRSO
- Does not necessarily include reflection
University Policy on General Education

The rationale for a general education requirement for graduation is based on the educational goals of Western Michigan University. We review these goals before stating the goals of undergraduate general education:

Educational Goals of Western Michigan University

To help each student develop the ability to think critically and objectively, to locate and assess information, and to communicate clearly and effectively in speaking and in writing; to expose each student to the knowledge and insights essential to significant participation in our increasingly technological, interdependent, and rapidly changing world; to assure that each student has the opportunity to examine the central role of ethics and values in the shaping of meaningful lives; to structure the learning experience so that students can appreciate and understand the importance and consequences of our diverse cultural and ethnic heritage; to instill in students a lifelong love of learning and a desire for involvement in the world of learning; and to enable students to acquire mastery of a field of inquiry or profession sufficient for an understanding of its methods, its subject matter, and its future in our world.

An additional basis for the general education requirement is the statement of goals for Western Michigan University contained in the report of the University Committee on Undergraduate Education, published in October 1971:

Goals of Undergraduate Education

The major concern of Western Michigan University is the education of its undergraduate students, and it is committed to provide the environment and the means to enable these students:

1. To assume primary responsibility for their own growth and education, to achieve a genuine sense of competence, and to develop the motivation and ability to perceive and pursue learning as a continuous process.
2. To acquire the knowledge, skills, and will to examine critically human experience, especially as that experience relates to contemporary life and illuminates the future.
3. To gain an understanding of the persistent values of their own and other cultures and the ability to respond critically, sensitively, and sympathetically to cultural differences and change.
4. To achieve greater self-knowledge and self-esteem, increased understanding and empathy with others, and an enhanced ability to relate positively to their fellow human beings. C.U.E. Report, 1971, p. 13.

Goals of General Education

A bachelor's degree should signify that the individual to whom it is granted has had a broad and balanced education, as well as concentrated studies in at least one discipline or area of knowledge. It should also signify that the individual has acquired intellectual skills that are applicable across a wide range of endeavors, as well as those narrower skills appropriate to a specialization. Thus the University requires structured plans of study leading toward both a specialized and general education.

Specialized education—the primary objective of concentrated study in majors, minors, and curricula—normally restricts the scope of concern in order to ensure a detailed, specific competence in techniques and subject matter. It seeks to accomplish these ends through a program of study comprising a number of segments (courses) taught by specialists and planned to contribute to the whole; the intended result is a person with particular information and a set of skills and abilities usually shaped by specific job demands and descriptions. Often the goals of specialized education are determined or strongly influenced by external agencies, e.g., accrediting bodies or professional field demands, as much as by the stated goals of the University.

General education, on the other hand, is concerned with the breadth and balance of learning, and with the versatility that comes with proficiency in intellectual skills that have universal application. General education should develop each student's knowledge, capacity for expression and response, and critical insight to help the student become a capable, well-informed, and responsible citizen of a culturally diverse society in a complex world. To this end, the University's general education
program aims to improve the student's competence in mathematics and language, both oral and written, and to foster the will and ability to think clearly, critically, reflectively, and with as much precision as the subject allows. While requiring a degree of proficiency of everyone, the University's general education program enables a student to master foundational intellectual skills through a sequence of related courses.

General education also seeks to extend the undergraduate learning experience beyond particular academic or professional concentrations. It aims to acquaint the student with essential subject matter and methods of knowing in the arts and humanities, the social and behavioral sciences, mathematics, and the natural (including applied) sciences. Moreover, it aims to enable the student to use technology appropriately, and to understand the value of individual health, fitness, and well-being. These aims are based on the belief that such learning enriches human experience and fosters understanding of oneself, others, and the world.

While the two kinds of education can thus be distinguished, they are essentially complementary, not antithetical, elements of an undergraduate education; and courses in each type often contribute to fulfilling the goals of the other. Study in depth can reward the student with a sense of competence and the sobering awareness of how much is yet to be learned in any field, while the broader perspective and the habit of seeking interrelationships enhance the benefits of specialized study. Furthermore, just as specialized programs mandate some breadth in a student's education, so should the general education program allow some study in-depth.

Structure of the General Education Program

The program has two parts: proficiencies and distribution areas. What follows describes these elements of the program. However, all descriptions of course content and structure presuppose the individual professor's freedom to teach the course according to personal professional judgment. Stated requirements are not intended to impinge upon academic freedom, but only to specify a range of content within which the course should be structured. Matters of interpretation and pedagogy are the sole prerogative of the individual professor.

Criteria for Selecting and Evaluating General Education Courses

Criteria Applicable to All Courses

1. Courses should further the goals of general education articulated in the introduction to this document. Courses may be those specifically designed for general education, or they may be introductory or intermediate courses in a major sequence so long as they conform to the goals of general education. Advanced courses may be offered for proficiencies 2 (baccalaureate-level writing), 4a (advanced writing), and 4b (optional mathematics or quantitative reasoning).
2. Courses at the 5000-level do not count towards general education. Courses with prerequisites may count towards general education.
3. Grading and the amount of work required of students should be as rigorous in general education courses as in courses for majors. However, course work and teaching methods should be designed to open the discipline(s) to non-specialists.
4. All courses included in general education must have syllabi consistent with the syllabus template adopted by the Faculty Senate on October 6, 2011 in MOA 11/02. Syllabi and other related materials must be made available to the COGE as part of the request for a course to be granted general education status.
5. Departments that offer courses in multiple sections should demonstrate that all sections meet the standards of general education and are comparable with one another.
6. In the case of variable topics courses which may be taken more than once for credit when the subject matter is different, the different course subtopics should be reviewed for general education credit, and not simply the basic courses.
7. Students may receive credit by examination in place of coursework in the proficiencies, but not proficiencies 4a-4g, if the department offering the course provides for credit by examination, and the COGE approves. Placement in a foreign language at a second-year level does not waive the fourth proficiency requirement.
8. Courses approved for general education credit should, if possible, be offered at least once every two years.
9. If a department seeks approval for a course that is other than three credit hours, it should explain the basis for the difference in credit-hour requirements.

Criteria for the Proficiencies

Writing Courses (Proficiencies 1 and 2)

Writing courses that satisfy proficiency requirements should work to develop students' ability to express themselves effectively in writing. Specifically, college-level writing courses should develop the ability to think critically and reflectively about written material, an awareness of the process of composition, the ability to employ appropriately, though not necessarily faultlessly, the grammatical and mechanical conventions of standard written English, and the ability to organize materials and to develop and support ideas and arguments and express them clearly.

Baccalaureate-level, writing-intensive courses should reinforce the skills acquired in college-level courses and should promote maturity as a writer. They should further the ability to analyze and evaluate writing, the ability to construct and develop a point or idea, the ability to develop organized paragraphs and use appropriate transition devices, and the ability to employ the grammatical and mechanical conventions of standard written English. Papers in every course approved for baccalaureate-level writing must be substantial in nature and length. Instructors and departments will be responsible for determining the format, modes of presentation, technical vocabulary, and research or bibliographic conventions appropriate for writing in their respective disciplines.

These descriptions do not supersede criteria stated in the current University baccalaureate-level writing requirement.

Mathematics or Quantitative Reasoning Courses (Proficiency 3)

Each student must either:

- complete a college-level mathematics or quantitative reasoning course requiring Math 1100 (not satisfied by Math 1110), or its equivalent, as a prerequisite, or
- place into Math 1220/1700 (calculus) or higher on the Mathematics Placement Exam.

Courses satisfying this requirement may be offered in the Departments of Mathematics or Statistics or in other departments that offer courses satisfying the described criteria and requiring the use of the skills of Math 1100 as part of the course content (Math 1110 does not satisfy this requirement). These skills are those derived from the study of arithmetic foundations of algebra, properties of real numbers, linear equations and inequalities, and systems of linear equations. Courses satisfying the proficiency must significantly advance students' mathematical skills and competencies beyond the level of one year of elementary algebra.

Courses that Enhance a Proficiency or Develop Another One (Proficiency 4)

Writing, 4a
Advanced writing courses should promote mastery of the mechanical, rhetorical, or aesthetic conventions of writing.

Mathematics or Quantitative Reasoning, 4b
The second course in mathematics or quantitative reasoning that students may take for general education credit should build upon the skills developed in their required quantitative reasoning course or its equivalent. Courses may be selected from statistics, discrete mathematics, general topics in mathematics, foundational calculus, or other related approved courses.

Critical Thinking, 4c
Critical thinking is the art of reasoning, which may be defined as reaching reasonable and reflective judgments focused on what to believe and do, or on how to interpret others' words and deeds. Courses in this area should help students become more expert in reasoning when they listen, read, think, evaluate, write, speak, and when they carry out plans of action. To this end, the courses have at least two of these four goals:
Courses should help students become more skilled in making several kinds of distinctions: between arguments (chains of reasoning) and other information, between conclusions and premises, between the different patterns of arguments, between complete and incomplete presentations of arguments, between strong and weak arguments, and between cogent and ineffective ways of exposing weak arguments.

Courses should help students become more skilled in resolving differences of opinion by locating common ground, by marshaling arguments, and by becoming sensitive to fallacies and other pitfalls of disputes.

Courses should sensitize students to methods of overcoming differences that obstruct agreements to cooperate, so that the parties may come to an accord on how to interact with a minimum of dissatisfaction and a maximum consideration of the merits of each side.

Courses should help students become more skilled in planning tasks involving choices and uncertainties. To develop these skills, students should learn techniques for analyzing and operationalizing the tasks, e.g., formulating objectives, flow-charting, programming, and assessing probabilities.

**Oral Communication, 4d**

Courses in oral communication should promote a breadth of skills in listening and clear expression in interpersonal or public speaking situations. Courses that satisfy this proficiency should foster the ability to use appropriate listening and expressive skills, to inform and persuade, and to analyze and synthesize for problem solving in interpersonal or public settings.

**American Sign Language, 4e**

Courses should enable students to recognize, describe, and produce under appropriate conditions the basic grammatical features and vocabulary of American Sign Language with the aim of achieving conversational fluency. Courses should also enable students to recognize and describe the essential features of the culture, education, and communication strategies of deaf people.

**Computer Programming and Applications, 4f**

Courses are not limited to those offered by the Department of Computer Science.

**Foreign Language, 4g**

Foreign language courses should develop facility in understanding, speaking, reading, and writing a language other than one's own. Additionally, these courses should introduce salient features of the culture from which the language derives or in which the language flourishes. Two semesters of college-level foreign language study will satisfy this requirement; students entering the University with college-level knowledge of a foreign language will be allowed to satisfy this requirement by taking two more advanced language courses or by taking two semesters of yet another foreign language.

**Criteria for Courses in the Distribution Areas**

**Area I, Fine Arts**

Courses that meet the fine arts requirement should provide experiences and develop skills that promote awareness of the imaginative and inventive capacities of the mind and of the aesthetic qualities of works of fine art. To achieve this goal courses should:

- deal with the arts in a direct, experiential manner, and whenever possible, include attendance and/or involvement in live performances, exhibitions, or arts events;
- entail formal or historical study of an art form or forms through reading, lecture, or discussion, and writing to develop the knowledge and perceptual skills that make for critical response, discernment, and informed evaluation; and
- be designed for the layperson rather than the skilled practitioner.

Courses may focus on the role of an art or the arts in a culture or on the enhancement of life they provide the individual. Courses may introduce students to the practice of an art so long as they meet the three criteria cited above.

**Learning Outcomes for Area I**

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- Explain the role of the arts in reflecting and influencing the human condition.
- Describe the historical context of various art forms.
- Interpret, evaluate, and describe aesthetic experiences and creative activities.
- Demonstrate knowledge of formal and thematic characteristics of different media and genres.

**Area II, Humanities**

Humanities courses offer the opportunity to study some of the forms by means of which human beings have reflected upon and represented human experience and the varieties of the human condition. These forms are mostly linguistic-literary, philosophic, historiographic, and religious. Sources studied in the humanities courses should be presented in ways that develop appreciation for their intellectual and aesthetic integrity and their imaginative scope. They should be studied in ways that require effort of response and reflection, and expand the students' critical and empathic capacities.

**Learning Outcomes for Area II**

- Explain the intellectual traditions that have helped shape present cultures.
- Describe the historical context of various literary, philosophic, historic, or religious works.
- Evaluate qualities and characteristics of works of literature, philosophy, history, or religion.
- Explain the role of at least one of the humanities in reflecting and influencing the human condition.

**Area III, The United States: Cultures and Issues**

The United States has always been, and will continue to be, a nation of great cultural and human diversity, its citizens deriving from many different religious, racial, and social groups. As the United States, increasingly multicultural and aware of the claims and rights of its diverse citizenry, strives to include all groups fully into the national life, a multicultural perspective needs to be incorporated into a student's general education. Courses that fulfill this requirement:

- should address the subject within the larger context of United States history and culture;
- should afford students the opportunity for informed reflection upon the cultural and human diversity of the United States. They should develop awareness of the national dimensions of cultural and human diversity and of critical social issues affecting component cultures of our society;
- may focus on one or more of the cultures that comprise our society, studying that culture (or those cultures) in ways that promote an understanding of the perspectives of the group or groups in the national context;
- may reflect upon issues that cut across constituencies, such as those stemmming from age, class, disabilities, gender, race, or the dynamics of discrimination;
- may focus on a specific issue such as race relations or the psychology of difference; on a specific perspective such as that provided by women's writing or the arts of a cultural group; or on distinctive features of one cultural tradition such as musical forms developed by Blacks/African Americans or historic and contemporary institutions of Native American culture; and
- may focus on the ethical, legal, and institutional aspects of the fact of diversity in United States history and culture.

**Learning Outcomes for Area III**

- Explain the characteristics and historical background of diverse racial, religious, political, and social groups in the U.S.
- Identify issues such as age, class, disabilities, gender, race, or discrimination that have an impact on the cultural life of the United States, and analyze the roles those issues play in U.S. culture.
- Identify some of the historical dynamics (social, economic, political) that have shaped a current social condition (for example, economic and social segregation in U.S. cities or economic inequality) and explain how that dynamic has contributed to that condition.

**Area IV, Other Cultures and Civilizations**
This area introduces students to the values, institutions, and practices of cultures whose origins lie outside the European cultural arena. The experience of the Western world forms only a part of a much vaster human legacy. This area seeks to broaden perspectives on the human condition by focusing on other cultures and civilizations, singly or comparatively, both as systems unto themselves and as participants in an increasingly interdependent global society. Courses in this area have several of the following characteristics:

- deal systematically with the cognitive and pedagogical challenges of presenting and understanding cultures other than one's own;
- attempt to acknowledge and utilize multidisciplinary insights of scholars devoted to the study of cultures and civilizations;
- provide an opportunity to step outside one's own frame of reference by considering human experience and the potential for human achievement from other perspectives;
- emphasize the adaptive nature of cultures or civilizations in response to the challenges of physical environment, intercultural and international relations, and internal social dynamics;
- examine the history, literature, arts, religion, ideas and institutions of other cultures and civilizations;
- stimulate reflection on characteristics of various cultures;
- stimulate reflection on the interaction of cultures and nations in an increasingly interdependent world; and
- explore alternative views of modernization.

**Learning Outcomes for Area IV**

- Explain the adaptive nature of culture.
- Explain the influence and contributions of at least one other culture and/or civilization.
- Describe the history, literature, arts, religion, ideas, and institutions of at least one culture other than one's own.
- Compare, contrast, and evaluate two or more different cultures, including one's own.

**Area V, Social and Behavioral Sciences**

The courses in the social and behavioral sciences provide students with an understanding of human society, its cultures and environments, or of the dynamics of individuals and groups. The courses may:

- provide a theoretical, empirical, or experimental analysis of the economic, political, communicative, psychological, and other kinds of behavior of individuals and institutions;
- work toward descriptions adequate to the complexity of human beings and their institutions;
- examine the policy implications and service applications of social science in ways that promote critical reflection; or
- focus analytically and critically on the history or prehistory of societies, particularly those not covered in distribution areas III and IV.

**Learning Outcomes for Area V**

- Describe how geographic, political, and historical processes influence the social and behavioral science issues.
- Examine critically the applications of the social and behavioral sciences for policy and public service.
- Analyze data and draw appropriate conclusions.

**Area VI, Natural Sciences with Laboratory**

Laboratory courses in the natural sciences which meet the general education requirement require students to interact with objects of nature and to use instruments that permit careful examination of natural phenomena in either physical or simulated conditions. They require students to use scientific methods to collect and analyze data and to report results. These courses have a laboratory period of at least one hour and fifty minutes per week. Courses must carry at least 4 hours but no more than 5 hours of credit. Area VI is deemed to have been completed satisfactorily if, and only if, the laboratory course and the theory course pertain to the same subject area (i.e., physics, chemistry, etc.). Area VI is deemed to have been completed
satisfactorily by three transferred credit hours when those credit hours consist of both a lecture and a laboratory section. The laboratory component of an approved course must:

- be based on direct observation of natural phenomena by the student;
- deal with objects of nature and employ appropriate instruments to observe or measure these objects;
- employ scientific methods; and
- have a designated laboratory work assignment.

General purpose laboratory courses which instruct in scientific methods independent of a particular science discipline are not eligible for satisfying the general education laboratory sciences requirement. Only discipline-specific courses in the areas of physical sciences, earth sciences, or life sciences satisfy this requirement.

Learning Outcomes for Area VI

- Apply the scientific method of discovery to the study of natural phenomena by critically evaluating and analyzing data and reaching the appropriate conclusions.
- Use scientific concepts and vocabulary to explain and make predictions about natural phenomena in a physical, life, or behavioral science.

Area VII, Natural Science and Technology: Applications and Implications

If students are to understand contemporary life, they should understand the implications of natural science and technology as applied to health, social and economic welfare; the storage, transfer, and processing of information; and the management of society's impact on the environment with sensitivity to ecological interconnections. Courses in this area should help students attain this understanding and should promote the ability to evaluate and participate in the decisions of society regarding science and technology. Criteria for these courses are:

- A substantial portion of the course work must be devoted to the teaching of the relevant science and technology. Techniques and skills acquired without learning an underlying natural science do not meet this criterion.
- The courses should also explore the costs and benefits of society's decisions regarding the uses of the sciences they teach.
- A substantial portion of the course should prompt reflection on responsible choices between competing values and interests.
- Although courses will contain a core of natural science, computer science, or the technology based on these sciences, they will explore practical applications and implications by examining some of the following:
  - sciences relevant to informed judgment about social and environmental costs and benefits;
  - salient history of science and technology;
  - assessments, systems analyses, and other quantitative tools;
  - considerations of law, rights, ethics, and the political process;
  - global challenges (e.g., population growth, climate and atmospheric change, loss of biodiversity, and resource management) involving more than one science and technology; or content from the social and behavioral sciences, humanities, and fine arts.

Courses in this area lend themselves to a multi-disciplinary approach, and may be the sole responsibility of individual instructors with wide competencies, or may be team-taught, or may be offered by a group of instructors, each assuming responsibility for a module of the course.

Learning Outcomes for Area VII

- Describe the history of technological innovation and its impact, both positive and negative, on society.
- Explain the interconnection between the natural sciences and advancements in technology as they impact health, social and economic welfare; the storage, transfer, and processing of information; and the environment.
- Demonstrate the ability to evaluate and participate in making societal decisions regarding science and technology.
Area VIII, Health and Well-Being

Courses which satisfy this area must advance students' knowledge and ability to influence their own health. Course content should examine national and global health priorities regarding the reduction of preventable death, disease, and disability among students and should include material on HIV/AIDS, and alcohol and substance abuse.

Courses which satisfy this requirement should improve a student's capacity to make healthy lifestyle choices. Single-topic courses may not be used to satisfy the requirement, and course content must address a minimum of four areas of health-related issues such as substance abuse, stress-related issues, grief and loss, development of healthy relationships, sexually transmitted diseases, lifestyle related diseases (primarily heart disease and cancer), and the principles of a healthy lifestyle.

Courses may be drawn from any department within the University. A maximum of eight (8) hours of general activity physical education may be applied toward electives for graduation credit.

Students who have completed Initial Military Training in the United States military will be deemed to have satisfied and will receive two credit hours for Area VIII Health and Well-Being of the University General Education Program. Training completion will be verified by the student's DD-124, Joint Service Transcript or certificate of completion from the military training institution. Initial Military Training is defined as completing advanced individual training, A-school, or tech school.

Learning Outcomes for Area VIII

- Identify major health issues affecting students and other people and describe ways of reducing preventable disease, disability, and death.
- Describe the principles of a healthy lifestyle and ways of assessing health risks.

General Education Program Courses

The Proficiencies

Proficiency 1: College-Level Writing
BCM 1420 - Informational Writing Credits: 3 hours
ENGL 1050 - Thought and Writing Credits: 4 hours
IEE 1020 - Technical Communication Credits: 3 hours

Proficiency 2: Baccalaureate-Level Writing
Does not count toward 37 credit minimum General Education hour requirement. Consult your curriculum or major program advisor for the course(s) approved for your area of study.

Proficiency 3: College-Level Mathematics or Quantitative Reasoning
MATH 1140 - Excursions in Mathematics Credits: 3 hours
MATH 1160 - Finite Mathematics with Applications Credits: 3 hours
MATH 1180 - Pre-calculus Mathematics Credits: 4 hours
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
MATH 2000 - Calculus with Applications Credits: 4 hours
STAT 1600 - Statistics and Data Analysis Credits: 3 hours
STAT 2830 - Methods of Data Analysis Credits: 3 hours
STAT 3660 - Data Analysis for Biosciences Credits: 4 hours

Proficiency 4: Enhance or Develop a Proficiency
Consult your major or college advisor regarding the requirement(s) for your program. A course or courses in one of the following categories:
**Proficiency 4a, Advanced Writing**
ENGL 3060 - Rhetoric, Writing, and Culture  Credits: 3 hours
REL 2000 - Thinking About Religion  Credits: 4 hours

**Proficiency 4b, Mathematics or Quantitative Reasoning**
MATH 1220 - Calculus I  Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers  Credits: 4 hours
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours
MATH 2000 - Calculus with Applications  Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers  Credits: 4 hours
STAT 2160 - Business Statistics  Credits: 3 hours
STAT 2600 - Data Analysis Using R  Credits: 4 hours

**Proficiency 4c, Critical Thinking**
COM 1000 – Communication and Community Engagement  Credits: 3 hours
ENGL 3060 - Rhetoric, Writing, and Culture  Credits: 3 hours
NUR 2200 - Foundations of Nursing and Critical Thinking  Credits: 3 hours
PHIL 2200 - Critical Thinking  Credits: 3 hours
PHIL 2250 - Deductive Logic  Credits: 3 hours
PHIL 3200 - Formal Logic  Credits: 4 hours
PHIL 3250 - Inductive and Scientific Reasoning  Credits: 3 hours
PSCI 1050 - Critical Thinking About Politics  Credits: 3 hours

**Proficiency 4d, Oral Communications**
COM 1000 – Communication and Community Engagement  Credits: 2 hours
COM 1040 - Public Speaking  Credits: 3 hours
COM 1700 - Interpersonal Communication  Credits: 3 hours
HSV 4860 - Health Literacy Practices  Credits: 3 hours

**Proficiency 4e, American Sign Language**

**Proficiency 4f, Computer Programming and Applications**
CS 1110 - Computer Science I  Credits: 4 hours
GPS 2510 - Multimedia Publication and Design  Credits: 3 hours
MUS 2220 - Computer Music Design  Credits: 3 hours

**Proficiency 4g, Foreign Languages**
All Western Michigan University foreign language courses are granted general approval to satisfy Proficiency 4g.

Two semesters of college-level foreign language study will satisfy this requirement; students entering the University with college-level knowledge of a foreign language will be allowed to satisfy this requirement by taking two more advanced language courses or by taking two semesters of yet another foreign language.

**The Distribution Areas**

**Distribution Area I: Fine Arts**
ART 1200 - Introduction to Art  Credits: 3 hours
ART 1300 - Studio Experience - (3-D)  Credits: 3 hours
ART 1400 - Studio Experience - (2-D)  Credits: 3 hours
ART 1480 - Direct Encounter with the Arts  Credits: 4 hours
ART 2200 - History of Art  Credits: 3 hours
ART 2210 - History of Art  Credits: 3 hours
CHIN 2800 - Chinese Calligraphy  Credits: 3 hours
DANC 1450 - Experiencing Dance  Credits: 3 hours
ED 2300 - The Nature of Creativity  Credits: 3 hours
ENGL 1100 - Literary Interpretation Credits: 4 hours
ENGL 2100 - Film Interpretation Credits: 4 hours
HIST 3015 - History and Film Credits: 3 hours
HIST 3150 - Popular Art and Architecture in America Credits: 3 hours
HNRS 4101 - Introduction to World Cinema Credits: 3 hours
INTL 3300 - Education Abroad - WMU Programs Credits: 1 to 16 hours **
INTL 3310 - Education Abroad - Non-WMU Programs Credits: 1 to 16 hours **
MUS 1480 - Direct Encounter with the Arts Credits: 4 hours
MUS 1500 - Music Appreciation: Live Music Credits: 4 hours
MUS 1520 - Rock Music: Genesis and Development Credits: 3 hours
MUS 4500 - Music Appreciation: The Symphony Credits: 3 hours
PHIL 3120 - Philosophy of Art Credits: 3 hours
THEA 1000 - Playing with Fire: Love, Politics & Entertainment Credits: 3 hours
THEA 1480 - Direct Encounter with the Arts Credits: 4 hours
** Must be approved by College General Education advisor. (Note: Not major/minor advisor.)

** Distribution Area II: Humanities **
AAAS 2800 - Topics and Themes in African American and African Studies Credits: 3 hours
ENGL 1120 - Literary Classics Credits: 4 hours
ENGL 2110 - Folklore and Mythology Credits: 4 hours
ENGL 2520 - Shakespeare Credits: 4 hours
ENGL 3070 - Literature in Our Lives Credits: 3 hours
ENGL 3080 - Quest for Self Credits: 3 hours
ENGL 3110 - Our Place In Nature Credits: 3 hours
ENGL 3120 - Western World Literature Credits: 3 hours
ENGL 3150 - The English Bible as Literature Credits: 3 hours
ENGL 3820 - Literature for the Young Child Credits: 4 hours
ENGL 3830 - Literature for the Intermediate Reader Credits: 4 hours
ENGL 4160 - Women in Literature Credits: 4 hours
ES 2800 - Human Flourishing and the Pursuit of Happiness Credits: 3 hours
GWS 1000 - Media and the Sexes Credits: 3 hours
HIST 1000 - Early Western World Credits: 3 hours
HIST 1010 - Modern Western World Credits: 3 hours
HIST 1450 - Heroes and Villains in the Middle Ages Credits: 3 hours
HIST 3000 - Arts and Ideas: Ancient/Medieval Credits: 3 hours
HIST 3010 - Modern Arts and Ideas Credits: 3 hours
HIST 3300 - Canadian History and Culture Credits: 3 hours
HIST 3360 - Women in European History Credits: 3 hours
HIST 3790 - World War II in American and Japanese History Credits: 3 hours
HNRS 3201 - Art of the Book Credits: 3 hours
HNRS 3202 - Modernism in Art and Literature Credits: 3 hours
HNRS 3203 - Utopian and Dystopian Fiction Credits: 4 hours
HNRS 3204 - Postmodern Dystopias: Fiction and Film from 1970 to the Present Credits: 4 hours
INTL 3300 - Education Abroad - WMU Programs Credits: 1 to 16 hours **
INTL 3310 - Education Abroad - Non-WMU Programs Credits: 1 to 16 hours **
LANG 3500 - Classical Greek and Roman Mythology Credits: 3 hours
LANG 3510 - The City of Gods: Power and Morality in the Roman World Credits: 3 hours
LANG 3750 - World Literature in English Translation: Views of Humanity Credits: 3 hours
LANG 4040 - East and West Literary Relations Credits: 3 hours
MDVL 1450 - Heroes and Villains of the Middle Ages Credits: 3 hours
MUS 3120 - Explorations in World Music Credits: 3 hours
NUR 3220 - Health Care Ethics Credits: 3 hours
PHIL 2000 - Introduction to Philosophy Credits: 4 hours
PHIL 2010 - Introduction to Ethics Credits: 4 hours
PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
Distribution Area III: The United States: Cultures And Issues
AAAS 2000 - Introduction to African American and African Studies Credits: 3 hours
AAAS 3000 - African and African American History, Culture and Experience to 1865 Credits: 3 hours
AAAS 3010 - African American History, Culture and Experience from 1866 to the Present Credits: 3 hours
AAAS 3100 - The Black Woman: Historical Perspective and Contemporary Status Credits: 3 hours
AAAS 3140 - The Black Community: Historical and Contemporary Perspectives Credits: 3 hours
ANTH 2600 - Sex, Gender, Culture Credits: 3 hours
ANTH 3470 - Ethnicity/Multiculturalism Credits: 3 hours
ANTH 3480 - Gender and Plastic Bodies Credits: 3 hours
BLS 3050 - Introduction to Adults with Disabilities Credits: 3 hours
COM 3070 - Freedom of Expression Credits: 3 hours
CORP 2560 - Introduction to Community and Regional Planning Credits: 3 hours
ECON 3090 - Women and the Economy Credits: 3 hours
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
ENGL 2230 - African American Literature Credits: 4 hours
ENGL 4840 - Multi-Cultural American Literature for Children Credits: 4 hours
GRN 1000 - Introduction to Aging Studies Credits: 3 hours
GWS 2000 - Introduction to Gender and Women's Studies Credits: 4 hours
GWS 2010 - LGBT Studies Credits: 3 hours
GWS 3500 - Psychological Perspectives on Gender Credits: 3 hours
HIST 2100 - American History to 1877 Credits: 3 hours
HIST 2110 - American History since 1877 Credits: 3 hours
HIST 2120 - American Culture Credits: 3 hours
HIST 2125 - Sport in American Culture Credits: 3 hours
HIST 3160 - Women in United States History Credits: 3 hours
HIST 3200 - American Military History Credits: 3 hours
HIST 3230 - History of Healthcare in the United States Credits: 3 hours
HIST 3260 - Native American History and Culture Credits: 3 hours
HIST 3280 - African-American History and Culture Credits: 3 hours
HNRS 3301 - Jazz, Blues, and the Harlem Renaissance Credits: 4 hours
HNRS 3302 - Civil Rights & Jazz, 1970-75 Credits: 4 hours
HNRS 3303 - Vietnam and Rock Credits: 4 hours
HSV 3550 - Perspectives in Women's Health Credits: 3 hours
HSV 4400 - Diversity and Inclusion in Health and Human Services Credits: 3 hours
LWIR 3000 - Immigration, Race and Ethnicity in the U.S. Credits: 3 hours
MUS 1510 - Jazz in American Culture Credits: 4 hours
** Must be approved by College General Education advisor. (Note: Not major/minor advisor.)
MUS 3500 - American Music Credits: 4 hours
NUR 3550 - Perspectives in Women's Health Credits: 3 hours
PHIL 3070 - Philosophy in the American Context Credits: 3 hours
PHIL 3150 - Race and Gender Issues Credits: 3 hours
PSCI 2000 - National Government Credits: 3 hours
PSCI 3000 - Urban Politics in the United States Credits: 3 hours
PSCI 3200 - The American Judicial Process Credits: 4 hours
PSCI 3630 - American Political Theory Credits: 3 hours
REL 2065 - Islam in America Credits: 4 hours
REL 3015 - Christianity in the United States Credits: 4 hours
SPAN 2650 - Hispanic Culture in the U.S. Credits: 3 hours
SPAN 2750 - Latino Writing/Latino Culture Credits: 3 hours
THEA 1050 - Introduction to African-American Theatre Credits: 3 hours

Distribution Area IV: Other Cultures and Civilizations
AAAS 3900 - Women Writers in Contemporary Black Literature from the 19th Century to the Present Credits: 3 hours
ANTH 1100 - Lost Worlds and Archaeology Credits: 3 hours
ANTH 1200 - Peoples of the World Credits: 3 hours
ANTH 3390 - Cultures of Latin America Credits: 3 hours
ANTH 3400 - Cultures of Asia Credits: 3 hours
ANTH 3410 - Global Africa Past and Present Credits: 3 hours
ANTH 3440 - The First Americans Credits: 3 hours
ANTH 3580 - The African Diaspora: Peoples and Cultures Credits: 3 hours
ARAB 2750 - Life and Culture of the Arabs Credits: 3 hours
ART 2220 - Art of Africa, Oceania, and the Americas Credits: 3 hours
ART 2230 - Introduction to Asian Art History Credits: 3 hours
CHIN 2750 - Chinese Life and Culture Credits: 3 hours
ECON 3870 - Studies in Asian Economies Credits: 3 hours
ECON 3880 - African Economies Credits: 3 hours
ECON 3890 - Latin American Economies Credits: 3 hours
ENGL 3130 - Asian Literature Credits: 3 hours
ENGL 3140 - African Literature Credits: 3 hours
ENGL 3160 - Storytellers Credits: 3 hours
ENGR 3400 - Engineering Global Practices in Non-Western Countries Credits: 3 hours
FCS 3150 - Global Ecology of the Family Credits: 3 hours
FREN 2750 - Francophone Culture Credits: 3 hours
GEOG 3200 - Culinary Tourism Credits: 3 hours
GEOG 3810 - South America Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean Credits: 3 hours
GEOG 3860 - Geography of Africa Credits: 3 hours
GEOG 3890 - Monsoon Asia Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Landscapes and Cultures Credits: 3 hours
GIST 2000 - Introduction to Global and International Studies Credits: 3 hours
GWS 3200 - Women, Globalization and Social Change Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3030 - World History since 1500 Credits: 3 hours
HIST 3760 - Modern East Asia Credits: 3 hours
HIST 3850 - Modern Middle East Credits: 3 hours
HIST 3880 - Introduction to African Civilization Credits: 3 hours
INTL 3300 - Education Abroad - WMU Programs Credits: 1 to 16 hours
INTL 3310 - Education Abroad - Non-WMU Programs Credits: 1 to 16 hours
IPE 3050 - Study Abroad and Global Learning in Health and Human Services Credits: 1 to 6 hours
JPNS 2750 - Japanese Life and Culture Credits: 3 hours
MUS 3520 - World Music in Theory and Practice Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
REL 2010 - Buddhism Credits: 4 hours
REL 2020 - Religion in China Credits: 4 hours
REL 2030 - Religion in Japan Credits: 4 hours
REL 2040 - Religion in India Credits: 4 hours
REL 2060 - Islam Credits: 4 hours
REL 3025 - The Qur'an Credits: 4 hours
SOC 3040 - Nonwestern World Credits: 4 hours
SOC 3340 - East Asia and the World Credits: 3 hours
SOC 3350 - Modern Latin American Societies Credits: 3 hours
SPAN 3390 - Contemporary Latin America Credits: 3 hours
** Must be approved by College General Education advisor. (Note: Not major/minor advisor.)

**Distribution Area V: Social and Behavioral Sciences**
AAAS 2100 - Comparative Approaches to Forms of Black Consciousness Credits: 3 hours
ANTH 2100 - Introduction to Archaeology Credits: 3 hours
ANTH 2400 - Principles of Cultural Anthropology Credits: 3 hours
ANTH 2800 - Language in a Global World Credits: 4 hours
BUS 1750 - Business Enterprise Credits: 3 hours
COM 2000 - Human Communication Theory Credits: 3 hours
COM 3400 - Global Media Literacy Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
ECON 3180 - The Economics of Medical Care Credits: 3 hours
EDMM 3020 - Engineering Teams: Theory and Practice Credits: 3 hours
ENVS 1000 - Climate Challenged Society Credits: 3 hours
GEOG 1020 - World Geography Through Media and Maps Credits: 3 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2440 - Economic Geography Credits: 3 hours
GEOG 3830 - Geography of Europe Credits: 3 hours
HIST 3060 - Technology and Culture Credits: 3 hours
HIST 3130 - The US and the World Credits: 3 hours
HIST 3325 - History of Healthcare in the World Credits: 3 hours
HIST 3330 - The World Since 1945 Credits: 3 hours
HIST 3600 - The Medieval World: Society and Culture Credits: 3 hours
HIST 3630 - History of Modern Britain Credits: 3 hours
HIST 3640 - Modern Europe: Culture and Society Credits: 3 hours
HIST 3660 - Russia Yesterday and Tomorrow Credits: 3 hours
HPHE 1700 - Introduction to Recreation/Sport Management Credits: 3 hours
HSV 2250 - Growth, Development, and Aging Credits: 3 hours
INTL 3300 - Education Abroad - WMU Programs Credits: 1 to 16 hours **
INTL 3310 - Education Abroad - Non-WMU Programs Credits: 1 to 16 hours **
INTL 4040 - Special Topics Abroad Credits: 1 to 6 hours
LANG 2500 - The Nature of Language Credits: 4 hours
MUS 3811 - Your Brain on Music Credits: 3 hours
PADM 2000 - Introduction to Nonprofit Leadership Credits: 3 hours
PHIL 3130 - Philosophy of Law Credits: 3 hours
PSCI 2400 - Comparative Politics Credits: 3 hours
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3110 - American Politics and the Media Credits: 3 hours
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3500 - American Foreign Policy Credits: 4 hours
PSY 1000 - General Psychology Credits: 3 hours
REL 2080 - Religion in Europe Credits: 4 hours
REL 3145 - New Religious Movements Credits: 4 hours
REL 3155 - Religion and Conflict  Credits: 4 hours
REL 3165 - Religion and Globalization  Credits: 4 hours
REL 3230 - Religion and Revolution  Credits: 4 hours
SOC 2000 - Principles of Sociology  Credits: 3 hours
** Must be approved by College General Education advisor. (Note: Not major/minor advisor.)

**Distribution Area VI: Natural Science with Laboratory**

ANTH 2500 - Introduction to Biological Anthropology  Credits: 4 hours

BIOS 1050 - Environmental Biology  Credits: 3 hours and
BIOS 1100 - Biological Sciences Laboratory  Credits: 1 hour
OR
BIOS 1120 - Principles of Biology  Credits: 3 hours and
BIOS 1100 - Biological Sciences Laboratory  Credits: 1 hour

BIOS 1980 - Human Form and Function  Credits: 4 hours

CHEM 1100 - General Chemistry I  Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour

GEOG 1050 - Physical Geography  Credits: 4 hours
GEOS 1000 - Dynamic Earth  Credits: 4 hours
GEOS 1020 - Planetary Geology  Credits: 4 hours
GEOS 1300 - Physical Geology  Credits: 4 hours
GEOS 1900 - Evolution of Life - A Geological Perspective  Credits: 4 hours
GPS 1500 - Introduction to Imaging  Credits: 4 hours

OT 2000 - Human Functional Anatomy  Credits: 3 hours and
OT 2010 - Human Functional Anatomy Lab  Credits: 1 hour

PHYS 1000 - How Things Work  Credits: 4 hours

PHYS 1030 - Sky and Solar System Laboratory  Credits: 1 hour and
PHYS 1040 - Introduction to the Sky and Solar System  Credits: 3 hours

PHYS 1050 - Stars and Galaxies Laboratory  Credits: 1 hour and
PHYS 1060 - Introduction to Stars and Galaxies  Credits: 3 hours

PHYS 1070 - Elementary Physics  Credits: 4 hours and
PHYS 1080 - Elementary Physics Laboratory  Credits: 1 hour

PHYS 1130 - General Physics I  Credits: 4 hours and
PHYS 1140 - General Physics I Laboratory  Credits: 1 hour

PHYS 2050 - University Physics I  Credits: 4 hours and
PHYS 2060 - University Physics I Laboratory  Credits: 1 hour

**Distribution Area VII: Natural Science and Technology: Applications and Implications**

ANTH 1500 - Race, Biology, and Culture  Credits: 3 hours
ANTH 2510 - Forensic Anthropology  Credits: 3 hours

ART 2900 - The Skilled Observer in Art, Science, and Engineering  Credits: 3 hours

AVS 1200 - Introduction to Aviation  Credits: 3 hours

AVS 2800 - Transportation Technology: Policy, Perils, and Promise  Credits: 3 hours

BIOS 2700 - Everyday biology: Cells  Credits: 3 hours

CHEG 2610 - Environmental Engineering  Credits: 3 hours

CHEM 1900 - Chemistry of Climate Change  Credits: 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 2800</td>
<td>Active Chemistry</td>
<td>3 hours</td>
</tr>
<tr>
<td>COM 2400</td>
<td>Introduction to Media and Telecommunications</td>
<td>3 hours</td>
</tr>
<tr>
<td>CS 1000</td>
<td>Fluency With Information Technology</td>
<td>3 hours</td>
</tr>
<tr>
<td>EDM 1220</td>
<td>Automobile in Society</td>
<td>3 hours</td>
</tr>
<tr>
<td>EDM 1500</td>
<td>Introduction to Manufacturing</td>
<td>3 hours</td>
</tr>
<tr>
<td>ENGR 3700</td>
<td>Engineering Global Practices in Western Countries</td>
<td>3 hours</td>
</tr>
<tr>
<td>ENV 3000</td>
<td>Introduction to Sustainability: A Local to Global Survey</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOG 1000</td>
<td>World Ecological Problems and Man</td>
<td>4 hours</td>
</tr>
<tr>
<td>GEOG 2650</td>
<td>Introduction to Geospatial Technologies</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOG 3060</td>
<td>Climate Change: Atmospheric Perspectives</td>
<td>3 hours</td>
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<tr>
<td>GEOG 3500</td>
<td>Conservation and Environmental Management</td>
<td>3 hours</td>
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<tr>
<td>GEOS 1200</td>
<td>Climate Change Geologic Perspective</td>
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<td>GEOS 1440</td>
<td>Environmental Earth Science</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 1500</td>
<td>Earth Hazards and Disasters</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 2900</td>
<td>Earth Systems: Issues and Applications</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 3120</td>
<td>Geology of the National Parks and Monuments</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 3220</td>
<td>Ocean Systems</td>
<td>3 hours</td>
</tr>
<tr>
<td>GWS 3400</td>
<td>Race, Gender and Science</td>
<td>3 hours</td>
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<tr>
<td>HIST 3180</td>
<td>American Environmental History</td>
<td>3 hours</td>
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<tr>
<td>HNRS 3701</td>
<td>Technology in the Arts</td>
<td>3 hours</td>
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<tr>
<td>ME 2200</td>
<td>Processes and Materials in Manufacturing</td>
<td>4 hours</td>
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<tr>
<td>NUR 3330</td>
<td>Health Informatics</td>
<td>3 hours</td>
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<tr>
<td>PAPR 1600</td>
<td>Introduction to Environmental Technology</td>
<td>3 hours</td>
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<tr>
<td>PHIL 2550</td>
<td>Science, Technology, and Values</td>
<td>3 hours</td>
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<tr>
<td>PHIL 3340</td>
<td>Biomedical Ethics</td>
<td>4 hours</td>
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<td>PHIL 3350</td>
<td>Medical Humanities</td>
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<tr>
<td>PHIL 3500</td>
<td>Foundations of the Modern Worldview</td>
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<td>PHIL 3550</td>
<td>Philosophy of Science</td>
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<td>PHIL 3710</td>
<td>History and Philosophy of Science I</td>
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<tr>
<td>PHIL 3720</td>
<td>History and Philosophy of Science II</td>
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<tr>
<td>PHYS 1020</td>
<td>Energy and the Environment</td>
<td>3 hours</td>
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<tr>
<td>SPPA 2000</td>
<td>Communication Disorders and Sciences</td>
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**Distribution Area VIII: Health and Well-Being**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ADA 2250</td>
<td>Drug Use: Personal and Social Impact</td>
<td>3 hours</td>
</tr>
<tr>
<td>HOL 1000</td>
<td>Choices in Living</td>
<td>3 hours</td>
</tr>
<tr>
<td>HOL 2701</td>
<td>Resiliency Training for Life</td>
<td>2 hours</td>
</tr>
<tr>
<td>HOL 2801</td>
<td>Health and Well Being</td>
<td>3 hours</td>
</tr>
<tr>
<td>HOL 2811</td>
<td>Resiliency Training for Leaders</td>
<td>2 hours</td>
</tr>
<tr>
<td>HPHE 1110</td>
<td>Healthy Living</td>
<td>2 hours</td>
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<tr>
<td>PEGN 1700</td>
<td>Health and Wellness - Aerobics</td>
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<tr>
<td>PEGN 1710</td>
<td>Health and Wellness - Water Aerobics</td>
<td>2 hours</td>
</tr>
<tr>
<td>PEGN 1720</td>
<td>Health and Wellness - Circuit Fitness</td>
<td>2 hours</td>
</tr>
<tr>
<td>PEGN 1730</td>
<td>Health and Wellness - Jogging</td>
<td>2 hours</td>
</tr>
<tr>
<td>PEGN 1740</td>
<td>Health and Wellness - Walking</td>
<td>2 hours</td>
</tr>
<tr>
<td>PEGN 1760</td>
<td>Health and Wellness - Racquet Sports</td>
<td>2 hours</td>
</tr>
<tr>
<td>PEGN 1770</td>
<td>Health and Wellness - Climbing Techniques</td>
<td>2 hours</td>
</tr>
<tr>
<td>PEGN 1800</td>
<td>Health and Wellness - Beginning Swimming</td>
<td>2 hours</td>
</tr>
<tr>
<td>PEGN 1810</td>
<td>Health and Wellness - Intermediate Swimming</td>
<td>2 hours</td>
</tr>
<tr>
<td>PEGN 1820</td>
<td>Health and Wellness - Swim Conditioning</td>
<td>2 hours</td>
</tr>
<tr>
<td>REL 3190</td>
<td>Religion and Health</td>
<td>4 hours</td>
</tr>
</tbody>
</table>
General University Policies

In addition to the several policy statements included below, the University's Student Code and general academic policies may be found, respectively, on the following Western Michigan University websites: http://www.wmich.edu/conduct/ and www.wmich.edu/registrar.

Code of Honor

Western Michigan University (WMU) is a student-centered research university that forges a responsive and ethical academic community. Its undergraduate, graduate, and professional programs are built upon intellectual inquiry, investigation, discovery, an open exchange of ideas, and ethical behavior. Members of the WMU community respect diversity, value the cultural differences of those around them, and engender a sense of social obligation. Because of these values, all individuals are expected to conduct themselves in a professional and civil manner. This includes exemplifying academic honesty, integrity, fairness, trustworthiness, personal responsibility, respect for others, and ethical conduct. These attributes are exhibited in the University as well as in the community. Members of the University community abide by this code out of commitment to serve as responsible citizens of the University, the community, the nation, and the world. Responsibility for fulfilling the obligations of the code of honor is shared by the students, faculty, and every other member of the University community.

Student Rights

Basic Rights

As provided by University policy or by law:

1. Students have the right to free inquiry, expression, and association.
2. Students should be free from discrimination and harassment which violates the law or which constitutes inappropriate or unprofessional limitation of employment opportunity, University facility access, or participation in University activities, on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, age, protected disability, veteran status, height, weight, or marital status.
3. Students should be secure in their persons, living quarters, papers, and effects.
4. Students are protected against improper disclosure as provided for in the Family and Education Rights and Privacy Act of 1974.
5. Students have the right to access their personal records and other University files as provided for under the Michigan Freedom of Information Act.
6. Students are free to participate in the governance of the University through membership in appropriately designated University and college committees.

Academic Rights

Students have those academic rights and responsibilities as described in the University catalogs, including but not limited to the following:

1. Student performance will be evaluated solely on academic criteria.
2. Students have protection against prejudiced or capricious academic evaluation.
3. Students are free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.
4. Students will be fully informed by the faculty about course requirements, evaluation procedures, and the academic criteria to be used in each class. This information will be provided at the beginning of the semester or sufficiently in advance of actual evaluation. Each course instructor is required to make available to students a course syllabus that shall contain a basic course description, course objectives, course requirements and policies, grading criteria, and instructor contact information. Instructors are encouraged to include a tentative schedule indicating when various
topics will be addressed, and when quizzes, exams and due dates for assignments shall occur. Instructors are further encouraged to include in their syllabi basic University policies regarding academic conduct, human rights, diversity, and students with disabilities.

5. Students have the right to have all their examinations and other graded material made available to them with an explanation of the grading criteria. Faculty will retain all such materials not returned to the student for at least one full semester (or through spring plus summer sessions) after the course was given. Faculty are not required to return such material to the student, but must provide reasonable access.

**Student Academic Conduct**

The following policies and procedures shall apply to all matters of student academic conduct.

**Academic Honesty**

If a student is uncertain about an issue of academic honesty, he/she should consult the faculty member to resolve questions in any situation prior to the submission of the academic exercise.

Violations of academic honesty include but are not limited to:

**Cheating**

*Definition*

Cheating is intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices or materials in any academic exercise.

*Clarification*

1. Students completing any examination are prohibited from looking at another student's examination and from using external aids (for example, books, notes, calculators, conversation with other) unless specifically allowed in advance by the faculty member.
2. Students may not have others conduct research or prepare work for them without advance authorization from the faculty member. This includes, but is not limited to, the services of commercial term paper companies.

**Fabrication, Falsification, and Forgery**

*Definition*

Fabrication is the intentional invention and unauthorized alteration of any information or citation in an academic exercise. Falsification is a matter of altering information while fabrication is a matter of inventing or counterfeiting information for use in any academic exercise or University record. Forgery is defined as the act to imitate or counterfeit documents, signatures, and the like.

*Clarification*

1. "Invented" information shall not be used in any laboratory experiment, report of results or academic exercise. It would be improper, for example, to analyze one sample in an experiment and then "invent" data based on that single experiment for several more required analyses.
2. Students shall acknowledge the actual source from which cited information was obtained. For example, a student shall not take a quotation from a book review and then indicate that the quotation was obtained from the book itself.
3. Falsification of University records includes altering or forging any University document and/or record, including identification material issued or used by the University.
Multiple Submission

Definition

Multiple submission is the submission of substantial portions of the same work (including oral reports) for credit more than once without authorization from instructors of all classes for which the student submits the work.

Clarification

Examples of multiple submission include submitting the same paper for credit in more than one course without all faculty members' permission; making revisions in a credit paper or report (including oral presentations) and submitting it again as if it were new work.

Plagiarism

Definition

Plagiarism is the use of someone else’s language, ideas, or other material without making the source(s) evident in situations where there is a legitimate expectation of original work. Plagiarism does not occur when efforts to promptly identify sources by making source use apparent to the audience of the submitted material are obvious. Plagiarism may not necessarily include mistakes in citation style.

A legitimate expectation of original work exists for numerous circumstances, including (but not limited to): scholarly writing, technical presentations and papers, conference presentations and papers, online discussion postings, grant proposals, patents, book and other manuscripts, theses and dissertations, class assignments, artistic works, computer code, algorithms, and other creative works.

This definition applies to the entire WMU community, which includes all faculty; students; staff; visiting faculty, scholars, administrators; and any other person governed by academic research and other policies of the University.

Complicity

Definition

Complicity is intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

Clarification

Examples of complicity include knowingly allowing another to copy from one's paper during an examination or test; distributing test questions or substantive information about the materials to be tested before the scheduled exercise; collaborating on academic work knowing that the collaboration will not be reported; taking an examination or test for another student, or signing another's name on an academic exercise.

(NOTE: Collaboration and sharing information are characteristics of academic communities. These become violations when they involve dishonesty. Faculty members should make clear to students expectations about collaboration and information sharing. Students should seek clarification when in doubt.)

Computer Misuse

Definition
Academic computer misuse is the use of software to perform work which the instructor has told the student to do without the assistance of software.

**Conduct in Research**

Research and creative activities occur in a variety of settings at the University, including class papers, theses, dissertations, reports or projects, grant funded projects and service activities. Research and creative activities rest on a foundation of mutual trust. Misconduct in research and in creative activity destroys that trust and is prohibited. Students shall adhere to professional standards of integrity in both artistic and scientific research including appropriate representations of originality, authorship and collaborative crediting.

**Definition**

Misconduct in research is defined as serious deviation, such as fabrication or falsification of data, plagiarism, or scientific or creative misrepresentation, from accepted professional practices of the discipline or University in carrying out research and creative activities or in reporting or exhibiting/performing the results of research and creative activities. It does not include honest error or honest differences in judgments or interpretations of data.

**Clarification**

Examples of misconduct in research include but are not limited to:

1. **Fabrication of Data:** Deliberate invention or counterfeiting of information.
2. **Falsification of Data:** Dishonesty in reporting results, ranging from unauthorized alteration of data, improper revision or correcting of data, gross negligence in collecting or analyzing data, to selective reporting or omission of conflicting data.
3. **Plagiarism and Other Misappropriation of the Work of Another:** The representation of another person's ideas or writing as one's own, in such ways as stealing others' results or methods, copying or presenting the writing or ideas of others without acknowledgment, or otherwise taking credit falsely. Representing another's artistic or technical work or creation as one's own. Just as there are standards to which one must adhere in the preparation and publication of written works, there are standards to which one must adhere in creative works in the tonal, temporal, visual, literary and dramatic arts.
4. **Abuse of Confidentiality:** Taking or releasing the ideas or data of others which were given in the expectation of confidentiality, e.g., stealing ideas from grant proposals, award documents, or manuscripts intended for publication or exhibition/performance when one is a reviewer for granting agencies or journals or when one is a juror.
5. **Dishonesty in Publication or Exhibition/Performance:** Knowingly publishing, exhibiting or performing work that will mislead, e.g., misrepresenting material, particularly its originality, or adding or deleting the names of other authors without permission.
6. **Deliberate Violation of Requirements:** Failure to adhere to or receive the approval required for work under research regulations of federal, state, local or university agencies, including guidelines for the protection of human subjects or animal subjects and the use of recombinant DNA, radioactive material, and chemical or biological hazards.
7. **Failure to Report Fraud:** Concealing or otherwise failing to report known misconduct or breaches of research or artistic ethics. Research Board Requirements Misconduct in research includes failure to comply with requirements of the conduct of research and creative activities, e.g., the protection of human subjects, the welfare of laboratory animals, radiation, and biosafety. Allegations in these areas may be brought by Human Subjects Institutional Review Board, the Institutional Animal Care and Use Committee and the Institutional Biosafety Committee.

**Charges of Violations of Academic Honesty and Conduct in Research**

Western Michigan University's academic honesty and conduct in research policies have been created and defined by members of its academic community, recommended by its faculty senate, and adopted by its board of trustees. The processes necessary to support these policies are managed and facilitated by the Office of Student Conduct (OSC). If you have questions about the forms, the process, your role in the process, or anything else related to academic honesty, please call the

This section applies to cases in which a student is to be charged with a violation of the Academic Honesty Policy, including the policy on Academic Honesty and the policy on Conduct in Research.

1. **Charging a student with a violation:** An Academic Dishonesty/Conduct in Research Charge Form is filled out by the instructor for the purpose of charging the student. After the instructor completes the form, the instructor sends it (or may fax it) to the OSC. A staff member in that office will then contact the student and schedule a meeting between the student and the OSC. An OSC staff member will also notify the Registrar of the pending case, and will institute a "disciplinary hold" preventing the student from dropping, adding, or registering in classes.

2. **If the student accepts responsibility:** If the student accepts responsibility, the OSC will contact the instructor and the instructor may impose an academic penalty up to failure of the course in which the student is enrolled. The OSC may also impose non-grade-related penalties ranging from reprimand to dismissal from the University.

3. **If the student does not responsibility:** If the student does not accept responsibility, the OSC will consult with the instructor to ascertain the instructor's preference as to the hearing type. The hearing may be a meeting between the instructor and the student or a meeting between the student and an Academic Integrity Hearing Panel (AIHP). An Academic Integrity Hearing Panel will consist of three faculty members and two students, selected using procedures established by the Professional Concerns Committee of the Faculty Senate. The choice of hearing type is the instructor's. The OSC will set up the hearing and will notify the student and faculty member of its time, date, and location.

4. **If the student wants to appeal a finding of responsibility after a hearing with the instructor:** A student may appeal a finding of responsibility resulting from a hearing with the instructor to an Academic Integrity Hearing Panel within five University business days. The student cannot appeal after that time has elapsed.

5. **The authority of the Academic Integrity Hearing Panel:** An Academic Integrity Committee will conduct hearings to determine whether the student is responsible for academic dishonesty. An Academic Integrity Hearing Panel makes no decisions regarding the sanctions and/or grades to be imposed, either by the instructor or by the OSC.

6. **If a finding of "responsible" has been made:** A finding of "responsible" occurs when a student admits responsibility to the OSC, the instructor so decides, or an Academic Integrity Hearing Panel so decides by majority vote. The decision of the Academic Integrity Panel is final and may not be appealed. When that finding has occurred, the instructor may impose an academic penalty up to and including failure of the course in which the student is enrolled. A decision by the instructor regarding a grade penalty cannot be appealed by the student once the student has been found responsible and has exhausted or waived all appeals. Also, once the student has been found responsible and has exhausted or waived all appeals, that student's continued attendance in the relevant class depends on the penalty imposed by the instructor and/or the OSC. If the instructor determines to fail the student in the course, the student is not permitted to continue attending class. Again, following a finding of responsibility, the OSC may impose additional sanctions ranging from reprimand to dismissal from the University. In all cases when a final finding of responsibility has been made, the finding will be included in the student's educational record. Students will not be permitted to withdraw from a course to avoid imposition of any academic penalty.

7. **If a finding of "not responsible" has been made:** If a finding of "not responsible" has been made, the charge is dismissed and no penalties are imposed.

8. **While a case is pending:** A case is considered pending until one of two events occurs: (1) the student accepts responsibility or (2) the hearing process is completed. While a case is pending, the student has the right to attend and
participate in the class. If the case is pending at the end of the semester, the instructor must assign an Incomplete grade and then submit a change of grade once the process is complete.

9. Instructor unavailable to assign grade: Circumstances may arise which may prevent an instructor from assigning a grade in a timely manner. In such instances, the academic unit chair/director will make reasonable efforts to contact and ask the instructor to supply a grade. If these efforts are unsuccessful, the instructor's academic unit chair/director will appoint another qualified faculty member to assign the grade.

Selection, Training, and Organization of Academic Integrity Committee (AIC)

An Academic Integrity Committee (AIC) will be drawn from a panel of faculty and students who are trained by the Office of Student Conduct (OSC). For each instance of an academic dishonesty charge which requires AIC review (see above), a five-member AIC composed of three faculty members and two students will be selected to hear the charge of academic dishonesty and to determine whether the charge has merit. Procedures for selection of a five-member AIC and, when required, AIC replacements from the AIC panel will be constructed and administered by the Professional Concerns Committee (PCC).

Each academic unit will elect one tenured or tenure-track faculty member to serve on the AIC panel. Student AIC panel members must be recommended by faculty, and each academic unit is asked to recommend one undergraduate and one graduate student to the AIC. Students recommended to the AIC panel will be screened by the OSC to ensure that no AIC student member has incurred a previous academic dishonesty sanction and that each AIC student member has a satisfactory disciplinary record.

Faculty members will serve three-year terms. Students will serve one-year terms with reappointment possible for up to a total of three years. It will be necessary to include on the panel those who can serve in the spring and summer.

For a charge against an undergraduate student, at least one student member of the AIC shall be an undergraduate. For a charge against a graduate student, at least on student member shall be a graduate student. Each AIC will elect a faculty member to chair the committee. Whenever possible, hearings should be conducted with a full panel; however, should extenuating circumstances arise, a hearing may be conducted with four members.

The Professional Concerns Committee (PCC) shall also function as an oversight committee for reviewing and monitoring all University policies and procedures dealing with academic conduct, including academic dishonesty, grade appeal, and program dismissal issues. A report of all AIC activities shall be made to the Faculty Senate Executive Board each year by the PCC, and recommendations for changes in policies and procedures regarding academic conduct, including academic dishonesty, grade appeal and program dismissal issues may be part of that annual report. Such recommendations may result in modifications to these procedures and policies.

Course Grade and Program Dismissal Appeals

Course Grade Appeals

This section applies when a student wants to appeal a final course grade that has been recorded by the Registrar on the student's academic record. Appeal panels are assembled from the faculty under the authority of and by the Provost and Vice President for Academic Affairs or designate. Throughout this process, the Office of the Ombuds is available to students and instructors for assistance on procedures and clarification of the rights of all parties.

The accepted bases of course grade appeal are:

A. Grades were calculated or the program dismissal decision was made in a manner inconsistent with the University policy, the syllabus, or changes to the syllabus.
B. The grade(s) was/were erroneously calculated.
C. Grading/performance standards were arbitrarily or unequally applied.
D. The instructor failed to assign or remove an Incomplete or to initiate a grade change as agreed upon with the student.
E. Late withdrawal from class(es), after grades have been assigned, due to genuine hardship. (Students appealing on this basis should proceed by contacting the Ombuds Office and following the procedures for hardship determination.)

A grade appeal cannot be made in response to a grade penalty assessed as a result of an official finding of responsibility for academic integrity violation(s). Such a finding will have been made through the procedures provided in the academic integrity policy.

The steps to be taken in appealing a grade are:

1. **Informal meeting with instructor:** A student is encouraged to begin the appeal process by meeting with the instructor who assigned the grade. Such meetings often help students understand the grading practices of instructors and often lead to resolution of differences over grades.

2. **Written appeal and conference with the academic unit chair/director:** A grade appeal must be in writing, in hard copy, and must be submitted to the academic unit chair/director. This appeal must be received by the academic unit chair/director within 60 business days of the last day of the semester or session in which the grade was recorded on a student's record. The Provost or designate may grant an extension should a genuine hardship arise (i.e., illness, death in the immediate family). The letter must identify the basis of the appeal and must state in detail why the student believes the grade should be changed. Following a conference with the student, the chair/director must respond in writing to the student with a copy to the instructor, their dean, and the Grade and Program Dismissal Appeals Committee (GAPDAC) within 20 business days. In this letter, the chair/director should confirm the meeting with the student, recap their discussion, and state whether the student has an appeal which meets the established criteria (A, B, C, or D above). If the situation appears to meet the criteria for appeal, the chair/unit director may recommend that the instructor reevaluate the student's work. The chair/director cannot change the student's grade without the instructor's agreement.

3. **Appeal to committee:** After the chair has completed the response to the student's appeal, the student may appeal to the Grade and Program Dismissal Appeals Committee (GAPDAC). This appeal must be initiated within 20 business days completion of step 2. If the student has requested a meeting with the academic unit chair/director and has not been granted such a meeting within 40 business days of the student's request, the student may then initiate an appeal to GAPDAC.

The student will initiate an appeal through the Office of the Ombuds. When the Ombuds receives an appeal, the Provost or designate will schedule a meeting of GAPDAC using procedures determined by the Professional Concerns Committee (PCC) of the Faculty Senate. The GAPDAC will consist of three members drawn from a pool of faculty established for this purpose. In a grade appeal, both the student(s) and the instructor should provide a written statement describing the situation under consideration. An appearance to provide additional information at the appeal by either the instructor or student(s) may be requested by the appeals committee. A GAPDAC can effectuate a grade change by majority vote. The decision of the hearing panel is final and not subject to appeal.

4. **Instructor unavailable to assign grade:** Circumstances may arise which may prevent an instructor from assigning a grade in a timely manner. In such instances, the academic unit chair/director will make reasonable efforts to contact and ask the instructor to supply a grade. If these efforts are unsuccessful, the instructor's academic chair/director will appoint another qualified faculty member to assign the grade.

**Program Dismissal Appeals**

This section applies when a student wants to appeal a decision to dismiss the student from an academic program for reasons other than charges of violations of academic integrity policies. Appeal panels are assembled under the authority of and by the designate of the Provost and Vice President for Academic Affairs. Throughout this process, the Office of the Ombuds is available to students and instructors for assistance on procedures and clarifications of the rights of all parties.

The accepted bases of program dismissal appeal are:
A. The program dismissal decision was made in a manner inconsistent with University policy or the program policy.
B. The program dismissal procedures were not followed.
C. Evaluation/performance standards were arbitrarily or unequally applied.

A program dismissal appeal cannot be made in response to an academic integrity or conduct dismissal from the University. The student's status, as dismissed from the program, will remain unaltered until a successful appeal is completed.

NOTE: A program dismissal appeal based on charges of discrimination or sexual harassment should be taken to the Office of Institutional Equity or other office, pursuant to the other University policies and procedures.

The steps to be taken in appealing a program dismissal are:

1. **Appeal to committee:** The student may appeal to a Grade and Program Dismissal Appeals Committee (GAPDAC). This appeal must be initiated within twenty business days of the notification of program dismissal. The student will initiate an appeal through the Office of the Ombuds. When the appeal is received, the Provost or designate will schedule a meeting of a GAPDAC using procedures determined by the Professional Concerns Committee of the Faculty Senate. The GAPDAC will consist of three members drawn from a pool of faculty established for this purpose. In a program dismissal, the student appellant should attend the meeting of the appeal panel and must provide a written statement describing the grounds for appeal. A University representative from the program must attend the meeting and must provide a written statement describing the grounds for and circumstances of dismissal.

   A GAPDAC may reverse or sustain a program dismissal by majority vote. The decision of the hearing panel is final and not subject to appeal.

**Selection, Training, and Organization of Grade and Program Dismissal Appeal Committee**

A Grade and Program Dismissal Appeal Committee (GAPDAC) will be drawn from a pool of faculty who are trained under procedures determined by the Professional Concerns Committee (PCC) of the Faculty Senate. For each appeal that requires review, a GAPDAC panel will be selected to hear the appeal and to decide the matter.

Each academic college shall provide a cohort of tenured or tenure-track faculty members to serve on the GAPDAC pool in proportion to its respective student credit hour production. Faculty members will serve three-year terms. It will be necessary to include in the pool those who can serve during summer sessions.

Each GAPDAC shall be composed of three faculty members, at least one of whom is from the college where the course or program in question resides. Each GAPDAC will elect a faculty member to chair the committee, and each GAPDAC must have all three members present to have a quorum. Procedures for selection of a GAPDAC will be constructed and administered by the PCC.

**Faculty Oversight of Grade and Program Dismissal Appeals Committee**

The PCC shall function as an oversight committee for reviewing and monitoring all University policies and procedures dealing with grade and program dismissal appeal issues. A report of all GAPDAC activities shall be made to the Faculty Senate Executive Board each year by the PCC, and recommendations for changes in policies and procedures regarding grade and program dismissal appeal issues may be part of that annual report. Such recommendations may result in modifications to these policies and procedures.

**The Family Educational Rights and Privacy Act**

The Office of the Registrar is the institution's official custodian of educational records. This office also holds the final responsibility in the enforcement of the Federal Educational Rights and Privacy Act of 1974 (FERPA). Maintaining confidentiality of educational records is the responsibility of all users whether the individuals are faculty, staff, or students.
The Family Educational Rights and Privacy Act affords students certain rights with respect to their educational records. They are:

1. The right to inspect and review the student's educational records within 45 days of the date the University receives a request for access.

Students should submit to the registrar, dean, head of the academic department, or other appropriate official, written requests that identify the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

An educational record is a record which is maintained by the institution directly related to a student, and from which a student can be identified. Educational records do not include the records of instructional, administrative, and educational personnel, which are in the sole possession of the maker and are not accessible or revealed to any individual except a temporary substitute, records of the law enforcement unit, student health records, employment records, or alumni records.

Students may not inspect and review the following as outlined by the Act:

- Financial information submitted by their parents.
- Confidential letters and recommendations associated with admissions, employment, or job placement.
- Honors information to which they have waived their rights of inspection and review.
- Educational records containing information about more than one student, in which case the institution will permit access only to that part of the record which pertains to the inquiring student.

2. The right to request the amendment of the student's educational records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights.

Students may ask the University to amend a record they believe is inaccurate or misleading. They should write the University official responsible for the records, clearly identifying the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosures of personally identifiable information contained in the student's educational records, except to the extent that FERPA authorizes disclosures without consent.

One exception, which permits disclosure without consent, is disclosure to University officials with legitimate educational interests and/or needs to review an educational record in order to fulfill his or her professional responsibility. A University official for the purpose of this policy is defined as follows:

- Members of the faculty
- Members of the professional, executive and administrative staff, excluding any member of the WMU Police Department
- Students, when properly appointed as members of a hearing panel or screening committee
- Representatives of the State Auditor General when performing their legal function
- A person or company with whom the University has contracted (e.g., attorney, auditor, or collection agency) but limited to only the specific student information needed to fulfill their contract
- Others as designated in writing by the President, Vice President, of Dean
- Persons in compliance with a court order
- Accrediting agencies performing an accreditation function
Upon request, Western Michigan University may disclose educational records without consent to officials of another school in which the student seeks to enroll, or where the student is already enrolled so long as the disclosure is for purposes related to the student’s enrollment or transfer.

Another exception that permits disclosure without consent is when the information consists solely of "Directory Information." Directory Information may be published or released by University faculty and staff at their discretion. Unless a student specifically directs otherwise, as explained more fully in paragraph four (4) below, WMU designates all of the following categories of information about its students as "Directory Information."

Name  
Address  
Telephone number  
WMU e-mail address  
Curriculum and major field of study  
Dates of attendance  
Enrollment status (full/part/three-quarter time)  
Degrees/awards received  
Most recent previous educational agency or institution attended by the student  
Participation in officially recognized activities and sports  
Weight and height of athletes

4. A student has the right to refuse the designation of all categories of personally identifiable information listed above as Directory Information. If a student exercises this right, it will mean that no Directory Information pertaining to the student will be published or otherwise released to third parties without consent, a court order or a subpoena.

Any student wishing to exercise the right of withholding all categories of personally identifiable information must inform the Registrar's Office in writing by not later than the fifth day of the semester/session. A student's notification to withhold information will remain in effect until the student requests in writing that the prior withholding be revoked.

5. The right to file a complaint with the U.S. Department of Education concerning alleged failures by WMU to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is Family Policy Compliance Office, U.S. Department of Education, 600 Independence Avenue SW, Washington, D.C. 20202-4605.

Policies on Reporting Criminal and Unethical Activities

Western Michigan University Board of Trustees' Policy on Duty to Report Criminal Acts

- Whereas, the Western Michigan University Board of Trustees and president strongly believe that it is essential to provide a safe, ethical and protective environment for all members of the University community; and
- Whereas, the Board and president expect members of the campus community to always be vigilant for the well-being of colleagues, students and visitors and to be cognizant of the special needs of those populations the University serves that are particularly vulnerable to criminal abuse; and
- Whereas, the University has taken steps to ensure that all members of the University community have multiple ways to report possible criminal or ethical violations, including directly to the Department of Public Safety or anonymously through a secure website and phone line established through a well-respected external company;

Therefore, in furtherance of these principles, it is resolved that:

- It is the policy of Western Michigan University that all University employees, students, contractors, and other University-affiliated persons are charged with a duty to promptly report acts having any connection to the University that they in good faith believe could be criminal in nature. Such reports shall be made to the University's Department of Public Safety or through a secure website and phone line established for that purpose and publicized on campus.
This policy is not intended to supersede or conflict with any other duty to report conduct as required by law or University policies, rules, requirements, and collective bargaining agreements. The president and board treasurers are each empowered to enact additional requirements and procedures to effectuate this policy and make amendments as they deem appropriate in accordance with its purposes.

(Adopted by the WMU Board of Trustees Dec 8, 2011.)

President’s Statement on Reporting Illegal and Unethical Activities
(December 8, 2011)

"This has been a fall rife with scandal and underlying tragedy for individuals connected with two of our sister institutions - Penn State and Syracuse. I write to share my views and opinions about the shortcomings illustrated in those situations. This is a topic of discussion and deep concern among all of us on this and every campus in the nation.

In reflecting on these sad and appalling national stories, it is important to reaffirm what I believe are the core responsibilities of every citizen in our University and broader communities. Above and beyond any misplaced desire to protect or preserve the reputation of an individual or an organization, it is imperative that we all remember our primary obligation is to protect and defend those among us who are most vulnerable. In the long run, our reputation and strength as an institution will only be enhanced by our commitment to come to the aid of victims and discipline any individuals who take advantage of the positions of trust in which we have placed them.

If you encounter a situation in which you see someone being victimized, or you encounter something you believe to be a crime, call our Department of Public Safety. Do this first. Afterward you can inform your supervisor. Our public safety officers are trained to determine the facts of any incident. Simply call (269) 387-5555 to alert the proper officials.

As is sometimes the case in any large organization, there may be a time when you hesitate to report a crime, because you worry that you or your position may be vulnerable. Much earlier this year, we decided to enhance our ability to receive information from faculty and staff about possible wrongdoing in a way that would address such concerns. We now have a contract with a highly respected company called EthicsPoint that provides an anonymous website to report possible criminal or ethical violations. There is also a phone line that can be used to report wrongdoing. We had intended to publicize this option after the coming holiday break, but because of the timely nature of this tool and a strong statement issued by our Board of Trustees today, I want you to know the system is already in place.

If you feel the need to maintain anonymity and report a situation that is legally or ethically wrong, you may do so by going to wmuhotline.ethicspoint.com, select Make a Report in the top right menu and follow the prompts. To use the phone line, call (855) 247-3145. I suspect - and hope - we may never need this tool, but am mindful that, at nearly 30,000, we are a community the size of a small city and we might have someone who does not meet our exacting standards.

Thank you in advance for your commitment to ensure everything we do is accomplished using the strongest moral, legal, and ethical standards."

Clergy Act Annual Report

The Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act requires availability of the annual security and fire safety compliance document to prospective students, faculty, and staff. It can be obtained from the website of Western Michigan University Department of Public Safety wmu dps wmich.edu/AnnualSecurityReport.pdf.

You may request a hard copy version by calling (269) 387-5555. The report includes campus security and personal safety information as well as crime prevention, fire safety, university police law enforcement authority, crime reporting policies, disciplinary procedures and other matters related to security and safety of campus. It also includes crime reporting statistics for the previous three years concerning reported crimes that occurred on campus, in certain off-campus buildings, or properties owned or controlled by Western Michigan University, and on public property within or immediately adjacent to and accessible from the campus.
Western Michigan University Statements, Policies, and Procedures regarding Diversity, Multiculturalism, Inclusion and Non-Discrimination

President’s Statement on Diversity, Multiculturalism, and Inclusion
(November 26, 2007)

“Great universities, including Western Michigan University, strive for an inclusive environment in which the student body, faculty, and staff reflect society at large. Western Michigan University has a long history and well-deserved reputation of being committed to diversity and multiculturalism. The university's programs, faculty, staff, and students reflect that commitment. Our welcoming environment is one to honor, preserve, and nurture.

Western Michigan University's development of a Diversity and Multicultural Action Plan (DMAP), adopted by the Board of Trustees in 2006, is a significant step in reinforcing our dedication to inclusion. It is a "living document" we will update and revise, based on input from the University community, those responsible for implementing it, and applicable law.

As the DMAP states, diversity at WMU "encompasses inclusion, acceptance, respect, and empowerment" and "includes the dimensions of race, ethnicity, and national and regional origins; sex, gender identity, and sexual orientation; socioeconomic status, age, physical attributes, and abilities; as well as religious, political, cultural, and intellectual ideologies and practices." The DMAP also points out that "multiculturalism at WMU is a belief that speaks to the issues of human diversity, cultural pluralism, and human rights for all people" and that it "goes beyond the recognition of diversity."

WMU's pledge toward inclusiveness is likewise reflected in the non-discrimination policy adopted by the Board of Trustees, which prohibits discrimination or harassment which violates the law or which constitutes inappropriate or unprofessional limitation of employment opportunity, University facility access, or participation in University activities, on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, age, protected disability, veteran status, height, weight, or marital status.

The University complies with applicable laws and regulations and pursues opportunities to engage in efforts within the law to maintain and support an environment that is welcoming to all. The University promotes a diversity of ideas and intellectual inquiry, always with a steadfast dedication to discussions that are civil, courteous, and respectful. As an international university, WMU recruits students, faculty, and staff from throughout the world, ensuring that the entire University community is a better place as a result of its abundance of cultures and viewpoints.

To preserve and enhance its commitment to diversity and multiculturalism, the University must continue to recruit and retain faculty, staff, and students who understand and appreciate the importance of inclusion. The university must also foster and support programs and projects that help the entire University community appreciate and value the benefits that come from being part of a campus where all are welcomed.

The University's prosperity and future successes will be measured, in part, by the degree to which it is inclusive and respectful of those it serves. I ask you to join me in taking a personal interest to do what we can so that all within the University community know that they are welcomed and supported. Together we will do so with conviction and by taking action that is consistent with the values of a great university -one that honors and respects the customs, cultures, and opinions found on a diverse and multicultural campus that is rich in the composition of its people and ideas. . .”

In order to sustain WMU’s long history of diversity efforts and to improve the inclusive nature of WMU’s campus community, the Office of Diversity was established in 2007. This office is responsible for numerous duties including but not limited to implementation of the Diversity and Multiculturalism Action Plan (DMAP); management of the University affairs for the Kalamazoo Promise; planning of the annual Martin Luther King Jr. Convocation; support for community development activities relating to recruitment of students of all levels, identities, and backgrounds; and other projects as directed by the president. All members of the University community are asked to give their cooperation and assistance in these efforts.
Non-Discrimination Policy

Western Michigan University prohibits discrimination or harassment which violates the law or which constitutes inappropriate or unprofessional limitation of employment opportunity, University facility access, or participation in University activities, on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, age, protected disability, veteran status, height, weight, or marital status.

For inquiries regarding the non-discrimination policy, contact:

Institutional Equity
1220 Trimpe
(269) 387-6316
wmich.edu/equity

WMU Sexual and Gender-Based Harassment and Violence, Intimate Partner Violence, and Stalking Policy and Procedures (“Sexual Misconduct Policy”)

Western Michigan University encourages all members of our community to participate in the process of creating a safe, welcoming and respectful environment on campus. Western Michigan University is committed to an environment that is safe and free from sex and gender based discrimination, including all forms of sexual and gender based harassment and sexual violence, for all members of the campus community. Title IX of the Education Amendments Act of 1972, Title VII of the Civil Rights Act of 1964 and the Elliot-Larson Civil Rights Act, as amended, prohibit discrimination on the basis of sex and gender identity in both the workplace and educational programs and activities. With the Sexual and Gender-Based Harassment and Violence, Intimate Partner Violence, and Stalking Policy and Procedures, we affirm the commitment of the university and our community to the values of transparency and timely communication, and accountable and responsible behavior within an ethical, compassionate, diverse and respectful environment.

All University students, faculty, and staff are subject to the University’s Sexual Misconduct Policy. The policy, procedures, and campus and community resources may be found at: wmich.edu/sexualmisconduct

For inquiries regarding the Sexual Misconduct Policy, contact:

Title IX Coordinator
1220 Trimpe
(269) 387-6316

Minors on Campus

In 2013, the WMU Board of Trustees passed the following policy regarding programs and activities involving minors:

Policy on Western Michigan University Programs and Activities Involving Minors

Whereas, the Western Michigan University Board of Trustees and President continue their strong commitment to provide a safe, ethical, and protective environment for all members of the University community; and

Whereas, the WMU Board of Trustees and President are in the forefront of taking action steps in their commitment and have adopted numerous policies, requirements, and procedures; and

Whereas, the WMU Board and President also recognize that University collaborations, programs, and activities involving minors provide countless educational, nurturing, personal, and enriching opportunities for minors; and

Whereas these opportunities are sought and encouraged by many local, state, and national entities, as well as by parents and guardians; and
Whereas, in addition to the steps already taken by the Board and President that currently serve to protect minors involved in programs and activities on campus, the Board of Trustees and President of Western Michigan University wish to take still further steps in this regard:

Therefore, it is resolved that:

It is the policy of Western Michigan University that all existing and future University programs and activities involving minors be developed and administered so as to:

1. Provide safe and protective environments for participation of minors; and
2. Mandate compliance with policies and requirements enacted by the Board, President, and the administration, including WMU’s Duty to Report Criminal Acts policy, the President’s Statement on Reporting Illega

This policy is not intended to supersede or conflict with law or collective bargaining agreements. The administration is also authorized to enact additional requirements and procedures to effectuate this Board policy, including but not limited to mandating criminal background check procedures as deemed appropriate for the particular program or activity.

The University has a website with considerable information regarding programs and activities involving minors

The University conduct process is not analogous to, is not equivalent to, and does not conform to, criminal law processes. This process is designed, in part, to determine responsibility, or lack thereof, for violations of the Student Code only—not guilt or innocence relative to criminal matters. The University conduct process shall be informal in nature so as to provide substantial justice and it shall not be bound by the same proceedings, definitions, or rules which apply in the courts of law.
The conduct of students in the educational community is a part of the teaching process and as such, its focus shall be educational. This includes the possible use of suspension or expulsion as disciplinary measures as they may prove invaluable tools in the education of the University community. The student conduct system is not only concerned with the individual student's welfare, but also the welfare of the University community. Any question about the processes, rules, or policies, or any other concern not specifically covered by the Student Code shall be decided solely by the Dean/Associate Dean of Students/ or designee. Additionally, the Student Code provisions may be extended or amended to apply to new and unanticipated situations which may arise.

Enrollment in the University does not insulate students from their obligation to behave in a manner consistent with local, state, and federal law. Violation of local, state, and federal law while on University premises may also constitute a violation of the Student Code. Some of the policies referred to in the Student Code may also constitute violations of local, state, or federal law and carry the possibility of criminal prosecution or civil legal action.

While the University does not desire to act as a policing authority for the activities of the student off of University premises, the University may take appropriate action in situations involving misconduct demonstrating flagrant disregard for any person or persons, and/or when a student's or student organization's behavior is judged to threaten the health, safety, and/or property of any individual or group even when the misconduct occurs off University premises.

While any violation of the Student Code is considered a serious matter, certain violations are considered to be especially egregious. These violations include acts of academic misconduct, any act that disrupts the functions of the University, and any act that threatens the health or safety of any member of the University community or any other person. Students involved in these activities are considered a threat to the orderly functioning of the University, and their behavior is considered detrimental to the educational mission.
University and Student Services

Complete and current information about University and Student Services may be obtained by visiting the University's website (http://www.wmich.edu/). The services listed below are only a portion of those offered by the University to students, alumni, staff, and visitors. University and student services in this section of the catalog may not be available in all regional locations including Florida locations.

Archives

The University Archives and Regional History Collections are located in the Charles C. and Lynn L. Zhang Legacy Collections Center on the Oakland Drive Campus. Staff collect, preserve, and make accessible records documenting the history of the University and of twelve southwestern Michigan counties. Holdings include: books, ephemera, newspapers, microfilm, photographs, oral history tapes, and manuscript collections. In addition, local public records from southwestern Michigan are on deposit from the Archives of Michigan. The collections are open to researchers. Faculty, staff, and students may make appointments for assistance with research. Faculty may schedule instructional sessions. Call (269) 387-8490 for information.

Athletics, Intercollegiate

The University is represented by men's teams in football, baseball, basketball, tennis, ice hockey, and soccer. Women's teams represent the University in basketball, cross country, golf, gymnastics, softball, tennis, indoor and outdoor track, soccer, and volleyball. Represented by the athletics mascot “Buster Bronco,” WMU Athletics keeps every Bronco fan up to date through the official athletics website, www.wmubroncos.com

Athletics are governed by the Athletic Board, which adheres to the policies and principles established by the National Collegiate Athletic Association (NCAA), Mid-American Conference (MAC) and National Collegiate Hockey Conference (NCHC). Western Michigan University is a member of the Mid-American Conference in all sports but Ice Hockey. Ice Hockey members are WMU, Colorado College, Denver, Miami (Ohio), Minnesota-Duluth, Nebraska-Omaha, North Dakota and St. Cloud State. Other members of the Mid-American Conference are Akron, Ball State, Bowling Green, Buffalo, Central Michigan, Eastern Michigan, Kent State, Miami (Ohio), Northern Illinois, Ohio, and Toledo.

Career and Student Employment

Career and Student Employment Services advises students regarding skill development, exploring career options and obtaining experience through employment. Services include drop-in career advising at the Career Zone, job listings for part-time, internship and full-time employment. The office facilitates regular employer and alumni campus visits to participate in career fairs, visit classrooms and provide mock interviews for students. Staff conduct workshops and seminars addressing current job market issues, linking academics to career paths, finding an internship or trending job search strategies.

Career Services may be offered at WMU, but employment is not guaranteed.

For more information visit the Career Zone, M-F 12-5 p.m., or to schedule an appointment, call (269) 387-2745. The office is located on first floor of Ellsworth Hall. www.wmich.edu/career.

Children’s Place Learning Center

The Children's Place Learning Center, located in the middle of campus at 2210 Wilbur, is open from 7:00 a.m. to 6:00 p.m. weekdays. The convenient location and flexible care schedules make the center an attractive child-care option for WMU faculty, staff, and students. Children 15 months to 12 years old may be enrolled full-time or part-time. Breakfast, lunch, and snacks are included in the tuition and are provided by WMU Dining Services. A full vegetarian menu is available each day.

The Children's Place philosophy emphasizes child-initiated learning within a culturally diverse community. The program nurtures and supports the development of children by providing a developmental play-based curriculum focusing on the emerging skills of each child. The program provides an environment in which each child and family feels respected and
accepted and creates a connection between home and school to meet the unique needs of the families. The program is licensed by the State of Michigan, and accredited by the National Association for the Education of Young Children (NAEYC) and an approved site for the Great Start Readiness Program and Kalamazoo County Ready 4s. For more information and an application call (269) 387-2277 or visit www.wmich.edu/childcare.

Counseling Services

Counseling Services provides short-term individual, couples and group counseling for a diverse student population. The counseling process can help students learn skills to cope with problems and develop new ways of thinking, which may lead to a healthier and more fulfilling lifestyle. Your time at Western Michigan University may include stress, complicated decisions or challenging situations. Counselors help students identify challenges and make changes to manage the emotional and social difficulties that might complicate college life.

How we work with you

Every student is unique, so we tailor our services to suit your particular needs. We collaborate with other clinicians at Sindecuse or outside care professionals to ensure counseling supports other care you receive. We take a holistic approach when working with you to treat the whole person. Our counselors are licensed mental health professionals and graduate student trainees under close supervision.

Your first visit

An initial appointment may be made by stopping by the reception desk of Sindecuse Health Center. When you first come to the health center, you'll start with the receptionist on the main floor, check in at registration and then come upstairs to Counseling Services. Intake hours are Mondays, Tuesdays, Wednesdays and Fridays from 8 a.m. until 4 p.m. and Thursday from 9 a.m. until 4 p.m. Counseling Services is open between 8 a.m. and 5 p.m. on Mondays, Tuesdays, Wednesdays and Fridays and between 9 a.m. and 5 p.m. on Thursdays. Website: www.wmich.edu/counseling.

Eligibility

Counseling services are available to all enrolled WMU students with full- or part-time status, including those at regional campuses.

Confidentiality

Counseling Services respects your right to privacy. Your consent is required before any information is released to a third party. In accordance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA), patient health information is maintained in confidence throughout Sindecuse Health Center and Counseling Services. Here is the privacy policy.

Counseling Services is committed to the need for confidentiality in client/counselor communication. Therefore, confidentiality of client information is maintained in a manner consistent with professional standards of ethical practice and conduct and legislative requirements in the state of Michigan. Copies of the Sindecuse Health Center policy on confidentiality may be obtained at the business office.

Disability Services for Students

Disability Services for Students advocates for and supports Western Michigan University students with disabilities as they seek to find effective accommodations, maximize their abilities and gain independence. DSS offers university services including advocacy, registration assistance, campus accessibility information, and referral to and liaison with other campus and community agencies. DSS may also provide classroom or academic adjustments including accommodation for classroom test, electronic text format and ASL sign-language interpreters. DSS can also provide short-term temporary on-campus transportation to students with mobility issues. DSS offices also house the Autism Services Center and a rehabilitation counselor from the Bureau of Services for Blind Persons.

www.wmich.edu/disabilityservices (269)387-2116
wmich.edu/autism/asc (269) 387-4349
www.michigan.gov/bsbp (269) 330-5336
Housing

Western Michigan University students may live on or off campus. Various housing options exist on-campus, ranging from traditional residence halls to apartment living, and all deliver tremendous value to their residents. Besides the convenience of living in the heart of campus, studies show students who live on campus adjust better and are more successful academically than those who live off campus. For these reasons, students should carefully consider the benefits of on-campus housing when choosing where to live.

Your residence hall application and apartment applications are available online and can be completed once you have been admitted and have a valid Bronco ID. The application date is the basis for assignment and the probability of an assignment increases with early application.

WMU Residence Halls, Spindler Hall, WMU Apartments (including the Western View)

For information contact Residence Life, 3510 Faunce Student Services Building, Western Michigan University, Kalamazoo, MI 49008-5312. Telephone: (269) 387-4735; Fax: (269) 387-4786; E-mail: RL-info@wmich.edu; Website: wmich.edu/housing.

Office of Information Technology

The Office of Information Technology offers a wide variety of technology related services to students, faculty, and staff. These services include anti-virus protection, cable television, classroom technology, email, consulting and project management, instructional support, media services, networking, both wired and wireless connections, and online information security education www.wmich.edu/it. Online secure transactions are handled through the University's portal, GoWMU gowmu.wmich.edu. IT provides student computing labs in the University Computing Center (UCC) and the Bernhard Center. A lab for faculty technology is also located in the UCC. A technology help desk is provided as your first point of contact with computing, tablets, or smart phone assistance, (269) 387-4357, option 1 or www.wmich.edu/helpdesk.

International Programs and Services

International programs at Western Michigan University are led by the Diether H. Haenicke Institute for Global Education. The University has made a serious commitment to continued expansion of international education across the campus, a goal that is included in the University mission statement. Almost all offices that administer international programs and services are housed within the Haenicke Institute with offices in Ellsworth Hall and the Faunce Student Services Building. The University annually hosts nearly 1,900 international students and has a long tradition of international involvement across all colleges.

Diether H. Haenicke Institute for Global Education

Jane Blyth, Interim Associate Provost
2425 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-5890; FAX (269) 387-0630
www.wmich.edu/international

The Haenicke Institute for Global Education collaborates with colleges, departments, and interdisciplinary programs to promote global, international, and area studies throughout Western Michigan University. The Institute houses multiple centers and offices devoted to international education.

International Admissions and Services

Mr. Juan Tavares, Director
3110 Faunce Student Services
Within the Haenicke Institute, the International Admissions and Services office handles admissions and special needs for international students. Services include:

- Processing of applications for admission
- Immigration advising
- Orientation program for newly arrived international students
- Assistance with housing arrangements
- Coordination of international student organizations and activities
- Liaison between international students and financial sponsors
- Personal and social counseling

International students interested in seeking admission to Western Michigan University may access application information and an online or printable application at www.wmich.edu/internationaladmissions/apply.

**Immigration Services**

Ms. Lee Ryder, J.D., Director of Immigration Services
3110 Faunce Student Services
Western Michigan University
Kalamazoo, MI 49008-5246
Telephone: (269) 387-5873; FAX (269) 387-5899

Immigration services for international students, international visitors and faculty are provided through the immigration office of the Haenicke Institute.

**Center for English Language and Culture for International Students (CELCIS)**

Mr. Thomas Marks, Director
0522 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5223
Telephone: (269) 387-4800; FAX (269) 387-4806
E-mail: celcis-info@wmich.edu
http://www.wmich.edu/celcis

As part of the Haenicke Institute, the Center for English and Culture for International Students (CELCIS), established in 1975, provides instruction in English as a second language for non-native speakers who will use English to study at an American college or university or in their workplaces.

CELCIS also offers a range of individually designed, short-term programs that may include English language training (at any level) and introductory studies in American culture.

CELCIS offers classes at six English language proficiency levels which include: speaking and listening comprehension, grammar, academic reading and vocabulary building, academic writing, and research paper writing. Extra-curricular activities include conversation circles, volunteer opportunities, and various social, sport, and cultural programs.
CELCIS operates three fifteen-week terms per year (fall, spring and summer). Successful completion of CELCIS meets the minimum English proficiency requirements for all undergraduate programs and some graduate programs at Western Michigan University.

**Study Abroad**

Dr. Lee Penyak, Director  
2425 Ellsworth Hall  
Western Michigan University  
Kalamazoo MI 49008-5245  
Telephone: (269) 387-5890; FAX (269) 387-0630  
E-mail: study-abroad@wmich.edu  
http://www.wmich.edu/studyabroad

Study Abroad offers more than 90 study programs in 40-plus countries, varying in length from a few weeks to a full academic year and access to hundreds of programs administered by University-approved study abroad providers. Programs are available for undergraduates and graduates in a broad spectrum of disciplines for an academic year, one semester, or summer terms. Scholarships and grants are available, such as the President's Grant for Study Abroad that offers up to $5,000 for foreign-language students seeking an overseas language-intensive experience, and the Global Engagement Scholarship.

Students who undertake study abroad programs, or conduct individualized research, field studies, internships or other experiences outside the United States that carry WMU academic credit, and/or under the direct auspices of WMU faculty, must register with WMU Study Abroad.

Study Abroad also provides a number of important services to WMU students preparing to study, intern, or to conduct research outside the United States. Services include orientation programs, insurance procedures, and current information about conditions in countries of destination. Study Abroad maintains an extensive research area and databases for programs offered by other colleges and universities. The office also serves as a contact point between WMU students overseas and the university.

**International Research and Study Centers**

, Associate Provost  
2425 Ellsworth Hall  
Western Michigan University  
Kalamazoo MI 49008-5245  
Telephone: (269) 387-5890; FAX (269) 387-0630  
www.wmich.edu/international

The Haenicke Institute hosts four international centers devoted to teaching, research, or outreach for a particular area of the world. Each center has as its mission the goal of furthering understanding and knowledge of a country or region. These centers contribute substantially to the global understandings of faculty and students at Western Michigan University, as well as members of the community.

*Center for African Development Policy Research*  
Dr. Sisay Asefa, Director  
3531 Ellsworth Hall  
Telephone: (269) 387-1945

*The Michitoshi Soga Japan Study Center*  
Dr. Takashi Yoshida, Director  
3525 Ellsworth Hall  
Telephone: (269) 387-5874

*Timothy Light Center for Chinese Studies*
Multicultural Affairs, Division of

The mission of the Division of Multicultural Affairs (DMA) is to engage students in discovery and learning experiences in an effort to facilitate academic success and participation in a multicultural world.

DMA strives to ensure that all students are given the full opportunity to discover and develop their talents, interests, and potential, through programs and services. DMA also promotes strong academic achievement, leadership development, and encourages participation in events and experiences that advance diversity on and off campus.

For information, call 269-387-4420 or visit 2260 Ellsworth Hall or visit the website www.wmich.edu/multicultural.

Online Education

As part of a learner-centered, research university, WMU Online Education offers a wide selection of courses and programs. Through Online Education, WMU provides access to high-quality education for those unable to travel to campus, yet want to pursue or continue their academic goals. Online Education partners with academic colleges and departments to expand access to educational opportunities. Courses are offered through Online Education in the following formats:

- **Online courses** - no required face-to-face meetings. Delivery is completely online.
- **Hybrid courses** - a mix of online and face-to-face instruction, with at least 51 percent of the instruction online.
- **Open Learning** - self-paced, undergraduate online courses with flexible start and end dates. Students have up to six months to complete the course.

Online Education provides expertise in and access to student support services, instructional design, on- and off-campus testing services, and course development and maintenance support to faculty.

Parking and Vehicle Registration

Detailed regulations concerning the use of motor vehicles on campus is available from the Department of Public Safety's Parking Services. All students are eligible to park a motor vehicle on University property; however, they must first register their motor vehicle, motorcycle, and/or moped with Parking Services and pay a registration fee. Information concerning parking regulations, parking permits, and parking violations can be obtained by visiting Parking Services located at 2507 West Michigan Avenue (at the corner of West Michigan and Knollwood) or by telephoning (269) 387-4609 Monday through Friday, 7:30 a.m. – 5 p.m. Visit our web page at www.wmich.edu/parking for complete rules and permit prices.

Police

Located at 511 Monroe Street, off the 1300 block of West Michigan Ave., the Department of Public Safety is open 24 hours a day, providing a full range of police services through the use of a uniformed patrol division, a detective bureau, and a communications center. The Department of Public Safety is responsible for investigating all crimes and accidents occurring on University property and is committed to providing an environment conducive to the education of the students at Western
Michigan University. Towards that goal, the department's various divisions and bureaus have coordinated their efforts to create and maintain a feeling of security and safety within the University community. Information can be obtained by visiting the webpage: www.wmudps.wmich.edu or the office. The Department's telephone number is (269) 387-5555 or 911 in an emergency.

Publications

Established in 1916, the Western Herald (www.westernherald.com) is WMU’s independent student-run news organization. All positions at the Western Herald are staffed by students. The Western Herald website operates 24/7 yearlong. The Western Herald prints weekly from September through May and is distributed in convenient news racks throughout campus. The Western Herald offers employment and volunteer opportunities. More information is available at herald-general-manager@wmich.edu.

Western News is the official publication for administration, faculty, and staff members. It is published every other Thursday during fall and spring semesters and the summer I session by the Office of University Relations. That office also produces WMU News, an online news source that is updated daily and can be found at www.wmich.edu/wmu/news.

The WMU Magazine is a quarterly publication distributed to alumni, donors, friends, faculty, staff and students. Produced by the Office of University Relations, the magazine had a circulation of more than 75,000 and focuses on new campus developments and initiatives, research and news of universitywide import.

Radio

WMUK 102.1 FM is a member-support public radio service of Western Michigan University. Broadcasting at 50,000 watts, WMUK primarily serves Southwest Michigan and Northern Indiana. The Station offers round-the-clock news, music and information on two HD programs streams. It also features local news and arts coverage – as well as national and international programming. Listening is also available at www.wmuk.org.

WMUK is a non-profit public radio station and charter member of NPR. The Station also offers programming from the BBC World Service, American Public Media (APM) and Public Radio International (PRI).

Since its founding over 65 years ago, WMUK has provided a cultural extension of the University through its broadcast of quality news, arts and local coverage. Over the years, the station has enhanced its public service mission, providing award-winning news and music programming to Kalamazoo and beyond. WMUK is notable for its classical, bluegrass and jazz music programming, as well as programming for Spanish-speaking audiences. The station provides student internships through the School of Communication.

WMUK 102.1 FM is licensed to Western Michigan University’s Board of Trustees. The majority of funding comes from Western Michigan University, listener support, business underwriting, and the Corporation for Public Broadcasting (CPB).

WIDR(FM), a 100-watt station operated by students, broadcasts on 89.1. Facilities of WIDR(FM) are located in 1501 Faunce Student Services Building. WIDR(FM) offers a unique opportunity for Western Michigan University students to gain experience in programming, promotion, and station operation. For more information, please visit the website at www.widrfm.org.

Sindecuse Health Center

Sindecuse Health Center offers high-quality, cost-saving health services by an experienced, multidisciplinary staff. Our board-certified clinicians offer evaluation and treatment for illness or injury to students, faculty and staff by appointment. In addition to clinical care, we serve the campus community with pharmacy, lab and x-ray and physical therapy services. Counseling services are available to students. Our health promotion programs enhance individual and community health. The health center is accredited by the Accreditation Association for Ambulatory Health Care Inc. For more information, including insurance company participation, visit www.sindecuse.com.

Important Phone Numbers (Area code 269)

Information and appointments  387-3287
Speech, Language and Hearing Services

The Charles Van Riper Language, Speech, and Hearing Clinic is a service program provided by the Department of Speech, Language, and Hearing Sciences for persons with communication disorders. It is located in the Unified Clinics at University Medical and Health Sciences Center, 1000 Oakland Drive. Students may take advantage of evaluation and therapy services by contacting the Clinic for an appointment. Telephone: 387-8047.

Student Engagement, Office of

The mission of the Office of Student Engagement is to engage campus, empower students and develop leaders. We welcome you as a valued member of our community and are excited to be a part of your learning and personal development. Currently, WMU has over 350 registered student organizations representing a diverse range of interests.

Our services include coordinating major campus wide events including Bronco Bash and Homecoming. We advise and provide resources to registered student organizations, and coordinate campus wide leadership development programs and certificates through a variety of different formats for individual student leaders at all skill levels. We provide support to the Office of Faith and Spiritual Development and Fraternity and Sorority Life. We coordinate two large opportunities for service and civic engagement called "Fall Into the Streets" and "Spring Into the Streets".

Student life is an important dynamic of the college experience and we encourage students to become active members of our WMU community.

For detailed information, visit the website at www.wmich.edu/activities or visit our office in 223 Bernhard Center.

Telephone Directory

The WMU Campus Directory of faculty, staff and retirees is published annually by Office of University Relations. It is distributed during early November, without charge, to offices across the campus. Extra copies are available through the Office of University Relations.

Individual listings of faculty and staff in the Campus Directory include the following information:

1. Name
2. Title and department
3. Campus address and telephone number
4. Home address and telephone number (if provided)
5. Email address

University Libraries

The major purpose of the University Libraries is to take an active role in the educational mission of the University, and to provide instruction, assistance, resources, facilities, and an environment that not only supports student academic success but also group projects, extra-curricular programs and the development of life-long learning and research skills. In-person, phone,
text and e-mail help are freely available, as are physical and online resources, computers, printing, group study rooms, interactive and quiet spaces.

The University Libraries combined holds more than 2 million print volumes plus more than 1.5 million e-books, journals and streaming videos. Waldo Library, the main library at Western Michigan University, is named after Dwight B. Waldo, the University's first president. It was extensively renovated and expanded in 1991 and houses resources and services supporting the University’s undergraduate and graduate programs in the humanities, fine arts, business, health professions, social sciences, science, and engineering. The University Libraries also includes three branches: the Swain Education Library in Sangren Hall offers assistance and resources for the field of education; the Maybee Music and Dance Library in the Dalton Center includes specialist help and access to music scores, audio and video recordings; the Archives and Regional History Collections is housed in the Charles C. and Lynn L. Zhang Legacy Collections Center on the Oakland Drive campus and provides expertise and collections of unique and rare materials concerning the history of southwest Michigan and the official records of the University.

Service-oriented librarians and student assistants are available to help with any and all information needs at all these library locations, with additional writing and tutoring services available at Waldo Library.

Visit the Libraries' web page (http://www.wmich.edu/library) for online access and more information about available services and resources.

**University Recreation**

Student Recreation Center  
(269) 387-4732

The Student Recreation Center (SRC) is a student-oriented, multi-use facility programmed, staffed, and financed by Western Michigan University students. Recreational, educational, and health promotion programs are provided for the benefit of all WMU students, faculty, staff, spouses, emeriti and alumni facility members. The facility includes an 8,000 square foot fitness/weight room, a recreational pool with attached swirl pool and saunas, a 45' climbing wall, indoor jogging track, 8 basketball courts, volleyball and badminton courts, indoor tennis courts, 9 racquetball courts, aerobics room, 2 multipurpose gyms and a cycling room.

Memberships are available on a Semester (fall/spring) and Session (summer I/summer II) basis. Facility tours are available during all building hours by stopping at the service desk or main office. Student access to the SRC is determined by enrollment fees paid, not credit hours registered. The access fee for the SRC is rolled into the enrollment fee. Students who pay the enrollment fee have access to the SRC for that semester or session.

**Students involved in internships, student teaching or taking classes through Extended University Programs may not be assessed the SRC membership enrollment fee. Student should check their tuition invoice to determine payment of fee. Students NOT assess the fee have the option to purchase a membership at the SRC**

**Informal Recreation**

Informal recreation permits individual choice of activity. Various facilities are available on a drop-in or reservation basis including basketball courts, volleyball courts, racquetball courts, tennis courts, squash court, indoor and outdoor tracks, fitness/weight room, and swimming pool. Other open recreation opportunities include badminton, table tennis, climbing wall, and wallyball. Equipment for various activities may be checked out with a valid Bronco ID card.

**Outdoor Recreation**

University Recreation also provides competition-style outdoor track, tennis courts, soccer fields, intramural fields and a sand volleyball court. Selected outdoor equipment may be available for checkout with a valid Bronco ID card from the SRC Service Desk.

**Intramural Sports**
Intramural Sports are available for students, faculty, staff, alumni and members of the SRC who are interested in competitive activities. The program offers both team and individual sports, including basketball, volleyball, soccer, softball, ice hockey, flag football, tennis, racquetball, in-line hockey, and much more. Intramurals provide opportunities for individuals to participate in sports experiences that will develop team building and leadership skills. Opportunities for leadership are available for students who wish to officiate contests.

Fitness Programs

University Recreation offers a variety of aerobics fitness classes to meet fitness needs of participants. Enthusiastic and energetic instructors will lead participants in classes that consist of a variety of cardiovascular activity, strengthening, flexibility, and relaxation exercises designed to meet the needs of all fitness levels. Passes are necessary for admission to all classes. Additionally, completion of the Physical Activity Readiness Questionnaire (PAR-Q) is required prior to initial participation.

Fitness Weight Room

Located in the SRC, the 8,000 square foot fitness/weight room contains a full line of variable resistance weight machines, treadmills, free weights, exercise bicycles, stair climbers and elliptical machines. Personal Trainers are available to instruct on proper use of the equipment and to provide exercise training guidelines to meet personal goals. Located by the indoor track are 45 cardio machines where participants can exercise.

Climbing Wall

Students can feel the excitement of scaling a 45-foot wall. The Climbing Wall is designed to challenge and teach participants about the unique sport of indoor climbing. Students may take a climbing clinic to learn the proper belay techniques or just drop by and climb. The wall is a top-rope system where climbers are harnessed in for safety.

Club Sports

Students who wish to compete or learn a new sport may join sport clubs. A sport club is a registered student organization (RSO), formed by individuals motivated by a common interest and desire to participate in a favorite sport activity. Sport clubs vary in focus and programming since student members manage the operation of the club and decide club activities. A sport club may be competitive, recreational, social or any combination of all of these formats. These clubs hold practices and compete against other schools. WMU offers 20 clubs ranging from Synchronized Skating, Sailing, Lacrosse, Rugby, Volleyball, Ice Hockey to Ultimate Frisbee.

For more information on services and specific days and times of programs, pick up a SRC Program Guide or call our membership desk at (269) 387-3115. Current information may also be found on the web at www.wmich.edu/rec.

Veterans’ Assistance

The Office of the Registrar, on the third floor of the Administration Building certifies students under the G.I. Bill and its extensions. The Veterans’ Certification Officer will assist any person who seeks certification, or application, to the Veterans Administration under applicable programs.

Students who wish to receive V.A. benefits must annually file a "V.A. Certification Information Card" outlining plans for enrollment for the coming year. Students are certified on the basis of attendance and academic progress toward a declared degree. Address changes are also to be reported to the Veterans’ Certification Officer as soon as possible. In addition to normal scholarship standards, students receiving benefits from the Veterans Administration are advised of their additional rights and responsibilities.

In-State Tuition for Active Duty Military Personnel and their Dependents

Western Michigan University will grant instate tuition to all Veterans and their dependents.
For the purpose of this policy, a child is a dependent as defined by IRS income tax regulations. A spouse, widow or widower of a service member or veteran who has honorably served will also be granted in-state tuition.

Western Michigan University will also grant in-state tuition to all individuals who are not eligible for VA educational benefits but have honorably served or are serving in the Reserve or Active Components of the US Armed Forces.

Western Michigan University will additionally grant in-state tuition to dependents of those individuals who have honorably served or are serving in the Reserve or Active Components of the US Armed Forces, and who would otherwise not be eligible for VA educational benefits.

The Veterans’ Certification Officer may be reached in the Office of the Registrar at (269) 387-4115.

The Western Edge™

The Western Edge is a strategic plan for promoting student success and keeping the quality of education offered by WMU affordable. It reflects Western's commitment to building a culture that puts students first. There are four independent components to the Western Edge:

Enhanced Academic Advising
Enhanced academic advising will help move students smoothly and quickly through their degree programs.
http://www.wmich.edu/edge/enhanced-advising

Accelerated Graduate Degree Programs
Three year bachelors programs and five year bachelors-to-masters programs give student the opportunity to accelerate their time to degree as well as the opportunity to get ahead in their careers.
http://www.wmich.edu/edge/five-year-degree

Degree Works
Degree Works is a web based tool available to help students plan their plan to graduation. Degree Works brings WMU degree requirements and a students completed coursework together to provide a complete view of progress toward degree completion.
http://wmich.edu/registrar/students/degree-works

Career Edge
The Career Edge gives students the opportunity to extend their education beyond the classroom by helping them develop the skills and competencies that will help them graduate career-ready.
http://www.wmich.edu/edge/career-edge

Plan It 4-Ward
WMU believes that every student should have 4 plans: Academic Plan, Career Plan, Financial Plan, and an Engagement Plan. These intersecting plans are used to facilitate the pursuit of a student's dreams. Students can jump start their Plan It 4-Ward by checking out the planning worksheet found online.
http://wmich.edu/firstyear/resources

Students are encouraged to select the components of the Western Edge that work best for them - we realize that no two students are the same. Some students will want to enjoy the benefits of all these components; others may want to select only those components that fit their current educational objectives.

For more information about the different components of the Western Edge, go to www.wmich.edu/edge

Writing Center

The Writing Center, located at 1343 Ellsworth Hall, helps all Western Michigan University graduate and undergraduate students improve their writing abilities. Our writing consultants include undergraduate and graduate students as well as
adjunct instructors. Consultants are trained to help students with any aspect of written, oral, visual, and electronic communications, including assignments from any class, employment search communications (résumés, cover letters, thank-you notes, etc.), scholarship essays, graduate school personal statements, dissertation chapters, PowerPoint presentations, and much more. We work with students enrolled in any class on our main campus, at any regional campus, or online and with students who are studying abroad or working at internships. We also help students for whom English is an additional language and students who have disabilities. Finally, our instructional assistance is free to all students.

Typically, a consultant will meet with a student one-on-one to offer feedback on the student’s work, though we also meet with groups of writers who are collaborating on projects. Some students ask for help getting started on a writing assignment or task, while some work with us to improve their test writing abilities, decrease their writing phobia, develop proofreading skills, or improve their understanding of a particular documentation style (APA, MLA, Chicago Manual, etc.) or genre (lab reports, memos, proposals, grants, etc.) Consultants and students may meet in person on our main campus, and we are also available by telephone and email for students who cannot come to campus.

Students may get help from consultants in a 50-minute appointment or a 20-minute drop-in session. It’s easiest for students to make appointments through our online scheduler, which can be found on our website: www.wmich.edu/casp/writingcenter. Students may also call us at (269) 387-4615 to make an appointment or get directions. In addition, students who want to use our drop-in services by telephone should also call (269) 387-4615, and should leave a message with their telephone number if they reach our voice-mail.

Our hours for each semester and summer session are listed on our website. In addition to our Monday through Friday hours, during fall and spring semesters, we also offer Sunday hours from 5:00 – 8:00 p.m. at our 3rd floor Waldo Library location. Students who want help when the University is not holding classes may email the Writing Center director at kim.ballard@wmich.edu.

At the request of instructors or organization leaders, Writing Center staff will develop and present workshops in classes or meetings. We are also available for in-class writing assistance.

Our consultants truly enjoy working with students on their writing and hope as many students as possible take advantage of our eagerness to help them learn. As part of the Center for Academic Success Programs (CASP), we are dedicated to helping students excel at Western Michigan University.
Glossary of Terms

Academic advisor
A faculty or professional staff member trained to help students select courses and plan programs.

Academic dismissal
Dismissal from a college or program for not maintaining the required grade point average (GPA). Dismissal indicates that a student is no longer a member of the University community.

Academic forgiveness
WMU undergraduate students who have not earned a degree and have not attended the University for at least four years, and have reapplied to the University, may apply for academic forgiveness through the Office of the Registrar. Students who are granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of 12 graded hours of work attempted after the reentry date. All other University regulations apply.

Academic standing
The academic standing of a student is determined by the student’s grade point average (GPA). All undergraduate students must have a 2.0 or better grade point average to maintain “good standing”. A “warning” will be issued to a student whose GPA falls below a 2.0 in any semester or session even though the overall GPA is 2.0 or better. A student will be placed on “probation” if the overall GPA falls below 2.0. The student will be placed on “extended probation” following a semester on probation if the student’s GPA for the enrollment period is 2.0 or above but the overall GPA is still below 2.0. The student will be placed on “final probation” following a semester on extended probation if the student’s GPA for the enrollment period is 2.0 or above but the overall GPA is still below 2.0. Students will receive a “dismissal” notice if they are on probation or extended probation and fail to achieve at least a 2.0 GPA for the enrollment period.

Advanced placement
Credit granted for examination programs or for transfer work.

Audit
Registering for and attending class(es) regularly without being held responsible for the work required for credit. Not eligible to sit for examinations. No credit hours are earned and full tuition must be paid. The grade "AU" appears on the record.

Baccalaureate-level writing requirement
An upper-division requirement for all students. Each academic department designates courses to fulfill this requirement.

Bachelor's degree
A degree granted after completing a specified amount of academic study beyond the completion of high school and fulfilling all graduation requirements.

Board
A term used for the meal plan (as in, room and board) at the University.

Capstone course or experience
A culminating holistic experience designed to review and more broadly understand the major issues, themes, theories, and research findings of the student's discipline, often to enable the student to examine the relationship of the discipline to other areas.

Center
An organizational unit formed for purposes of linkage and visibility, focused on a theme, issue, or set of skills. A center will frequently be interdisciplinary in nature. A center does not offer degree programs but may, on rare occasions, offer a course or courses.

Class or credit hour load
The number of credit hours carried by a student each semester or session. A first semester freshman may not enroll for more than eighteen hours of work except by special permission, which is seldom granted unless the curriculum demands it.
regulation applies to total credit for work taken by extension or in some other institution, in addition to credit earned in
residence at Western. The normal maximum load for the Summer I or Summer II session is nine hours.

Class standing
A classification based on the number of credit hours earned which indicates the level of a student:

- Freshman: A student credited with 0–25 hours inclusive.
- Sophomore: A student credited with 26–55 hours inclusive.
- Junior: A student credited with 56–87 hours inclusive.
- Senior: A student credited with 88 or more hours.

Co-Curricular Learning
Co-curricular learning takes place outside formal academic studies. It is similar to volunteerism, but includes structured
reflection. (See Experiential Learning)

Cognate
A course, or courses, related in some way to courses in a major. Cognates may be, and often are, courses outside the
department of the degree program.

College
An administrative division of the University housing one or more academic departments or schools.

College-level writing requirement
A lower-division writing requirement for all students. On the basis of test scores a basic writing course may be required as a
prerequisite.

Concentration
A concentration (or option or emphasis) is a thematically coherent block of courses that are more similar to one another than
to others in the degree program. A concentration has a title and constitutes a significant percentage (e.g., 10%) of courses in
the degree program. Concentrations (or options or emphases) may be recorded on the student transcript.

Continuing education unit (CEU)
Recognition for participation in a non-credit program or workshop.

Coordinate major
A major—often interdisciplinary—that must be taken in conjunction with another major.

Corequisite
A course that must be taken at the same time as another course. See also Prerequisite below.

Course numbering system
The course numbering system is limited to four digits. Undergraduate courses are numbered from 1000 through 4999.
Graduate courses are numbered 6000 through 7999. Courses numbered 5000 through 5999 are for graduate and advanced
undergraduate students.

<table>
<thead>
<tr>
<th>Course Numbers</th>
<th>Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000–0089</td>
<td>Non-credit courses</td>
</tr>
<tr>
<td>0090–0099</td>
<td>Terminal course credit that may not be applied toward degree programs</td>
</tr>
<tr>
<td>1000–1999</td>
<td>Courses primarily for first-year students</td>
</tr>
<tr>
<td>2000–2999</td>
<td>Courses primarily for Sophomores</td>
</tr>
<tr>
<td>3000–3999</td>
<td>Courses primarily for Juniors and Seniors</td>
</tr>
<tr>
<td>4000–4999</td>
<td>Courses primarily for Seniors</td>
</tr>
<tr>
<td>5000–5999</td>
<td>Courses for graduate students and advanced undergraduate students</td>
</tr>
<tr>
<td>6000–6999</td>
<td>Courses for graduate students only</td>
</tr>
<tr>
<td>7000–7999</td>
<td>Graduate seminars, theses, independent research, etc.</td>
</tr>
</tbody>
</table>
Credit/No Credit
A method used to evaluate performance in courses which is separate from the grade point system. Course grade does not affect GPA. "Credit" is earned for grades of "C" or better; grades of "DC" or below earn "No Credit."

Students may elect for Credit/No Credit any course approved for General Education or General Physical Education credit, as well as other courses not counting toward their major or specified in their curriculum as defined in this undergraduate catalog.

Credit hour
One hour of classroom (50 minutes) or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester hour of credit; or at least an equivalent amount of work for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours. See also "semester hour."

Credit load
The total number of credits for which a student registers during a semester or session.

Curriculum
A complete program of studies, as defined by a college, leading to a baccalaureate (undergraduate) degree.

Deadline
The date by which certain information must be received by any given office or unit.

Dean's list
A public announcement at the end of fall and spring semesters, and the summer sessions, listing students who have achieved a grade point average of 3.50 in at least twelve semester hours of course work during fall and spring semesters, and at least six semester hours of work during Summer I or Summer II.

Degree student
A student who has been admitted to a degree category and is seeking a bachelor's, master's, or doctoral degree in a planned course of study.

Distribution requirement
A General Education requirement. Each undergraduate candidate must complete at least one course in each of eight (8) distribution areas:

1. Fine Arts
2. Humanities
3. United States: Cultures and Issues
4. Other Cultures and Civilizations
5. Social and Behavioral Sciences
6. Natural Science with Lab
7. Natural Science and Technology
8. Health and Well-Being

Drop
An official procedure for withdrawing from individual classes without removing registration from all classes. The deadline for the last day to drop a course without academic penalty (grade of "W" is on the transcript) is noted each semester or session on the Registrar’s website. Students who do not follow the official procedure when dropping a class will earn the grade of "X" for that course; the "X" grade carries no honor points and affects the GPA in the same manner as an "E" or failing grade. See also "late drop."

Elective
A course which will count as credit toward a degree but is not a specific program requirement.
A designated group of courses within a major program.

**Experiential Learning**
Western Michigan University defines "experiential learning" as that which "informs many methodologies, in which educators purposefully engage with students in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities" [Association for Experiential Education and United Nations Educational, Scientific and Cultural Organization (UNESCO)]. Experiential learning includes, but is not limited to:

*Service Learning*: Service learning is a mutually beneficial endeavor in which course learning objectives are met by addressing community-identified needs--putting academics into practice.

*Co-Curricular Learning*: Co-curricular learning takes place outside formal academic studies. It is similar to volunteerism, but includes structured reflection.

*Volunteerism*: Refers to work done without financial remuneration in order to give back to the community and may be completed by individual students or organized group activities. It may be done on a voluntary basis or as required for an academic course, program or other campus organization.

**Family Educational Rights and Privacy Act (FERPA)**
This act limits information which can be disclosed about individual students' records without their written permission to general Directory information (name, address, telephone number, curriculum, and major field of study). All requests for information beyond Directory information should be referred to the Registrar's Office.

**Field experience, practicum, work experience, co-op**

*Field experience*: Actual practice, often away from the college campus, in a practical or service situation. In a teacher education program, it is usually conducted in schools.

*Practicum*: 1) A course of instruction aimed at closely relating the study of theory and practical experience, both usually carried on simultaneously; 2) an academic exercise consisting of study and practical work; and 3) supervised experience in counseling or a similar activity through such procedures as role-playing, recorded interviews, abstraction, analysis, and supervisory evaluation with interviewing techniques.

*Work experience, co-op, or internship*: A sponsored learning experience in an occupational area for persons preparing for full-time employment, conducted in connection with a course of study, where the students spend a part of their time on an actual job in a school, business, or industry.

*Cooperative education*: A program for persons enrolled in a school that provides for parallel or alternating study in school with a job in industry or business, the two experiences being so planned and supervised cooperatively by the school and the employer that each contributes definitely to the students' development in their chosen occupation.

*Cooperative program*: An organizational pattern of instruction which involves regularly scheduled employment and which gives students an opportunity to apply classroom learning.

**Full-time student**
An undergraduate student who enrolls for twelve credit hours during Fall or Spring or for six credit hours during Summer I or Summer II. The University does allow full-time status to some co-op and intern classes, when it is the only class allowed a student during a semester or session. University Housing has its own regulations on the definition of hours needed to be eligible for housing contracts. Students should contact the University Housing Office for this information. The above definitions are Western Michigan University regulations and may or may not be accepted by other agencies.

**Gate course**
A course in fundamentals in which a student must achieve a grade of "C" or "Credit" in order to qualify for enrollment in upper division courses of a curriculum.

**Good standing**
A designation that signifies that a student is eligible to continue, to return, or to transfer elsewhere. It implies good academic standing; that is, an overall GPA of 2.00 or better.

**Grade point**
The numerical value given to letter grades. For example an "A" is equivalent to 4 points per semester hour, a "BA" to 3.5 points, a "B" to 3 points and so on. No points are earned for an "E" grade. Also referred to as "honor points."

**Grade point average (GPA)**
A student's scholastic average computed by dividing total grade or honor points by total credit hours attempted.

**Graduation audit**
A formal, required evaluation of the student's academic record and program of study to determine the student's eligibility for graduation. The audit, initiated by a student's application for graduation, determines whether all University, degree, and program requirements have been met satisfactorily.

Deadlines for all degree recipients to apply for graduation are August 1 for December graduation, December 1 for April graduation, February 1 for June graduation, and February 1 for August graduation.

Students who change a graduation date need to complete a new application for graduation. No fee for the change is required. The Registrar's Office will not change a student's graduation date unless the student submits this new application for graduation.

**Grant**
Financial assistance awarded to a student which does not have to be repaid; usually based on need.

**Guest student**
A degree student from another college who is taking courses at Western Michigan University for one semester. The credits earned are usually transferred back to the student's home institution. A guest student may also wish to enroll in WMU courses for reasons other than seeking a degree. Guest student status does not constitute admission to a degree or certificate program.

**Hold**
A barrier placed on a student's ability to register for classes as a result of an unfulfilled monetary obligation or other action by the University.

**Honors**
Designation indicated on the college degree and transcript to reflect outstanding scholarship. Honors are conferred upon graduating students who have displayed a high level of performance during their university career. Recipients of honors receive their degrees:

*Cum laude*—when their grade point average is 3.50 to 3.69, inclusive

*Magna cum laude*—when their grade point average is 3.70 to 3.89, inclusive

*Summa cum laude*—when their grade point average is 3.90 to 4.00, inclusive

To be eligible for honors, students must have earned at least fifty semester hours of course work at Western Michigan University which was graded by a letter grade and computed into the final cumulative grade point average.

**Honors College (Lee Honors College)**
An academic administrative unit of the University whose mission is to design and foster curricular and co-curricular programs for the academically-talented student.

**Honors courses**
Special courses offered by Western's Lee Honors College designed to pose intellectual challenge and give personal attention to particularly able students.
Incomplete
A temporary course grade ("I") granted only if a student is temporarily unable to complete course requirements because of unusual circumstances beyond the control of the student.

Independent studies or readings courses
Independent studies or readings courses are courses in which a contract is developed between a faculty member and a student to complete research in, or readings on, a specific topic. The student is responsible for proposing the topic and contacting the appropriate faculty member.

Independent study
A course of study undertaken outside the classroom by a student under the supervision of one or more faculty members.

Institute
An organizational unit similar in nature to a center, as defined above, but which is degree-granting. Typically an institute will be interdisciplinary. Course work for a degree offered through an institute may include some offered by the institute itself but will be primarily comprised of courses in various disciplines/departments already in existence.

Intellectual skills requirements
The requirement that all students demonstrate entry-level competency in reading, writing, and mathematics by test or course.

Interdisciplinary
Designating a combination of subject matter from two or more disciplines within a course or program.

Internship
Work in a firm or agency related to a student's major program and/or career plans. Usually involves earning college credit and may involve receiving payment.

Late drop
An official procedure for withdrawing from individual classes without removing registration from all classes that takes place after the last day to drop a course without academic penalty.

Loan
Financial assistance to students which must be repaid. Low interest loans are available and financial need may or may not be a factor.

Lower division
Courses at the 1000–2000 level; freshman or sophomore standing.

Major
A concentration of related courses totaling a minimum of 24 semester hours of credit.

Michigan residence requirements
The requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.

Minor
A concentration of courses totaling a minimum of 15 semester hours of credit.

Multi-topic or "umbrella" course
A variable topic course that focuses on a current or a special interest in a specific field or academic area. The course may be repeated for credit with different topics.

Non-degree student
A student who has been admitted as a guest student or is not currently seeking a bachelor's degree.

Part-time student
An undergraduate student who takes fewer than twelve hours during a semester or fewer than six hours during a session.
**Portfolio**
A collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.

**Prerequisite**
A requirement, usually the completion of another course, which **must** be met before a student may register for a course.

**Prerequisite with concurrency**
A requirement, usually the completion of another course, which **may** be taken at the same time as the course it is a prerequisite for.

**Proficiency**
A General Education requirement. Each undergraduate candidate must show proficiency in four (4) areas:
1. college-level writing  
2. baccalaureate-level writing  
3. college level mathematics or quantitative reasoning  
4. enhanced proficiency (one of six options).

**Readmission**
An enrollment procedure administered by the Office of Admissions that is followed by a student who was previously enrolled in good standing at Western Michigan University but who has not been enrolled for one year or more.

**Re-entry**
An enrollment procedure followed by a student who was previously enrolled in good standing at Western Michigan University but whose attendance was interrupted for two consecutive semesters, including the summer session.

**Registration**
The process of enrolling in and paying tuition and fees for courses each semester or session. For a full explanation of the registration procedures and regulations, consult the Registrar's website.

**Reinstatement**
An appeal procedure for a student who has been dismissed. Consult your college advising office to begin the procedure. Readmission must be sought in the area of intended study.

**Residence requirement**
The requirement that a minimum of 30 semester hour of course work for the bachelor's degree be completed at Western Michigan University. In addition, 10 of the last 30 credits must be completed at WMU.

**Scholarship**
Financial assistance to students awarded on the basis of academic achievement. Financial need may or may not be a factor.

**School**
A single-discipline unit which has an identification in the public mind beyond that of a department. Schools may have significant subdivisions such that students will apply for admission and take degrees through the subdivision rather than through the central unit as a whole.

**Semester**
A unit of time, 15 weeks long, in the academic calendar.

**Semester hour**
One hour of classroom (50 minutes) or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester hour of credit; or at least an equivalent amount of work for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours. See also "credit hour."

**Senior institution**
An institution of higher learning offering baccalaureate programs. Western Michigan University is a public senior institution; a minimum of sixty hours toward the bachelor's degree must be completed at a senior institution.

**Service Learning**
Service learning is a mutually beneficial endeavor in which course learning objectives are met by addressing community-identified needs—putting academics into practice. (See Experiential Learning)

**Session**
A unit of time, 7-1/2: weeks long, in the academic calendar.

**Student employment**
Part-time jobs made available to students with financial need through federally-funded programs (Work-Study) and to students without need through the Student Employment Office.

**Teachable major/minor**
A state-approved major/minor program for teacher certification at the secondary and/or elementary level.

**Three-quarter time student**
Three-quarter time undergraduate students are defined as taking nine to eleven hours during a semester and five hours during a session.

**Transcript**
A copy of a student's permanent academic record at a particular institution.

**Transfer credit**
Credit earned at another accredited institution and accepted towards a Western Michigan University degree. Grades earned at another institution do not transfer and hence do not affect the WMU GPA.

**Transfer credit evaluation**
An official statement which indicates the number and type of transfer credits awarded.

**Tuition**
The amount of money which must be paid for courses based on the number of credits for which the student registers.

**Unit definitions**
*Center:* An organizational unit formed for purposes of linkage and visibility, focused on a theme, issue, or set of skills. A center will frequently be interdisciplinary in nature. A center does not offer degree programs but may, on rare occasions, offer a course or courses.

*Institute:* An organizational unit similar in nature to a center, as defined above, but which is degree-granting. Typically an institute will be interdisciplinary. Course work for a degree offered through an institute may include some offered by the institute itself but will be primarily comprised of courses in various disciplines/departments already in existence.

*School:* A single-discipline organizational unit which has an identification in the public mind beyond that of a department. Schools may have significant subdivisions such that students will apply for admission and take degrees through the subdivision rather than through the central unit as a whole.

**Unit of credit**
The unit of credit is the semester hour; the number of semester hours credit given for a course generally indicates the number of periods a class meets each week.

**Upper division**
Classification of students with 56 or more semester hours of credit earned towards a bachelor's degree; courses at the 3000, 4000, and 5000 levels.

**Volunteerism**
Refers to work done without financial remuneration in order to give back to the community and may be completed by individual students or organized group activities. It may be done on a voluntary basis or as required for an academic course, program or other campus organization. (See Experiential Learning)

**Withdrawal**
An official procedure for withdrawing from the University for at least the remainder of the current semester or longer. The deadline for the last day to withdraw from all courses without academic penalty (grade of "W" is on the transcript) is noted each semester or session on the Registrar’s website. Students who do not follow the official procedure when withdrawing from the University will earn the grade of "X" for all courses; the "X" grade carries no honor points and affects the GPA in the same manner as an "E" or failing grade.
Colleges, Departments and Programs
College of Arts and Sciences

Carla, Koretsky
Dean

James Cousins
Associate Dean

Heather Petcovic
Associate Dean

Mission of the College

Our mission is to ignite and sustain a passion for learning and discovery in the humanities, social sciences, and sciences, to help students, staff, and faculty succeed in life and contribute to the betterment of our local and global communities.

Vision of the College

Our vision is to achieve excellence in all aspects of learning and discovery across the humanities, social sciences, and sciences while fostering a climate of intellectual freedom, diversity, and inclusion.

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<th>Undergraduate majors</th>
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Undergraduate majors:
- Anthropology
- Biological Sciences
- Chemistry
- Biochemistry
- Business-Oriented Chemistry
- Chemistry
- Chemistry – ACS Certified
- Chemistry – Secondary Education
- Communication
- Communication Studies
- Film, Video, and Media Studies
- Interpersonal Communication
- Journalism
- Organizational Communication
- Public Relations
- Telecom & Information Management
- Comparative Religion

Undergraduate minors:
- Anthropology
- Biological Sciences
- Chemistry
- Biochemistry
- Business-Oriented Chemistry
- Canadian Studies
- Climate Change Studies
- Legal Studies
- Medical Humanities
- Race and Ethnic Relations
- Communication
- Communication Studies
- Film, Video, and Media Studies
- Interpersonal Communication
- Journalism
- Organizational Communication
- Comparative Religion
- Economics
- English
•Comparative Religion B.A. •English
Economics •English - Secondary Education
•Economics B.A. •English with Writing Emphasis
English •Economics B.A. •Environmental and Sustainability Studies
•English B.A. •Environmental and Sustainability Studies
•English – Secondary Education B.A. •Gender & Women's Studies
•Creative Writing B.A. •Gender & Women's Studies
•Rhetoric and Writing Studies B.A. In the Environment and Sustainability
Institute for the Environment and Sustainability B.A./B.S. Geography
•Environmental and Sustainability Studies* B.A. Geography
•Freshwater Science and Sustainability B.S. Geosciences
Gender and Women's Studies B.S. •Earth Science
•Gender and Women's Studies B.A. •Geology
Geography B.S. •Group Science for Geology Majors
•Community and Regional Planning B.S. History
•Geography B.S. •History
•Tourism and Travel B.A. •Public History
Geosciences B.S. •History: Social Studies
•Earth Sciences B.S. •History: Secondary Education
•Geochemistry B.S. •Geology
•Geology B.S. •Geophysics
•Geophysics B.S. •Hydrology
•Hydrology B.S.
Global and International Studies B.A. Global and International Studies
•Asian Studies
History B.A. •Latin American Studies
•History B.A. •Modern European Studies
•Public History B.A. •Public History
•History – Secondary Education B.A. •History: Secondary Education
Mathematics B.A. •Mathematics
•Applied Mathematics B.A./B.S. •General Mathematics
•Mathematics B.A./B.S. •Actuarial Science
Philosophy Medieval Studies
•Philosophy B.A. Philosophy
•Professional and Applied Ethics B.A. •Professional and Applied Ethics
Physics B.A. •Physics
•Physics B.S. •Astronomy
•Physics: Electrical Engineering B.S. •Physics
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*This major is to be selected only along with a standard major.

Any student completing a major or minor from the College of Arts and Sciences must earn a minimum of nine (9) credit hours toward their major and at least six (6) credit hours toward their minor from the degree-granting unit at WMU. Academic units within the college may set higher credit hour minima for their programs. Please consult the appropriate program for details.

**Accelerated Degree Program with WMU Thomas Cooley Law School**

Students with a declared major in the College of Arts and Sciences (CAS) who are accepted into the WMU Thomas Cooley Law School may enroll in an accelerated degree program, allowing them to count credits earned from their first-year law school courses toward both their law degree and their bachelor's degree.
Application for this program is required. Students should apply through the CAS Office of Undergraduate Advising. Minimum requirements include acceptance into the WMU Thomas Cooley Law School, junior or senior standing, and a cumulative undergraduate GPA of 3.0 or better. Applications will be reviewed by a joint admissions committee consisting of CAS advising staff, CAS faculty, and a representative from the CAS Dean's office, and representatives from Cooley Law School.

Students accepted into this program will enroll at WMU in 18 credits of A-S 5100 - Topics in Legal Studies, which will be scheduled in partnership for the following first-year courses at the Cooley Law School:

- CIVP 105 LECT - Civil Procedure I   Credits: 3 hours
- CONL 404 LECT - Constitutional Law I Credits: 3 hours
- CONL 503 LECT - Constitutional Law II Credits: 3 hours
- CONT 108 LECT - Contracts I Credits: 3 hours
- CONT 213 LECT - Contracts II Credits: 3 hours
- CRLP 107 LECT - Criminal Law Credits: 3 hours
- PRSE 109 LECT - Property I Credits: 3 hours
- PRSE 207 LECT - Property II Credits: 3 hours
- TOEQ 106 LECT - Torts I Credits: 3 hours
- TOEQ 304 LECT - Torts II Credits: 3 hours

Students in this program will receive WMU credit for 18 of the 24 credits successfully completed (with a grade of "C" or better) during their first year at Cooley. Successful completion (with a grade of "C" or better) of 18 credits of A-S 5100 will also constitute the successful completion of the minor in Legal Studies in the College of Arts and Sciences.

Students in this program still need to complete their major requirements and their general education requirements, and still need a minimum of 122 credits to receive their bachelor's degree. Students interested in pursuing this option should contact the College of Arts and Sciences Office of Undergraduate Advising to learn more.

**Academic Advising Office**

Kevin Knutson, Director  
Tammi Smith, Assistant Director  
Jackie Bizzell, Academic Adviser  
Elizabeth Cramer, Academic Advisor School of Communication  
Cheryl Frommann, Academic Adviser  
Kerrie Jo Harvey, Academic Adviser  
Lyndsey Millet, Academic Advisor  
Thomas Mills, Academic Advisor  
Kayla Jo Mitchell, Administrative Assistant II  
Lynnette Abbate, Office Assistant

2318 Friedmann Hall  
(269) 387-4366  
[www.wmich.edu/cas/advising](http://www.wmich.edu/cas/advising)

**Vision**

Western Michigan University's College of Arts and Sciences Office of Undergraduate Advising strives to be nationally and internationally recognized by the College, University, and external communities for providing timely, accurate, and intentional advising.

**Mission Statement**
The College of Arts and Sciences Office of Undergraduate Advising, as a key component in a learner-centered, discovery-driven, globally-engaged research university, is dedicated to engaging students in intentional, collaborative, supportive, and meaningful partnerships that promote personal growth, educational excellence, cultural appreciation, and career development to facilitate self-directed, life-long learning.

The College of Arts and Sciences Academic Advising Office at Western Michigan University, located in 2318 Friedmann Hall, provides general advising regarding university and general education requirements, pre-professional programs and the College of Arts and Sciences Liberal Education Curriculum. The Academic Advising Office also offers introductory information about the programs, majors and minors available within the College of Arts and Sciences. Major and minor specific advising is offered by professional staff and faculty within each department in the College. Schedule an appointment with a College of Arts and Sciences Academic Advisor online at www.wmich.edu/arts-sciences/advising or by calling (269) 387-4366.

Student Success Services
Katie Easley, Program Manager of Student Success Services
Ben Carr, Bronco Study Zone Manager
Amy Degner-Petillon, Administrative Assistant II
McKaela O'Brien, Math and Science Success Center Manager and Supervisor of Learning Assistant Program

Western Michigan University
3374 Rood Hall
(269) 387-4252
www.wmich.edu/student-success

The College of Arts and Sciences’ Office of Student Success Services (S3) provides academic support to any student enrolled in CAS courses via peer academic success coaching, drop-in course assistance, and the learning assistant program. The main S3 office is located in 3374 Rood Hall. Peer tutoring provides course-specific assistance to undergraduates in over 200 courses. Peer academic success coaching pairs high-achieving CAS undergraduates with students wishing to enhance their study strategies and receive one-on-one course assistance. Drop-in course assistance at the Bronco Study Zone in 3374 Rood Hall and at the Math and Science Success Center (MSSC) in the Valley 2 residence hall offers immediate, on-the-spot support to students in a number of in-demand subjects. 

Liberal Education Curriculum (LEC)
All students who graduate from the College of Arts and Sciences will be enrolled in the LEC.

Liberal Education Curriculum Requirements
All students at Western Michigan University must satisfy the University General Education requirements. The Liberal Education Curriculum (LEC) expands these requirements as follows:

1. World Language Requirement:
Two semesters (6-8 hours) of the same foreign language or American Sign Language, or proficiency by exam.

2. Critical Thinking Requirement:
Students must complete a course approved for the General Education Proficiency 4c, Critical Thinking. A list of these courses can be found in the University General Education listings elsewhere in this catalog.

College Degree Requirements

1. The Liberal Education Curriculum. Students who enter in the 2005 and subsequent catalogs and who will graduate through the College of Arts and Sciences must complete the Liberal Education Curriculum (LEC) described here. Students who entered under prior catalogs are encouraged to complete the new LEC program.
2. Majors and Minors. Students who will graduate through the College of Arts and Sciences must have a stand-alone major (i.e., not a coordinate major) in the College and a minor in Arts and Sciences or any other college in the University. Students with two majors are not required to complete a minor.

To be admitted to any major in the College of Arts and Sciences, students should apply to the department or program as soon as possible and prior to completion of 35 semester hours. Transfer students with more than 35 hours should apply before matriculation. Students who are not yet admitted to a major may not be permitted to enroll in major core courses. Some departments have restrictive policies for admission to certain majors, as described in the departmental sections of this catalog, which may make it difficult to change curricula during the junior or senior year.

3. The Credit/No Credit option cannot be used in courses that fulfill the baccalaureate writing, critical thinking and foreign language requirements of the Liberal Education Curriculum. Use of the Credit/No Credit option for courses in major and minor programs must follow the University policies.

**Arts and Sciences Student Planned Major (SPMJ)**

The Student Planned Major provides students who wish to graduate from the College of Arts and Sciences the opportunity to pursue educational goals which cannot readily be accommodated in the College's disciplinary majors. Students in the SPMJ must complete the College's Liberal Education Curriculum and work with a College Advisor plus at least two board appointed faculty advisors to create an individually tailored course of study of sufficient credit hours to meet general degree requirements. Any substitution to the LEC requirements must be approved by the College, the faculty advisors and one faculty member representing the area of the substitution. Students completing this major are eligible to receive either the B.A. or the B.S. degree depending upon the particular configuration of course work selected.

Any undergraduate student in Arts and Sciences in good academic standing is eligible to apply for the SPMJ. Students interested in this option should contact the Director of Advising in the College of Arts and Sciences to begin the process. Those entering the SPMJ are expected to develop a written statement outlining educational goals and how the proposed or current course of study accomplishes the goals.
The anthropology program is designed to provide students with an understanding of the human condition in its plurality through the integration of historical, cultural, linguistic, and biological perspectives. Through course offerings, students will broaden their familiarity with diverse ways of life past and present; gain knowledge of human adaptation and variation from our earliest ancestors to modern peoples; and be exposed to perspectives and methods that challenge multiple forms of social inequality. The anthropology faculty places an emphasis on anthropology as a critical social science. Students will also have opportunities to participate in various field programs here and abroad and will receive preparation for graduate study in anthropology.

All major and minor programs must be approved by the department's undergraduate advisor. Students are expected to meet with the undergraduate advisor at least once every semester, preferably prior to selecting courses for the following semester. Students applying to graduate school in anthropology are encouraged to meet with their advisor two semesters before they plan to graduate for assistance in selecting appropriate programs.

The prerequisites to 5000-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisites for each class.

**Anthropology Major (34 hours)**

**Anthropology Course Requirements**
A major in anthropology consists of a minimum of 34 hours of anthropology courses and must include:

1. Courses
   ANTH 2100 - Introduction to Archaeology Credits: 3 hours
   ANTH 2400 - Principles of Cultural Anthropology Credits: 3 hours
   ANTH 2500 - Introduction to Biological Anthropology Credits: 4 hours

2. One writing intensive course in anthropology

3. Six (6) additional hours of course work at the 4000-level or above

4. One course designated at Experiential Learning

5. No more than three (3) hours of course work at the 1000-level

6. A grade of "C" or better in every anthropology class counted toward the major

7. No more than twelve (12) hours of anthropology classes may be transferred

A student with a major in anthropology is strongly encouraged to take a broad range of courses in all four subdisciplines of anthropology: archaeology, cultural anthropology, biological anthropology, and linguistic anthropology.

**Baccalaureate-Level Writing Requirement**
Students who have chosen the anthropology major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

ANTH 3530 – Bioarchaeology Credits: 3 hours
ANTH 4400 – Ethnography   Credits: 3 hours
ANTH 4750 – Language and Identity   Credits: 3 hours

Experiential Learning
Students who have chosen the anthropology major will satisfy the Experiential Learning Requirement by successfully completing one of the following courses or other courses with prior approval of the departmental Undergraduate Advisor:
ANTH 4900 – Archaeological Field School   Credits: 6 hours
ANTH 4970 – Directed Experiential Learning   Credits: 3 hours
ANTH 5030 – Anthropology in the Community   Credits: 3 hours
ANTH 5040 - Archaeological Research Methods   Credits: 3 hours
ANTH 5090 - Cultural Resource Management Archaeology   Credits: 3 hours
ANTH 5330 – Museums and Material Culture   Credits: 3 hours
ANTH 5400 – Ethnographic Research Methods   Credits: 3 hours

Anthropology Minor (18 hours)
A minor in anthropology consists of a minimum of 18 hours of anthropology courses and must include:

Requirements
- Six (6) hours of course work at the 4000-level or above
- No more than six (6) hours of course work at the 1000-level
- A grade of “C” or better in every anthropology class counted toward the minor

Additional Information
No more than twelve (12) hours of anthropology classes may be transferred for the major; no more than nine (9) hours of anthropology classes may be transferred for the minor. Some Upper division courses may have prerequisites that need to be filled before enrolling in these classes.
An understanding of the biological sciences is essential, if we are to solve the pressing social, environmental, and economic problems of our times. The Department of Biological Sciences offers major and minor programs designed to provide today's student with effective and up-to-date knowledge and training in various areas of the life sciences, including medical aspects of human biology.

The Biology Major explores the broad spectrum of the life sciences with opportunities to study botany, zoology, ecology, and physiology. Students completing this major should be prepared for one or more of the following goals: (1) graduate study toward an advanced degree in the Biological Sciences, i.e. M.S., or Ph.D.; (2) employment in state or federal government service, industry, laboratory or technical work; (3) advanced study at the professional level.

The Biomedical Sciences Major is designed to explore the human, molecular, and cellular aspects of the life sciences, with the opportunity to study cell biology, genetics, microbiology, molecular biology, neurobiology, and physiology. The specific objectives of the Biomedical Sciences major include: (1) providing basic training for employment in and basic research laboratories, industrial laboratories, as well as state and federal agencies; (2) producing highly qualified students for advanced training at the graduate-professional levels, i.e., M.S., Ph.D., M.D., D.D.S., D.O.M., D.P.M., or D.V.M.; and (3) pre-professional training for such clinical areas as physician assistant, pharmacy, and physical therapy. For additional career options, see the Undergraduate Advisor.
The **Biology Major-Secondary Education Curriculum** is designed to prepare students for certification and teaching in secondary education. Students interested in pursuing a teaching career in the biological sciences should follow the special guidelines for this program in the section below.

A **Minor in Biological Sciences** is also available, as well as in the Secondary Education Curriculum.

All major and minor programs are to be pursued under the direction of and with the approval of the Undergraduate Advisor. Students interested in a major or minor should contact the undergraduate advisor in Room 3447 Wood Hall, (www.wmich.edu/biology/advising or 269-387-5617) during freshman or transfer orientation and regularly thereafter. Courses taken without the approval of the undergraduate advisor may not be acceptable for major or minor credit.

In addition to planning your program with the undergraduate advisor, we also urge you to consult with the Pre-Health Advisor (in the College of Arts and Sciences at 269-387-4366 or, www.wmich.edu/arts-sciences/advising) at an early stage, to determine any special requirements or variations that may pertain to particular medical, dental, veterinary or other professional schools to which you are planning to apply for admission.

Students must satisfy prerequisites before enrolling in a course. Those who fail to earn a "C" or better grade in a departmental prerequisite course will be denied admission to enroll in the next class. Enrollment will not be honored if it is found that proper prerequisites have not been met.

Only departmental courses in which a grade of "C" or better is obtained may be counted towards a major or minor in Biological Sciences.

**Transfer Students**

A minimum of 15 hours of course work in the Biology Major, the Secondary Education Biology Major, and the Biomedical Sciences Major must be earned at Western Michigan University. At least 12 hours in the Biological Sciences Minor must be earned at Western Michigan University. Transfer students should consult with the undergraduate advisor in Room 3447 Wood Hall (www.wmich.edu/biology/advising or 269-387-5617), before registering for classes.

**Biology Major (34 hours)**

A Major in Biology consists of a minimum of 34 credits of biological sciences courses, as well as cognate courses in chemistry, physics and mathematics. This course work includes four introductory courses, three intermediate level courses, and three advanced interest courses, including at least one capstone experience. Only three credit hours may be BIOS 4980 and/or BIOS 4990.

**Introductory Courses**

BIOS 1600 - Biological Form and Function Credits: 3 hours
BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1620 - Ecology and Evolution Credits: 4 hours
BIOS 2500 - Genetics Credits: 4 hours

**Intermediate Level Courses**

Choose at least three (3) of the following. At least one course must satisfy General Education Proficiency 2: Baccalaureate-Level Writing.

BIOS 2020 - Botany Credits: 4 hours
BIOS 2030 – Zoology Credits: 4 hours
BIOS 2300 – Cell Biology Credits: 3 hours
BIOS 2600 – Introduction to Developmental Biology Credits: 3 hours
BIOS 3000 – Evolution Credits: 3 hours
BIOS 3010 – Ecology Credits: 5 hours (baccalaureate-level writing course)
BIOS 3120 – Microbiology Credits: 5 hours
BIOS 3190 - Plant Physiology Credits: 4 hours (baccalaureate-level writing course)
BIOS 3500 - Human Physiology for Majors  Credits: 5 hours  (baccalaureate-level writing course)

Advanced Interest Courses
A minimum of 9 hours from any of the following 4000 and 5000-level courses including at least one capstone:
BIOS 4270 - Systematic Botany  Credits: 4 hours
BIOS 4400 - Vertebrate Zoology  Credits: 3 hours
BIOS 4410 - Invertebrate Zoology  Credits: 3 hours
BIOS 4420 - Entomology  Credits: 3 hours
BIOS 5310 - Biology of Aging  Credits: 3 hours
BIOS 5360 - Immunology  Credits: 4 hours
BIOS 5525 - Fish Biology  Credits: 3 hours
BIOS 5610 - Pharmacology  Credits: 3 hours

Capstone Courses:
BIOS 4390 - Animal Behavior  Credits: 3 hours
BIOS 4430 - Conservation Biology  Credits: 3 hours
BIOS 4560 - Tropical Biology  Credits: 3 hours
BIOS 4970 - Senior Seminar: Topic to be specified  Credits: 3 hours
BIOS 4980 - Readings in Biological Sciences  Credits: 1 to 3 hours
BIOS 4990 - Independent Research in Biological Sciences  Credits: 1 to 4 hours
BIOS 5180 - Endocrinology  Credits: 3 hours
BIOS 5240 - Microbial Genetics  Credits: 3 hours
BIOS 5250 - Microbial Ecology  Credits: 3 hours
BIOS 5260 - Molecular Biology  Laboratory Credits: 3 hours
BIOS 5265 - Proteins as Biological Machines  Credits: 3 hours
BIOS 5270 - Cancer Biology  Credits: 3 hours
BIOS 5340 - Virology  Credits: 3 hours
BIOS 5440 - Global Change Ecology  Credits: 3 hours
BIOS 5445 - Human Ecology  Credits: 3 hours
BIOS 5450 - Chemical Ecology  Credits: 3 hours
BIOS 5455 - Plant-Herbivore Interactions  Credits: 3 hours
BIOS 5460 - Molecular Phylogenetics and Evolution  Credits: 3 hours
BIOS 5470 - Ornithology  Credits: 3 hours
BIOS 5535 - Freshwater Ecology  Credits: 4 hours
BIOS 5545 - Human Impact on Great Lakes Ecosystem  Credits: 3 hours
BIOS 5590 - Neurobiology  Credits: 4 hours
BIOS 5593 - Biological Basis of Learning and Memory  Credits: 3 hours
BIOS 5595 - Biology of Sensory Systems  Credits: 3 hours
BIOS 5620 - Bioethics  Credits: 3 hours
BIOS 5630 - Biology of Human Genetic Diseases  Credits: 3 hours
BIOS 5640 - Developmental Genetics  Credits: 3 hours
BIOS 5700 - General Pathology  Credits: 4 hours
BIOS 5740 - Developmental Biology  Credits: 4 hours
BIOS 5750 - Stem Cells and Regeneration  Credits: 3 hours
BIOS 5970 - Topics in Biological Sciences  Credits: 3 to 4 hours

General Education Proficiency 2: Baccalaureate-Level Writing Requirement
Students who have chosen the Biology major can satisfy the General Education Proficiency 2: Baccalaureate-Level Writing Requirement by successfully completing one of the following:
BIOS 3010 – Ecology  Credits: 5 hours
BIOS 3190 - Plant Physiology  Credits: 4 hours
BIOS 3500 - Human Physiology for Majors  Credits: 5 hours

Cognate Requirements
Chemistry
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 3550 - Introductory Biochemistry Credits: 3 hours with
CHEM 3560 - Introductory Biochemistry Laboratory Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours with
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour
OR
CHEM 3750 - Organic Chemistry I Credits: 3 hours with
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour and
CHEM 3770 - Organic Chemistry II Credits: 3 hours with
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour

Mathematics (one calculus course and one statistics course)
MATH 1220 - Calculus I Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours
AND
STAT 2600 - Data Analysis Using R Credits: 4 hours
or
STAT 3660 - Data Analysis for Biosciences Credits: 4 hours

Physics
PHYS 1130 - General Physics I Credits: 4 hours
PHYS 1140 - General Physics I Laboratory Credits: 1 hour
AND
PHYS 1150 - General Physics II Credits: 4 hours
PHYS 1160 - General Physics II Laboratory Credits: 1 hour

The following course is recommended for those who plan to pursue advanced degrees in Biology, Botany, and Zoology (especially in the areas of ecology and field biology):
GEOS 1300 - Physical Geology Credits: 4 hours

Biology Major - Secondary Education Curriculum (41 hours)

A major in secondary education (SED) consists of a minimum of 41 hours of Biological Sciences courses as well as cognates in mathematics, chemistry and physics. The major includes two introductory courses, four intermediate level courses, a microbiology, a physiology course, one advanced interest course, and a methods course, SCI 4040. Three credit hours of BIOS 4980 and/or 4990 may be used as the advanced interest course.

Introductory Courses
BIOS 1600 - Biological Form and Function Credits: 3 hours
BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1620 - Ecology and Evolution Credits: 4 hours

Intermediate Level Courses
BIOS 2020 - Botany Credits: 4 hours
BIOS 2300 - Cell Biology Credits: 3 hours
BIOS 2500 - Genetics Credits: 4 hours
BIOS 3010 - Ecology Credits: 5 hours
### A Microbiology Course
- BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours or
- BIOS 3120 - Microbiology  Credits: 5 hours

### A Physiology Course
- BIOS 2400 - Human Physiology  Credits: 4 hours or
- BIOS 3190 - Plant Physiology  Credits: 4 hours or
- BIOS 3500 - Human Physiology for Majors  Credits: 5 hours

**One Advanced Interest Course from the Following:**
- BIOS 3000 - Evolution  Credits: 3 hours
- BIOS 4270 - Systematic Botany  Credits: 4 hours
- BIOS 4390 - Animal Behavior  Credits: 3 hours
- BIOS 4400 – Vertebrate Zoology  Credits: 3 hours
- BIOS 4410 - Invertebrate Zoology  Credits: 3 hours
- BIOS 4420 - Entomology  Credits: 3 hours
- BIOS 4430 – Conservation Biology  Credits: 3 hours
- BIOS 4560 - Tropical Biology  Credits: 3 hours
- BIOS 4970 - Senior Seminar  Credits: 3 hours
- BIOS 4980 - Readings in Biological Sciences  Credits: 1 to 3 hours
- BIOS 4990 - Independent Research in Biological Sciences  Credits: 1 to 4 hours
- BIOS 5180 – Endocrinology  Credits: 3 hours
- BIOS 5240 - Microbial Genetics  Credits: 3 hours
- BIOS 5250 - Microbial Ecology  Credits: 3 hours
- BIOS 5260 - Molecular Biology Laboratory  Credits: 3 hours
- BIOS 5265 - Proteins as Biological Machines  Credits: 3 hours
- BIOS 5270 - Cancer Biology  Credits: 3 hours
- BIOS 5310 - Biology of Aging  Credits: 3 hours
- BIOS 5340 – Virology  Credits: 3 hours
- BIOS 5360 – Immunology  Credits: 4 hours
- BIOS 5440 - Global Change Ecology  Credits: 3 hours
- BIOS 5445 - Human Ecology  Credits: 3 hours
- BIOS 5450 - Chemical Ecology  Credits: 3 hours
- BIOS 5455 - Plant-Herbivore Interactions  Credits: 3 hours
- BIOS 5460 - Molecular Phylogenetics and Evolution  Credits: 3 hours
- BIOS 5470 – Ornithology  Credits: 3 hours
- BIOS 5525 - Fish Biology  Credits: 3 hours
- BIOS 5535 - Freshwater Ecology  Credits: 4 hours
- BIOS 5545 - Human Impact on Great Lakes Ecosystem  Credits: 3 hours
- BIOS 5590 - Neurobiology  Credits: 4 hours
- BIOS 5593 - Biological Basis of Learning and Memory  Credits: 3 hours
- BIOS 5595 - Biology of Sensory Systems  Credits: 3 hours
- BIOS 5610 - Pharmacology  Credits: 3 hours
- BIOS 5620 - Bioethics  Credits: 3 hours
- BIOS 5630 - Biology of Human Genetic Diseases  Credits: 3 hours
- BIOS 5640 - Developmental Genetics  Credits: 3 hours
- BIOS 5700 - General Pathology  Credits: 4 hours
- BIOS 5740 - Developmental Biology  Credits: 4 hours
- BIOS 5750 - Stem Cells and Regeneration  Credits: 3 hours
- BIOS 5970 - Topics in Biological Sciences  Credits: 3 to 4 hours (minimum 3 hours)

**Required Methods Course**
- SCI 4040 - Teaching of Secondary Science  Credits: 3 hours

**General Education Proficiency 2: Baccalaureate-Level Writing Requirement**
Students who have chosen the Biology major in Secondary Education can satisfy the General Education Proficiency 2: Baccalaureate-Level Writing Requirement by successfully completing one of the following:
BIOS 3010 - Ecology Credits: 5 hours
BIOS 3190 - Plant Physiology Credits: 4 hours
BIOS 3500 - Human Physiology for Majors Credits: 5 hours

Cognate Requirements
MATH, 8 hours, including a calculus course and a statistics course.

CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour

CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour

CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours with
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour
OR
CHEM 3750 - Organic Chemistry I Credits: 3 hours with
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour and
CHEM 3770 - Organic Chemistry II Credits: 3 hours with
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour

PHYS 1130 - General Physics I Credits: 4 hours and
PHYS 1140 - General Physics I Laboratory Credits: 1 hour

PHYS 1150 - General Physics II Credits: 4 hours and
PHYS 1160 - General Physics II Laboratory Credits: 1 hour

**Biomedical Sciences Major (38 hours)**

A Major in Biomedical Sciences (BMS) consists of a minimum of 38 credits of course work in biological sciences as well as cognate courses in chemistry, mathematics and physics. This course work includes two introductory courses, five intermediate level courses, two advanced interest courses, one of which must be a capstone experience. Only three credit hours may be BIOS 4980 and/or BIOS 4990.

**Introductory Courses**
BIOS 1600 - Biological Form and Function Credits: 3 hours
BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1620 - Ecology and Evolution Credits: 4 hours

**Intermediate Level Courses**
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2300 - Cell Biology Credits: 3 hours
OR
BIOS 2600 - Introduction to Developmental Biology Credits: 3 hours
BIOS 2500 - Genetics Credits: 4 hours
BIOS 3120 - Microbiology Credits: 5 hours
BIOS 3500 - Human Physiology for Majors Credits: 5 hours

**Two Advanced Interest Courses from the Following:**
A minimum 6 hours from any of the following 3000, 4000, and 5000-level classes including at least one capstone course; only 3 hours may be BIOS 4980 and/or BIOS 4990.
BIOS 3000 - Evolution Credits: 3 hours
BIOS 4270 - Systematic Botany Credits: 4 hours
BIOS 4400 - Vertebrate Zoology Credits: 3 hours
BIOS 4410 - Invertebrate Zoology Credits: 3 hours
BIOS 4420 - Entomology Credits: 3 hours
BIOS 5310 - Biology of Aging Credits: 3 hours
BIOS 5360 - Immunology Credits: 4 hours
BIOS 5525 - Fish Biology Credits: 3 hours
BIOS 5610 - Pharmacology Credits: 3 hours

Capstone Courses:
BIOS 4390 - Animal Behavior Credits: 3 hours
BIOS 4430 - Conservation Biology Credits: 3 hours
BIOS 4560 - Tropical Biology Credits: 3 hours
BIOS 4970 - Senior Seminar Credits: 3 hours
BIOS 4980 - Readings in Biological Sciences Credits: 1 to 3 hours
BIOS 4990 - Independent Research in Biological Sciences Credits: 1 to 4 hours
BIOS 5180 - Endocrinology Credits: 3 hours
BIOS 5240 - Microbial Genetics Credits: 3 hours
BIOS 5250 - Microbial Ecology Credits: 3 hours
BIOS 5260 - Molecular Biology Laboratory Credits: 3 hours
BIOS 5265 - Proteins as Biological Machines Credits: 3 hours
BIOS 5270 - Cancer Biology Credits: 3 hours
BIOS 5340 - Virology Credits: 3 hours
BIOS 5440 - Global Change Ecology Credits: 3 hours
BIOS 5445 - Human Ecology Credits: 3 hours
BIOS 5450 - Chemical Ecology Credits: 3 hours
BIOS 5455 - Plant-Herbivore Interactions Credits: 3 hours
BIOS 5460 - Molecular Phylogenetics and Evolution Credits: 3 hours
BIOS 5470 - Ornithology Credits: 3 hours
BIOS 5535 - Freshwater Ecology Credits: 4 hours
BIOS 5545 - Human Impact on Great Lakes Ecosystem Credits: 3 hours
BIOS 5590 - Neurobiology Credits: 4 hours
BIOS 5593 - Biological Basis of Learning and Memory Credits: 3 hours
BIOS 5595 - Biology of Sensory Systems Credits: 3 hours
BIOS 5620 - Bioethics Credits: 3 hours
BIOS 5630 - Biology of Human Genetic Diseases Credits: 3 hours
BIOS 5640 - Developmental Genetics Credits: 3 hours
BIOS 5700 - General Pathology Credits: 4 hours
BIOS 5740 - Developmental Biology Credits: 4 hours
BIOS 5750 - Stem Cells and Regeneration Credits: 3 hours
BIOS 5970 - Topics in Biological Sciences Credits: 3 to 4 hours

General Education Proficiency 2: Baccalaureate-Level Writing Requirement
Students who have chosen the Biomedical Sciences major can satisfy the General Education Proficiency 2: Baccalaureate-Level Writing Requirement by successfully completing BIOS 3500.

Cognate Requirements

Chemistry
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour

CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour

CHEM 3550 - Introductory Biochemistry Credits: 3 hours and
CHEM 3560 - Introductory Biochemistry Laboratory Credits: 1 hour
CHEM 3750 - Organic Chemistry I  Credits: 3 hours and
CHEM 3760 - Organic Chemistry Lab I  Credits: 1 hour

CHEM 3770 - Organic Chemistry II  Credits: 3 hours and
CHEM 3780 - Organic Chemistry Lab II  Credits: 1 hour

Mathematics (one calculus course and one statistics course)
MATH 1220 - Calculus I  Credits: 4 hours or
MATH 2000 - Calculus with Applications  Credits: 4 hours
AND
STAT 2600 - Data Analysis Using R  Credits: 4 hours
or
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours

Physics
PHYS 1130 - General Physics I  Credits: 4 hours
PHYS 1140 - General Physics I Laboratory  Credits: 1 hour
AND
PHYS 1150 - General Physics II  Credits: 4 hours
PHYS 1160 - General Physics II Laboratory  Credits: 1 hour

Biological Sciences Minor (20 hours)

The Biological Sciences Minor consists of a minimum of 20 credits of Biological Science courses plus chemistry cognates. Ten of these credits must be from 2000 or higher level courses.

Cognate Requirements
CHEM 1100 - General Chemistry I  Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour

Minors in Health Related Fields
Minors in health related fields may, but are not required to, take the following courses to fulfill a minor:

BIOS 1050 - Environmental Biology  Credits: 3 hours
BIOS 1120 - Principles of Biology  Credits: 3 hours
BIOS 1910 - Introduction to Human Anatomy and Biology  Credits: 4 hours or
BIOS 2110 - Human Anatomy  Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours
BIOS 2400 - Human Physiology  Credits: 4 hours

Minors Interested in Other Areas of Biology
Minors interested in other areas of biology are advised to take the following, in order to have a greater selection of courses:
BIOS 1600 - Biological Form and Function  Credits: 3 hours
BIOS 1610 - Molecular and Cellular Biology  Credits: 4 hours
BIOS 1620 - Ecology and Evolution  Credits: 4 hours

Biology Minor - Secondary Education Curriculum (27 hours)

The Biology Minor-SED curriculum consists of a minimum of 27 hours of course work in the Biological Sciences plus cognate courses in chemistry and mathematics

Requirements
BIOS 1600 - Biological Form and Function Credits: 3 hours
BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
BIOS 1620 - Ecology and Evolution Credits: 4 hours
BIOS 2020 – Botany Credits: 4 hours
BIOS 2500 - Genetics Credits: 4 hours
BIOS 3010 – Ecology Credits: 5 hours
SCI 4040 - Teaching of Secondary Science Credits: 3 hours

**Cognate Requirements Include:**
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 1180 - Precalculus Mathematics Credits: 4 hours or
MATH 1220 - Calculus I Credits: 4 hours or
MATH 2000 - Calculus with Applications Credits: 4 hours
Chemistry
William Rantz, Interim Chair
Main Office: 3425 Wood Hall
Telephone: (269) 387-2846
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Megan Grunert Kowalske
Ramakrishna Guda
David L. Huffman
James Kiddle
Gellert Mezei
John B. Miller
Yirong Mo
Sherine Obare
David S. Reinhold
Elke Schoffers
Donald R. Schreiber
Ekkehard Sinn
Susan R. Stapleton
Robert Sutton
Blair Szymczyna
Andre Venter

Students majoring in chemistry may prepare for a career in industrial or governmental laboratory work, high school teaching, or graduate work in departments of chemistry, biochemistry, medical, pharmaceutical or dental colleges. The course offerings for the undergraduate degree are structured to give a broad but thorough grounding in the elements of chemistry. The chemistry curriculum should be fortified by a minor in physics, mathematics, or biological sciences.

The American Chemical Society (ACS) certified program was developed in conjunction with the chemical industry. As a result, students graduating from this program are better prepared for technical employment. Companies give preference to (ACS) majors and sometimes offer higher salaries.

Majors and Minors

Students are required to declare their intent to be a major or minor before completing their credit hour requirements. This is done by filing a declaration of major/minor slip with an advisor.

To qualify as a major or minor in chemistry from Western Michigan University, the student, including the transfer student, must complete a minimum of their last 14 credit hours (major) or 7 credit hours (minor) in the Chemistry Department. The courses taken for credit for a major or minor must include at least one that contains a laboratory experience at WMU.

Students must earn a grade of "C" or better in each Chemistry courses.

Students who have chosen any chemistry major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing CHEM 4360 Physical Chemistry Laboratory I.

Undergraduates with junior standing and 12 hours of work in chemistry may enroll in 5000-level courses with prior approval of the department chair.

American Chemical Society Certified Major

The American Chemical Society (ACS) Certified Chemistry Major is designed for students interested in going directly into the chemical industry after graduation. While this degree is designed for those going into the chemical industry, it is more
than adequate for those planning on going to graduate school in chemistry. A minimum of 42 CHEM credit hours must be
selected according to the following guidelines.

**Required CHEM courses:**
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
CHEM 5150 - Inorganic Chemistry Credits: 3 hours
CHEM 5200 - Instrumental Methods in Chemistry Credits: 3 hours
CHEM 5750 - Advanced Chemical Synthesis Credits: 2 hours

Students must take some biochemistry work:
They can elect to take either Introductory Biochemistry (CHEM 3550) and an additional 5000-level course for a minimum of
42 hours or take Biochemistry I & II (CHEM 5500 and CHEM 5540).
CHEM 3550 - Introductory Biochemistry Credits: 3 hours
And
Chemistry Elective 5000-level
OR
CHEM 5500 - Biochemistry I Credits: 3 hours
And
CHEM 5540 - Biochemistry II Credits: 3 hours

**Required non-CHEM courses:**
MATH 1220 - Calculus I Credits: 4 hours
OR
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours
OR
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
PHYS 2050 - University Physics I Credits: 4 hours
PHYS 2060 - University Physics I Laboratory Credits: 1 hour
PHYS 2070 - University Physics II Credits: 4 hours
PHYS 2080 - University Physics II Laboratory Credits: 1 hour

**Additional Comments:**
- Additional courses in statistics (STAT 2600 or STAT 3640) and Differential Equations (MATH 2740 or MATH 3740) are recommended.

Suggested sequence to satisfy major:

Below is a suggested sequence of required courses to satisfy the ACS Certified Major that accounts for prerequisite courses
and courses offered in limited semesters.

First Year:
Fall
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
MATH 1220 - Calculus I Credits: 4 hours

Spring
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 1230 - Calculus II Credits: 4 hours

Second Year:
Fall
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
PHYS 2050 - University Physics I Credits: 4 hours
PHYS 2060 - University Physics I Laboratory Credits: 1 hour

Spring
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
PHYS 2070 - University Physics II Credits: 4 hours
PHYS 2080 - University Physics II Laboratory Credits: 1 hour

Third Year:
Fall
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours

Spring
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours
CHEM 3550 - Introductory Biochemistry Credits: 3 hours

Fourth Year:
Fall
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
CHEM 5200 - Instrumental Methods in Chemistry Credits: 3 hours
CHEM 5150 - Inorganic Chemistry Credits: 3 hours

Spring
CHEM Elective 5000-Level Credits: 2 to 3 hours
CHEM 5750 - Advanced Chemical Synthesis Credits: 2 hours

LEC Chemistry Major (34 hours)

The arts and sciences major is designed for students interested in going to graduate school in chemistry. While this major can be taken by students intending to go into the chemical industry following graduation, the ACS Certified major is preferred. A minimum of 34 CHEM credit hours must be selected according to the following guidelines.

Required CHEM courses:
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
Two Electives (5000-level)

Required non-CHEM courses:
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
PHYS 2050 - University Physics I Credits: 4 hours
PHYS 2060 - University Physics I Laboratory Credits: 1 hour
PHYS 2070 - University Physics II Credits: 4 hours
PHYS 2080 - University Physics II Laboratory Credits: 1 hour

Suggested sequence to satisfy major:

First Year:
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours

Second Year:
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
PHYS 2050 - University Physics I Credits: 4 hours
PHYS 2060 - University Physics I Laboratory Credits: 1 hour
PHYS 2070 - University Physics II Credits: 4 hours
PHYS 2080 - University Physics II Laboratory Credits: 1 hour

Third Year:
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours
CHEM 4310 - Physical Chemistry II Credits: 3 hours

Fourth Year:
CHEM 4370 - Physical Chemistry Laboratory II Credits: 1 hour
CHEM Electives (5000-level)

Additional Comments:
- The 5000-level CHEM electives must include courses from at least two sub-disciplines (Analytical, Biochemistry, Inorganic, Organic, or Physical).
- Additional courses in statistics (STAT 2600 and STAT 3640) and Differential Equations (MATH 2740 or MATH 3740) are recommended.

Secondary Education Chemistry Major (33 hours)

The secondary education chemistry major requires 33 hours of chemistry courses as described at http://wmich.edu/chemistry/academics/majors, including a minimum of 5 hours of Physical Chemistry.

Biochemistry Major (36 hours)

The Biochemistry Major is designed to follow the recommended curriculum proposed by both the American Chemical Society and the American Society for Biochemistry and Molecular Biology. This major is recommended for students interested in careers in health sciences such as medicine, dentistry, veterinary medicine, nutrition, clinical chemistry, toxicology, pharmacology, molecular biology, etc. as well as those interested in a graduate career in biochemistry or molecular biology. A minimum of 36 CHEM credit hours must be selected according to the following guidelines:

Required CHEM courses:
- CHEM 1100 - General Chemistry I Credits: 3 hours
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
- CHEM 1120 - General Chemistry II Credits: 3 hours
- CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
- CHEM 2250 - Quantitative Analysis Credits: 3 hours
- CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
- CHEM 3750 - Organic Chemistry I Credits: 3 hours
- CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
- CHEM 3770 - Organic Chemistry II Credits: 3 hours
- CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
- CHEM 4300 - Physical Chemistry I Credits: 3 hours
- CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours
- CHEM 5500 - Biochemistry I Credits: 3 hours
- CHEM 5510 - Biochemistry I Laboratory Credits: 2 hours
- CHEM 5540 - Biochemistry II Credits: 3 hours
- One (1) 4000 or higher level elective

Required non-CHEM courses:
- BIOS 1600 - Biological Form and Function Credits: 3 hours
- BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
- BIOS 1620 - Ecology and Evolution Credits: 4 hours
- BIOS 2500 – Genetics Credits: 4 hours
- BIOS 3120 - Microbiology Credits: 5 hours
- MATH 1220 - Calculus I Credits: 4 hours
- MATH 1230 - Calculus II Credits: 4 hours
- MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
- PHYS 2050 - University Physics I Credits: 4 hours
- PHYS 2060 - University Physics I Laboratory Credits: 1 hour
- PHYS 2070 - University Physics II Credits: 4 hours
- PHYS 2080 - University Physics II Laboratory Credits: 1 hour

Suggested sequence to satisfy major:
First Year:
BIOS 1600 - Biological Form and Function Credits: 3 hours
BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 1220 - Calculus I Credits: 4 hours
MATH 1230 - Calculus II Credits: 4 hours

Second Year:
BIOS 1620 - Ecology and Evolution Credits: 4 hours
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
CHEM 3770 - Organic Chemistry II Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II Credits: 1 hour
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
PHYS 2050 – University Physics I Credits: 4 hours
PHYS 2060 – University Physics I Laboratory Credits: 1 hour
PHYS 2070 – University Physics II Credits: 4 hours
PHYS 2080 – University Physics II Laboratory Credits: 1 hour

Third Year:
BIOS 2500 - Genetics Credits: 4 hours
BIOS 3120 - Microbiology Credits: 5 hours
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I Credits: 2 hours

Fourth Year:
CHEM Elective, 4000 Level or higher
CHEM 5500 - Biochemistry I Credits: 3 hours
CHEM 5510 - Biochemistry I Laboratory Credits: 2 hours
CHEM 5540 - Biochemistry II Credits: 3 hours

Additional Comments:
Biochemistry students may be eligible for a Biological Sciences minor. Please consult the Biological Sciences Advising office to determine how to complete the required coursework.

Business - Oriented Chemistry Major (37 hours)

The Business-Oriented Chemistry Major is designed to prepare students for careers in non-laboratory functions in the chemical industry and some aspects of government service. These chemistry-related careers include such areas as general business, administration and management, and sales. This major covers a broad background of chemical science and allows the student to minor in a business area so as to become familiar with the skills of this business community. A student completing this program can easily move into graduate programs in the College of Business or in chemistry with minimal additional courses. A minimum of 37 CHEM credit hours must be selected according to the following guidelines.

Required CHEM courses:
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 3750 - Organic Chemistry I  Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I  Credits: 1 hour
CHEM 3770 - Organic Chemistry II  Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II  Credits: 1 hour
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours
CHEM 4300 - Physical Chemistry I  Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I  Credits: 2 hours
CHEM 4310 - Physical Chemistry II  Credits: 3 hours
CHEM 5070 - Ethical Chemical Practice  Credits: 3 hours
CHEM 5200 - Instrumental Methods in Chemistry  Credits: 3 hours

Required non-CHEM courses:
MATH 1220 - Calculus I  Credits: 4 hours
MATH 1230 - Calculus II  Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours
PHYS 2050 - University Physics I  Credits: 4 hours
PHYS 2060 - University Physics I Laboratory  Credits: 1 hour
PHYS 2070 - University Physics II  Credits: 4 hours
PHYS 2080 - University Physics II Laboratory  Credits: 1 hour
BUS 1750 - Business Enterprise  Credits: 3 hours
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
CIS 2700 - Business-Driven Information Technology  Credits: 3 hours
FIN 3200 - Business Finance  Credits: 3 hours
MGMT 2500 - Organizational Behavior  Credits: 3 hours
MKTG 2500 - Marketing Principles  Credits: 3 hours

Suggested sequence to satisfy major:

First Year:
CHEM 1100 - General Chemistry I  Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
CHEM 1120 - General Chemistry II  Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
MATH 1220 - Calculus I  Credits: 4 hours
MATH 1230 - Calculus II  Credits: 4 hours
BUS 1750 - Business Enterprise  Credits: 3 hours

Second Year:
CHEM 3750 - Organic Chemistry I  Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I  Credits: 1 hour
CHEM 3770 - Organic Chemistry II  Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II  Credits: 1 hour
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours
PHYS 2050 - University Physics I  Credits: 4 hours
PHYS 2060 - University Physics I Laboratory  Credits: 1 hour
PHYS 2070 - University Physics II  Credits: 4 hours
PHYS 2080 - University Physics II Laboratory  Credits: 1 hour
ACTY 2100 - Principles of Accounting I  Credits: 3 hours

Third Year:
CHEM 2250 - Quantitative Analysis  Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory  Credits: 1 hour
CHEM 3400 - Physical Chemistry I  Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I  Credits: 2 hours
CHEM 4310 - Physical Chemistry II  Credits: 3 hours
CIS 2700 - Business-Driven Information Technology  Credits: 3 hours
FIN 3200 - Business Finance  Credits: 3 hours

Fourth Year:
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours
CHEM 5200 - Instrumental Methods in Chemistry  Credits: 3 hours
CHEM 5070 - Ethical Chemical Practice  Credits: 3 hours
MGMT 2500 - Organizational Behavior  Credits: 3 hours
MKTG 2500 - Marketing Principles  Credits: 3 hours

**Geochemistry Major (67 hours)(Chemistry)**

The Geosciences and Chemistry Departments offer a program of study leading to a major in geochemistry. Students choosing this major will not be required to complete an additional minor. The geochemistry major is designed to meet the needs of students preparing for a professional career in geochemistry or environmental chemistry. Students contemplating a geochemistry major should contact the Geosciences Department as early as possible for advising.

**Geosciences Core (19 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOS 1300</td>
<td>Physical Geology</td>
<td>4 hours</td>
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<tr>
<td>GEOS 1310</td>
<td>Historical Geology</td>
<td>4 hours</td>
</tr>
<tr>
<td>GEOS 2320</td>
<td>Integrated Earth System Studies</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 3350</td>
<td>Mineralogy</td>
<td>4 hours</td>
</tr>
<tr>
<td>GEOS 5010</td>
<td>Geologic Communications and Presentations</td>
<td>1 hour</td>
</tr>
<tr>
<td>GEOS 5550</td>
<td>Introduction to Geochemistry</td>
<td>3 hours</td>
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</table>

**Chemistry Core (12 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1100</td>
<td>General Chemistry I</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHEM 1110</td>
<td>General Chemistry Laboratory I</td>
<td>1 hour</td>
</tr>
<tr>
<td>CHEM 1120</td>
<td>General Chemistry II</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHEM 1130</td>
<td>General Chemistry Laboratory II</td>
<td>1 hour</td>
</tr>
<tr>
<td>CHEM 2250</td>
<td>Quantitative Analysis</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHEM 2260</td>
<td>Quantitative Analysis Laboratory</td>
<td>1 hour</td>
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</tbody>
</table>

**Math Core (8 hours)**

Select either:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1220</td>
<td>Calculus I</td>
<td>4 hours</td>
</tr>
<tr>
<td>MATH 1230</td>
<td>Calculus II</td>
<td>4 hours</td>
</tr>
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</table>

Or

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1700</td>
<td>Calculus I – Science &amp; Engineering</td>
<td>4 hours</td>
</tr>
<tr>
<td>MATH 1710</td>
<td>Calculus II – Science &amp; Engineering</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

**Geosciences Electives (Choose at least 9 hours)**

An approved field course (up to 3 hours total)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 4350</td>
<td>Sedimentation and Stratigraphy</td>
<td>4 hours</td>
</tr>
<tr>
<td>GEOS 5020</td>
<td>Problems in Geology and Earth Science</td>
<td>1 to 3 hours</td>
</tr>
<tr>
<td>GEOS 5060</td>
<td>Introduction to Soils</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 5120</td>
<td>Principles of Hydrogeology</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 5280</td>
<td>Principles and Practices of Ground-water Sampling and Monitoring</td>
<td>1 hour</td>
</tr>
<tr>
<td>GEOS 5430</td>
<td>Petrology and Petrography</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 5450</td>
<td>Hazardous Waste Remediation</td>
<td>3 hours</td>
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</table>

**Chemistry Electives (Choose at least 8 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 3700</td>
<td>Introduction to Organic Chemistry</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHEM 3710</td>
<td>Introduction to Organic Chemistry Lab</td>
<td>1 hour</td>
</tr>
<tr>
<td>CHEM 3750</td>
<td>Organic Chemistry I</td>
<td>3 hours</td>
</tr>
</tbody>
</table>
CHEM 3760 - Organic Chemistry Lab I  Credits: 1 hour
CHEM 3770 - Organic Chemistry II  Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II  Credits: 1 hour
CHEM 4300 - Physical Chemistry I  Credits: 3 hours
CHEM 4310 - Physical Chemistry II  Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I  Credits: 2 hours fulfills the baccalaureate-level writing requirement
CHEM 4370 - Physical Chemistry Laboratory II  Credits: 1 hour
CHEM 5090 - Topics in Chemistry  Credits: 3 hours
CHEM 5200 - Instrumental Methods in Chemistry  Credits: 3 hours
CHEM 5500 - Biochemistry I  Credits: 3 hours

Math and General Science Electives (Choose at least 11 hours) (hours cannot all be in the same department)
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours
BIOS 3010 - Ecology  Credits: 5 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours
PHYS 2050 - University Physics I  Credits: 4 hours
PHYS 2060 - University Physics I Laboratory  Credits: 1 hour
PHYS 2070 - University Physics II  Credits: 4 hours
PHYS 2080 - University Physics II Laboratory  Credits: 1 hour
PHYS 3300 - Thermodynamics  Credits: 3 hours
STAT 3640 - Foundations of Data Analysis  Credits: 4 hours

Notes: Either CHEM 3700/3710 or CHEM 3750-3780 will count toward the major; an outside geology field camp is strongly recommended.

Chemistry Minor (20 hours)

Requirements
A chemistry minor will consist of at least 20 hours (the last 7 hours of which must be taken at WMU). Courses accepted for the minor are listed below: CHEM 3700 may not be substituted for CHEM 3750.

CHEM 1100 - General Chemistry I  Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
CHEM 1120 - General Chemistry II  Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
CHEM 2250 - Quantitative Analysis  Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory  Credits: 1 hour
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours
CHEM 3560 - Introductory Biochemistry Laboratory  Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry  Credits: 3 hours
CHEM 3710 - Introduction to Organic Chemistry Lab  Credits: 1 hour
CHEM 3750 - Organic Chemistry I  Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I  Credits: 1 hour
CHEM 3770 - Organic Chemistry II  Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II  Credits: 1 hour
CHEM 4300 - Physical Chemistry I  Credits: 3 hours
CHEM 4310 - Physical Chemistry II  Credits: 3 hours
CHEM 4360 - Physical Chemistry Laboratory I  Credits: 2 hours
CHEM 4370 - Physical Chemistry Laboratory II  Credits: 1 hour

Additional Information
Other specialized chemistry programs can be developed through the undergraduate chemistry advisor.
Chemistry Minor – Secondary Education (20 hours)

A chemistry minor in secondary education will consist of at least 20 hours (the last 7 hours of which must be taken at WMU). Students are required to take the following courses so as to cover the diversity of experience expected for the Michigan Test for Teacher Certification: Chemistry.

Required Chemistry courses
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 3550 - Introductory Biochemistry Credits: 3 hours
CHEM 3560 - Introductory Biochemistry Laboratory Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours
CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour

Required non-Chemistry courses
Students are required to complete one year of physics before beginning their student teaching.

Choose EITHER

PHYS 1130 - General Physics I Credits: 4 hours
PHYS 1140 - General Physics I Laboratory Credits: 1 hour
PHYS 1150 - General Physics II Credits: 4 hours
PHYS 1160 - General Physics II Laboratory Credits: 1 hour

OR

PHYS 2050 - University Physics I Credits: 4 hours
PHYS 2060 - University Physics I Laboratory Credits: 1 hour
PHYS 2070 - University Physics II Credits: 4 hours
PHYS 2080 - University Physics II Laboratory Credits: 1 hour
Communication, School of
Leigh Ford, Director
Main Office: 305 Sprau Tower
Telephone: (269) 387-3130
Undergraduate Advising Office: (269) 387-3197
Clifford Media Center: (269) 387-3134
Fax: (269) 387-3990

Julie Apker, Director Graduate Program
Sandra Borden
Sue Ellen Christian
Autumn Edwards
Chad Edwards
Richard Gershon
James Gilchrist
Annette Hamel
Keith Hearit
Richard Junger
Joseph Kayany
Marilyn S. Kritzman
Steven Lipkin
Jennifer Machiorlatti, Director Undergraduate Programs
Leah Omilion-Hodges
Mark Orbe
Anna Popkova
Kathleen Propp
Jocelyn Steinke
Kelly Wittenberg

Mission Statement

The School of Communication is committed to excellence and innovation in teaching, learning, scholarship, and the practice of communication. As teacher-scholars, our purpose is two-fold:

- Develop reflective and skilled communicators who value diversity, community, ethics, and critical thinking; and
- Contribute to the research and practice of our discipline with an emphasis on collaboration with local, regional, national, and international partners to examine organizational, community, educational, and social issues.

Communication Programs

Communication is the principal mode for establishing and maintaining human relationships. It consists of those processes by which society is made possible, by which people develop and exchange ideas, solve problems, and work cooperatively in attaining common objectives. Effective communication is an educational imperative for all human beings.

The study of communication is important to virtually every profession that involves working with people, making it an excellent major, minor or cognate for communication-related jobs in education, business, government agencies, media, health care professions, social services, industry, and other public and private organizations. Communication is central to positions in public relations, strategic communication, information management, employee communication, and training and development. Professional curricular programs in diverse modes of media production provide both the background knowledge and training for positions in journalism and media production, performance and management.

The School of Communication is dedicated to meeting the personal and professional communication objectives of our students. Seven major areas of concentration are available: Communication Studies; Film, Video, and Media Studies; Interpersonal Communication; Journalism; Organizational Communication; Public Relations; and Telecommunications and Information Management. These major areas of concentration reflect the primary divisions in the discipline, with required
courses to ensure adequate preparation in specific fields. The concentration areas and accompanying upper-level requirements provide appropriate guidance to assure that programs of study are academically sound.

Two minors - Minor in Communication and Minor in Journalism - are also offered.

Communication majors and minors may choose to participate in the Nonprofit Leadership Alliance certificate program. This program is designed to prepare students for leadership in nonprofit organizations. Students qualify for the certificate by taking courses in the Nonprofit Leadership minor which meet the Nonprofit Leadership Alliance competency requirements. For details, please see the Nonprofit Leadership minor description in the School of Public Affairs and Administration section of this catalog.

The School of Communication offers an Accelerated Graduate Degree Program that allows qualified undergraduate students to take up to 12 hours of graduate credit during their senior year, at undergraduate tuition rates. This coursework counts toward both an undergraduate AND graduate degree. Accelerated Graduate Degree Program students who complete 12 graduate hours during their senior year will then have 18 credits remaining to complete a master's degree in Communication. Details of the program can be found at the School of Communication website: http://wmich.edu/communication/academics/undergraduate/accelerated.

The School also encourages a close relationship between academic classes and extracurricular and co-curricular experiences. Students may become involved in a variety of activities, including community service projects, WIDR-FM radio station, videotaping of special events, and internships in a variety of organizations. Academic credit may be earned for significant participation in many of these communication activities.

Students planning to major or minor in any of the communication areas should discuss their program needs and interests with School advisor at the earliest possible date. To find out more about advising and/or to make an advising appointment, visit our website at www.wmich/communication, click on "Advising" and then follow the desired links. Students can schedule an appointment with the advisor or can email com-advising@wmich.edu for specific advising needs.

Transfer Students

Students may transfer up to 15 credits into any School of Communication major, or nine credits into any School of Communication minor, providing:

- the courses are approved as direct equivalents to current WMU courses in the major or minor or;
- the courses are allowed as electives in the major or minor.

Any course not used toward a School of Communication major or minor may be used as electives to meet the minimum required 122 credits needed for graduation from WMU.

Special Rules/Restrictions

- Students must have a grade of “C” or better in any prerequisite before they can enroll in the subsequent course for all prerequisites in the School of Communication.
- Students must get a grade of “C” or better for any class to count toward a School of Communication major or minor (a grade of “B” or better for graduate courses.)
- The School of Communication has a TWO-repeat policy. Students may only take a course twice in their attempt to obtain a grade of “C” or better.

Undergraduates with junior or senior status and with listed prerequisites completed may enroll in 5000-level courses with prior approval of advisor and/or instructor.

Pre-Communication Requirements

Students planning to major in any area of communication will be admitted as a pre-communication student. This status, however, does not guarantee admission to a communication major, since more students may apply for admission than can be accepted.

A student's application for admission as a major will be considered when the student has:
1. Completed 30 hours of college work, at least 15 hours of which are at Western Michigan University.
2. Achieved a minimum grade point average of 2.5.
3. Completed pre-communication course requirements with a grade of "C" or better in each course (taking a pre-communication class not more than two times).
4. Completed the pre-communication course requirements for the major.

The pre-communication course requirements for each of the majors are as follows:

**Communication Studies**
COM 1000 – Communication and Community Engagement Credits: 3 hours

**Film, Video, and Media Studies**
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
COM 2410 - Film Communication Credits: 3 hours

**Interpersonal Communication**
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
COM 2000 - Human Communication Theory Credits: 3 hours

**Journalism**
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
JRN 1000 - Foundations of Journalism Credits: 3 hours

**Organizational Communication**
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 2000 - Human Communication Theory Credits: 3 hours
COM 2800 - Introduction to Organizational Communication Credits: 3 hours

**Public Relations**
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 2000 - Human Communication Theory Credits: 3 hours
COM 2800 - Introduction to Organizational Communication Credits: 3 hours

**Telecommunications and Information Management**
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours

**Admission requirements**
If a student's overall GPA is below 2.5 and if the student has not achieved a "C" or better after completing a pre-communication class twice, a student may NOT apply to become a communication major in any of our majors.

If the student's overall GPA is 2.5 or above, and if the student has achieved a "C" or better in appropriate pre-communication courses, the student may apply to become a major in a specific area of interest.

Admission to any of our majors will be based on space available, overall grade point average, and grades in pre-communication courses. Hence, successful completion of pre-communication requirements does not guarantee admission. Additional information may be obtained from the School of Communication’s website: www.wmich.edu/communication.

Students may not apply to any of our majors, in any combination, more than twice. If after a second application a student has not been admitted to a major, then he or she may proceed to complete the requirements for a communication minor and the student must find another major in another department.
General Program Requirements

1. All major/minor programs must be approved by the School advisor. Admission to a major in communication will be considered by the School advisor following completion of the appropriate pre-communication requirements. Declaration of a minor in communication must be made with the School advisor before the completion of nine semester hours of communication credit or journalism credit.

2. Students must earn a grade of "C" or better in all course work applied toward a major/minor program.

3. Prerequisites listed for all communication courses must be met. A course and its prerequisite cannot be taken at the same time. Students who have not completed the prerequisites with a grade of "C" or better, will be dropped from the class. All 5000-level courses require junior or senior standing, in addition to any specific prerequisites listed.

4. Petition for exceptions to any School policies should be directed to the School director.

Communication Studies Major (36 hours)

Pre-Communication Requirements (3 hours)
COM 1000 - Communication and Community Engagement  Credits: 3 hours

Core Requirements (9 hours)
COM 2000 - Human Communication Theory  Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications  Credits: 3 hours
COM 3000 - Communication Research Methods  Credits: 3 hours

Baccalaureate Writing (3 hours)
Select one to meet Baccalaureate writing requirement. If you take additional courses in this area they may be used to complete elective hours.
COM 3350 - Leadership Communication  Credits: 3 hours
COM 3410 - Film Modes and Genres  Credits: 3 hours
COM 3420 - The International Film Industry  Credits: 3 hours
COM 3430 - American Film History  Credits: 3 hours
COM 3580 - TV and Film Scripting  Credits: 3 hours
COM 4410 - Documentary in Film and Television  Credits: 3 hours
COM 4450 - Media Criticism  Credits: 3 hours
COM 4480 - Media Management and Telecommunications  Credits: 3 hours
COM 4750 - Family Communication  Credits: 3 hours
COM 4840 - Health Communication  Credits: 3 hours

Communication Studies electives (21 hours)
Select two courses at any level and select five courses at the 3000-level or higher.

Communication Studies electives are any Communication or Journalism courses offered in the School of Communication that are not listed in the sections above. If you meet the course prerequisites, if the class is offered and if seats are available, you may register for the class.

Film, Video, and Media Studies Major (36 hours)

Pre-Communication Requirements (9 hours)
COM 1000 – Communication and Community Engagement  Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications  Credits: 3 hours
COM 2410 - Film Communication  Credits: 3 hours
Film, Video, and Media Studies Core Requirements (12 hours)
Select two courses from area A and two courses from area B. One course from Area A must meet baccalaureate-level writing requirement.

Area A:
- COM 2560 – Digital Media: Planning and Operations  Credits: 3 hours
- COM 3050 - Special Topics in Communication  Credits: 3 hours
  (Students may take up to six (6) hours of COM 3050 provided topics are different.)
- COM 3070 - Freedom of Expression  Credits: 3 hours
- COM 3410 - Film Modes and Genres  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
- COM 3420 - The International Film Industry  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
- COM 3430 - American Film History  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
- COM 3440 - Film Modes and Genres  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
- COM 3580 - TV and Film Scripting  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
- COM 3590 - Digital News Production  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
- COM 4410 - Documentary in Film and Television  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
- COM 4430 – Media and Social Change  Credits: 3 hours
- COM 4440 - Mass Communication, News, and Public Affairs  Credits: 3 hours
- COM 4450 - Media Criticism  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
- COM 4480 – Media Management and Telecommunications  Credits: 3 hours
  (This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)

Area B:
- COM 2550 - Introduction to Digital Filmmaking  Credits: 3 hours
- COM 2570 – Introduction to Audio Production  Credits: 3 hours
- COM 3550 – Digital Video Production: Nonfiction  Credits: 3 hours
- COM 3560 - Digital Video Production: Fiction  Credits: 3 hours
- COM 3570 – Introduction to TV Studio Production  Credits: 3 hours
- COM 4570 - Advanced Video Production  Credits: 3 hours
- COM 5550 - Multi-Media Production  Credits: 3 hours

Film, Video, and Media Studies Electives (9 hours)
Three courses from the following list are required. Courses listed under Area A and/or Area B above may also be taken as Film, Video, and Media Studies electives, but not double-counted as core requirements and electives.

- COM 3540 – Web Design and Digital Communication  Credits: 3 hours
- COM 3980 - Independent Study Communication  Credits: 3 hours
  (Requires approval by an advisor of specific topic - no more than 6 total hours in any combination of 3980/4990.)
- COM 4770 - Communication Ethics  Credits: 3 hours
- COM 4990 - Internship  Credits: 3 hours
  (Requires approval by an advisor of specific topic - no more than 6 total hours in any combination of 3980/4990.)
- ANTH 3010 – Anthropology Through Film  Credits: 3 hours
- ARAB 2750 – Life and Culture of the Arabs  Credits: 3 hours
- ENGL 2100 - Film Interpretation  Credits: 4 hours
- ENGL 3680 - Playwriting  Credits: 3 hours
- ENGL 4100 - Special Topics in Literature  Credits: 4 hours
  (in Film Studies)
- FREN 5100 - Topics in French and Francophone Studies  Credits: 3 hours
- GER 5600 - Studies in German Literature  Credits: 3 hours
- GPS 1500 – Introduction to Graphic and Printing Services  Credits: 3 hours
GPS 1570 – Imaging Systems  Credits: 3 hours  
GPS 2510 – Multimedia Publication and Design  Credits: 3 hours  
HIST 3150 - Popular Art and Architecture in America  Credits: 3 hours  
PSCI 3110 - American Politics and the Media  Credits: 3 hours  
SPAN 4100 - Studies in Hispanic Culture  Credits: 3 hours  
SPAN 5600 - Studies in Spanish Literatures  Credits: 3 hours  

Communication Electives (6 hours)  
Six (6) hours of electives in communication, three (3) of which will be selected from upper-level (3000 or higher) courses in the School of Communication, and three (3) from any level.  

Additional program information:  
- All course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.  
- Grade requirement: A minimum grade of “C” is required in all courses to be applied toward the major. The School prohibits students from taking a class more than twice for credit.  
- Baccalaureate-level writing requirement must be met by taking COM 3410, COM 3420, COM 3430, COM 3580, COM 4410, COM 4450, or COM 4480.  
- Students may take up to six (6) hours of COM 3050/COM 4800 provided the topics are different.  
- Up to six (6) hours of COM 3890/4990 may be used as electives in major.  
- Courses outside the school may be used with written prior approval of the School of Communication faculty advisor.  

Interpersonal Communication Major (36 hours)  

Pre-Communication Requirements (9 hours)  
COM 1000 - Communication and Community Engagement  Credits: 3 hours  
COM 1700 - Interpersonal Communication  Credits: 3 hours  
COM 2000 - Human Communication Theory  Credits: 3 hours  

Interpersonal Communication Core Requirements (9 hours)  
COM 1040 - Public Speaking  Credits: 3 hours  
COM 3000 - Communication Research Methods  Credits: 3 hours  
COM 4700 - Advanced Interpersonal Communication  Credits: 3 hours  

Interpersonal Communication Major Electives (12 hours)  
Four courses from the following group are required, selected in consultation with an advisor:  
COM 2800 – Introduction to Organizational Communication  Credits: 3 hours  
COM 3050 - Special Topics in Communication  Credits: 3 hours (Must be an interpersonal communication topic, approved by the School of Communication’s advisor, to be counted as an interpersonal communications elective. Students may take up to six (6) hours of COM 3050 provided topics are different.)  
COM 3320 - Teamwork and Communication  Credits: 3 hours  
COM 4300 - Persuasion and Social Influence  Credits: 3 hours  
COM 4720 - Nonverbal Communication  Credits: 3 hours  
COM 4740 - Intercultural Communication  Credits: 3 hours  
COM 4750 - Family Communication  Credits: 3 hours  
COM 4770 - Communication Ethics  Credits: 3 hours  
COM 4790 - Gender and Communication  Credits: 3 hours  
(COM 4770 and COM 4790 satisfy General Education Proficiency 2: Baccalaureate-Level Writing requirement.)  
COM 4840 - Health Communication  Credits: 3 hours  
(These courses satisfy General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
General Communication Electives (6 hours)
Six (6) hours of electives in Communication, three (3) of which shall be selected from upper-division (3000 or higher) courses in the school.

Additional program information:
- All course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.
- Grade requirement: A minimum grade of “C” is required in all courses to be applied toward the major. The School prohibits students from taking a class more than twice for credit.
- Baccalaureate-level writing requirement must be met by taking COM 4750 or COM 4790 or COM 4840.
- Students may take up to six (6) hours of COM 3050/COM 4800 provided the topics are different.
- Up to six (6) hours of COM 3890/4990 may be used as electives in major.
- Courses outside the school may be used with written prior approval of the School of Communication faculty advisor.

Journalism Major (minimum 36 credit hours)

Pre-Communication Requirements (9 hours)
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 2400 – Introduction to Media and Telecommunications Credits: 3 hours
JRN 1000 – Foundations of Journalism Credits: 3 hours

Journalism Core Requirements (15 hours)
JRN 2200 - Multimedia Journalism Credits: 3 hours
JRN 3100 – News Reporting Using New Media Credits: 3 hours
(This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.)
JRN 3200 - News Writing and Reporting Credits: 3 hours
(This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.)
JRN 4100 - Specialized Reporting Credits: 3 hours
(This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
JRN 4200 - Journalism Law and Ethics Credits: 3 hours

Journalism Electives (6 hours)
Six (6) hours of electives, three (3) of which shall be selected from upper-level courses (3000 or higher).
COM 2560 - Digital Media: Planning and Operations Credits: 3 hours
COM 3070 - Freedom of Expression Credits: 3 hours
COM 3540 - Web Design and Digital Communication Credits: 3 hours
COM 3590 - Digital News Production Credits: 3 hours
COM 4410 - Documentary in Film and Television Credits: 3 hours
COM 4430 - Media and Social Change Credits: 3 hours
COM 4440 - Mass Communication, News, and Public Affairs Credits: 3 hours
COM 4450 - Media Criticism Credits: 3 hours
COM 4460 - Telecommunications Law and Policy Credits: 3 hours
COM 4770 - Communication Ethics Credits: 3 hours
GPS 1500 - Introduction to Graphic and Printing Science Credits: 4 hours
GPS 2510 - Multimedia Publication and Design Credits: 3 hours
JRN 2500 – Photojournalism Credits: 3 hours
JRN 4990 - Journalism Practicum Credits: 1 to 3 hours

Communication Electives (6 hours)
Six (6) hours of electives, three (3) of which shall be selected from upper-level courses (3000 or higher).

Liberal Arts Requirements (65 hours)
Minimum of 65 credit hours in College of Arts and Science courses, not including courses in Journalism or Mass Communication. These 65 credit hours must include at least one course in American Literature (ENGL 2220 or ENGL 3200 or ENGL 3210), at least one in History, at least one in Political Science, and at least one in Economics.

Additional program information:
- All course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.
- Grade requirement: A minimum grade of “C” is required in all courses to be applied toward the major.
- The School of Communication prohibits students from taking a class more than twice for credit.
- Baccalaureate-level writing requirement must be met by taking JRN 4100.
- Students may take up to six (6) hours of COM 3050/COM 4800 provided the topics are different.
- Up to six (6) hours of COM 3980/COM 4990 may be used as electives in the major.
- Courses outside the school may be used with written prior permission of the School of Communication faculty advisor.

Organizational Communication Major (36 hours)

Pre-Communication Requirements (9 hours)
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 2000 - Human Communication Theory Credits: 3 hours
COM 2800 - Introduction to Organizational Communication Credits: 3 hours

Organizational Communication Core Requirements (12 hours)
COM 1040 - Public Speaking Credits: 3 hours
COM 3000 - Communication Research Methods Credits: 3 hours
COM 3350 – Leadership Communication Credits: 3 hours
(This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
COM 4800 - Applied Topics in Organizational Communication Credits: 3 hours
(Students may take up to six (6) hours of COM 4800 provided topics are different.)

Organizational Communication Electives (9 hours)
Three courses from the following group are required:
COM 2500 - Introduction to Public Relations Credits: 3 hours
COM 3050 - Special Topics in Communication Credits: 3 hours
(Students may take up to six (6) hours of COM 3050 provided topics are different.)
COM 3070 - Freedom of Expression Credits: 3 hours
COM 3320 - Teamwork and Communication Credits: 3 hours
COM 3540 - Web Design and Digital Communication Credits: 3 hours
COM 3840 - Organizational Communication Technologies Credits: 3 hours
COM 4300 - Persuasion and Social Influence Credits: 3 hours
COM 4400 - Public Relations Case Studies Credits: 3 hours
COM 4480 - Media Management and Telecommunications Credits: 3 hours
(This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
COM 4500 - Public Relations Program Development Credits: 3 hours
COM 4740 - Intercultural Communication Credits: 3 hours
COM 4770 - Communication Ethics Credits: 3 hours
COM 4790 - Gender and Communication Credits: 3 hours
(This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
COM 4800 - Applied Topics in Organizational Communication Credits: 3 hours
(Students may take up to six (6) hours of COM 4800 provided topics are different.)
COM 4830 - Interviewing Credits: 3 hours
COM 4840 - Health Communication Credits: 3 hours
(This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement.)
Communication Electives (6 hours)
Six (6) hours of electives in Communication, three of which shall be selected from upper-level (3000 or higher) courses in the School of Communication.

Additional program information:
- All course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.
- Grade requirement: A minimum grade of “C” is required in all courses to be applied toward the major. The School prohibits students from taking a class more than twice for credit.
- Baccalaureate-level writing requirement must be met by taking COM 3350, COM 4480, COM 4790 or COM 4840.
- Students may take up to six (6) hours of COM 3050/COM 4800 provided the topics are different.
- Up to six (6) hours of COM 3890/4990 may be used as electives in major.
- Courses outside the school may be used with written prior approval of the School of Communication faculty advisor.

Public Relations Major (39 to 43 hours)

Pre-Communication Requirements (12 hours)
- COM 1000 – Communication and Community Engagement Credits: 3 hours
- COM 2000 - Human Communication Theory Credits: 3 hours
- COM 2500 - Introduction to Public Relations Credits: 3 hours
- COM 2800 - Introduction to Organizational Communication Credits: 3 hours

Public Relations Core Requirements (12 hours)
- COM 3000 - Communication Research Methods Credits: 3 hours
- COM 3480 - Public Relations Writing Credits: 3 hours
- COM 4500 - Public Relations Program Development Credits: 3 hours
- JRN 1000 - Foundations of Journalism Credits: 3 hours

Public Relations Electives (minimum of 12 hours)
Select at least four of the following courses:
- COM 1040 - Public Speaking Credits: 3 hours
- COM 2560 - Digital Media: Planning and Operations Credits: 3 hours
- COM 3050 - Special Topics in Communication Credits: 3 hours
- COM 3320 - Teamwork and Communication Credits: 3 hours
- COM 3350 - Leadership Communication Credits: 3 hours
- COM 3540 - Web Design and Digital Communication Credits: 3 hours
- COM 3550 - Digital Video Production: Nonfiction Credits: 3 hours
- COM 3590 - Digital News Production Credits: 3 hours
- COM 4300 - Persuasion and Social Influence Credits: 3 hours
- COM 4400 - Public Relations Case Studies Credits: 3 hours
- COM 4430 - Media and Social Change Credits: 3 hours
- COM 4440 - Mass Communication, News, and Public Affairs Credits: 3 hours
- COM 4770 - Communication Ethics Credits: 3 hours
- COM 4800 - Applied Topics in Organizational Communication Credits: 3 hours
- (Students may take up to six (6) hours of COM 4800 provided topics are different.)
- COM 4990 - Internship Credits: 3 hours
- GPS 1500 - Introduction to Graphic and Printing Science Credits: 4 hours
- GPS 2510 - Multimedia Publication and Design Credits: 3 hours
- JRN 2200 - Multimedia Journalism Credits: 3 hours
- JRN 3100 - News Reporting Using New Media Credits: 4 hours
JRN 3200 - News Writing and Reporting  Credits: 3 hours

Communication Electives (6 hours minimum)
A minimum of six (6) hours of electives in Communication, three (3) of which will be selected from upper-level (3000 or higher) courses in the School of Communication, and three (3) from any level.

Additional program information:
- All course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.
- Grade requirement: A minimum grade of “C” is required in all courses to be applied toward the major. The School prohibits students from taking a class more than twice for credit.
- Baccalaureate-level writing requirement must be met by taking COM 3350.
- Students may take up to six (6) hours of COM 3050/COM 4800 provided the topics are different.
- Up to six (6) hours of COM 3890/4990 may be used as electives in major.
- Courses outside the school may be used with written prior approval of the School of Communication faculty advisor.

Telecommunications and Information Management Major (TMLJ)(36 hours)

Telecommunications and Information Management is an interdisciplinary major offered through the School of Communication, College of Arts and Sciences, and the School of Business Information Systems, Haworth College of Business.

The major prepares students for a variety of telecommunications and data communication subdisciplines, including telephony, data base management, network operations, cable television, satellite communication and Internet communication. The focus of the major is to give students a well balanced education in a variety of business and technical management issues.

The major offers a 21st century approach to the study of telecommunications and information technology by combining people and resources across the greater WMU campus. Students graduating as a TIM major will receive a Bachelor of Arts (BA) from the College of Arts and Sciences or a Bachelor of Business Administration (BBA) from the Haworth College of Business (TMBJ).

Admission requirements:
Students applying to the major from both Business Information Systems and Communication must have a minimum grade point average of 2.50 and meet with the appropriate program advisor in either the School of Communication or the Department of Business Information Systems. Priority seating will be given to declared TIM majors in all required and elective courses identified with the major.

Business Students:
Students who have completed at least 42 overall semester hours, the Pre-Business curriculum requirements, and the pre-TIM major requirements (CIS 2700, COM 2400) may apply. To graduate, students must meet the minimum requirement of 50% of their course work in the Haworth College of Business. For more information about the admission procedure, see the program advisor in the Department of Business Information Systems.

Communication Students:
Students who complete the pre-TIM major requirements may apply for the interdisciplinary major in Telecommunications and Information Management. To graduate, students must meet all College of Arts and Sciences curriculum requirements. See the Communication advisor for more information.

Program Requirements

Pre-Major Courses (6 hours)
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours

Select Either:
COM 1000 – Communication and Community Engagement Credits: 3 hours (Required of Arts and Sciences students)
or
CIS 2700 – Business-Driven Information Technology Credits: 3 hours (Required of Haworth College of Business students)

Required Core Courses (21 hours)
CIS 2660 - Networking and Data Communications Credits: 3 hours
CIS 3600 - Systems Analysis and Design Credits: 3 hours
CIS 3660 – Information Assurance and Compliance Credits: 3 hours
CIS 4600 - Business Database Applications Credits: 3 hours
COM 4460 - Telecommunications Law and Policy Credits: 3 hours
COM 4480 - Media Management and Telecommunications Credits: 3 hours
(This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing requirement for Arts and Sciences students.)
COM 4490 - Communication Technology and Innovation Credits: 3 hours

Electives (9 hours)
After consulting the major advisor, students will be advised to select three courses from the following course list based on their individual interest, specific need, or career planning.

CIS 2600 - Business Application Programming Credits: 3 hours
CIS 2610 - Business Mobile Programming Credits: 3 hours
CIS 2640 - Business Analytics I Credits: 3 hours
CIS 2800 - Internet Programming Credits: 3 hours
CIS 2900 - Web Applications for Business Credits: 3 hours
CIS 3620 - Practical Project Management Credits: 3 hours
CIS 3640 - Business Analytics II Credits: 3 hours
CIS 3900 - Business Web Architecture Credits: 3 hours
CIS 4100 - Internship Credits: 1 to 4 hours
CIS 4500 - Customer Relationship Management Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours
CIS 4700 - Mobile Commerce Development Credits: 3 hours
CIS 4900 - Electronic Commerce Development Credits: 3 hours
CIS 4950 - eBusiness Technologies Credits: 3 hours
CIS 4990 - Enterprise Project Credits: 3 hours
CIS 5550 - Topics in Computer Information Systems Credits: 3 hours
COM 3540 - Web Design and Digital Communication Credits: 3 hours
COM 4990 – Internship Credits: 1 to 6 hours
COM 5640 - Telecommunications Networks Credits: 3 hours
GEOG 3010 - Fundamentals of Geographic Information Systems Credits: 4 hours
(A laptop computer is required for this course.)
GEOG 5690 - Geodatabase Design and GIS Workflows Credits: 4 hours
(A laptop computer is required for this course.)

Special Notes:
Telecommunications and Information Management majors may not select any minor in the Haworth College of Business. This restriction is because of the accreditation requirements through the Association for the Advancement of Collegiate Schools of Business (AACSB).

- All course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.
- Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major.
- The School prohibits students from taking a class more than twice for credit.
- Baccalaureate-level writing requirement must be met by taking either COM 4480 for Arts and Sciences students or BCM 3700 for Haworth College of Business students.
• Students taking GEOG 3010 or GEOG5690 are required to have a laptop computer.

Communication Minor (18 hours)

Required Courses (12 hours)
COM 1000 – Communication and Community Engagement Credits: 3 hours
COM 1040 - Public Speaking Credits: 3 hours
COM 2000 - Human Communication Theory Credits: 3 hours
COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours

Communication Electives (6 hours)
COM electives are any courses offered by the School of Communication which are not required for the Communication minor (those listed in section 1). If you meet the course prerequisites you may be eligible to register for the course.

Journalism Minor (JNLN)(18 hours) non-teaching minor

Required Entry-Level Courses (3 hours)
COM 1000 – Communication and Community Engagement Credits: 3 hours
Or
COM 2400 – Introduction to Media and Telecommunications Credits: 3 hours

Required Journalism Core Courses (12 hours)
JRN 1000 – Foundations of Journalism Credits: 3 hours
JRN 2200 - Multimedia Journalism Credits: 3 hours
JRN 3100 – News Reporting Using New Media Credits: 3 hours
JRN 3200 - News Writing and Reporting Credits: 3 hours

Communication/Journalism Electives (3 hours)
Any three (3) credit course offered in the School, providing you meet the prerequisites.
• All course prerequisites must be met to enroll in upper-level courses. A course and its prerequisite cannot be taken at the same time.
• Grade requirement: A minimum grade of "C" is required in all courses applied toward the minor. The School prohibits students from taking a class more than twice for credit.
Comparative Religion

Kevin J. Wanner, Acting Chair
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Diane Riggs
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Cynthia Visscher
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The major and minor programs in Comparative Religion are designed for those who, whether they are religious or not, want to know more about religion, the role and significance of religion in societies today and in the past, and the ways in which academics think about and analyze religion and related concepts. In courses offered by the department, students and instructors examine the concept of religion as well as specific religions from around the world and throughout history; analyze religion as a part of culture and in relation to other parts of culture; study components of religions like myths, rituals, doctrines, and institutions; and compare, evaluate, and employ academic definitions and theories of religion.

The Comparative Religion major and minor provide a solid foundation for graduate study in religion and related fields. Many students combine a major in Comparative Religion with another major from within the Humanities or Social Sciences. Comparative Religion courses also provide knowledge and skills relevant to and useful in a large and growing range of careers and professions, including health care, non-profit and public sector careers, culture and the arts, religious vocations, and business and marketing.

The Comparative Religion program emphasizes development of students' writing and research skills. Comparative Religion majors will fulfill General Education Proficiency 4a: Advanced Writing by taking REL 2000 - Thinking about Religion, and will satisfy their Baccalaureate Writing Requirement by successfully completing REL 4500 - Capstone Seminar in Religion.

Many Comparative Religion courses satisfy General Education requirements.

Recognizing the growing demand for graduates with cross-cultural experiences and second language abilities, the Department of Comparative Religion encourages students majoring and minoring in Comparative Religion to participate in Western's semester or year long study abroad program. Interested students should contact the chairperson of Comparative Religion and the Office of Study Abroad as early as possible upon their arrival at Western Michigan University.

Religion Major (28 hours)

Program Requirements
The Religion Major requires 28 credit hours minimum, to include seven to eight courses:

- REL 2000 - Thinking About Religion  Credits: 4 hours (Advanced Writing Course)
- REL 4500 - Capstone Seminar in Religion  Credits: 4 hours (Baccalaureate Writing Course)
- One of the following Traditions and Regions courses: REL 2010-2040  Credits: 4 hours
- One of the following Traditions and Regions courses: REL 2050-3025  Credits: 4 hours
- Two Comparative and Theoretical Topies courses: REL 3115-3340  Credits: 8 hours
- One to two electives which can include REL 1000 and 4000/5000-level courses

Other requirements
- Minimum grade of “C” in all courses counted toward the major or minor
- At least 1/2 of credit hours counted toward major or minor (14 and 8 credit hours respectively) must be taken in the Comparative Religion department.
Religion Minor (16 hours)

Program Requirements
A minor in religion requires 16 credit hours minimum, to include four courses:

- One Traditions and Regions course Credits: 4 hours
- One Comparative and Theoretical Topics course Credits: 4 hours
- Two 1000 to 3000-level elective courses Credits: 8 hours

Other requirements
- Minimum grade of “C” in all courses counted toward the major or minor
- At least 1/2 of credit hours counted toward major or minor (14 and 8 credit hours respectively) must be taken in the Comparative Religion department.

Courses by Topic - Religion

Introductory Studies:
REL 1000 - Religions of the World Credits: 4 hours
REL 2000 - Thinking About Religion Credits: 4 hours

Traditions and Regions:
REL 2010 - Buddhism Credits: 4 hours
REL 2020 - Religion in China Credits: 4 hours
REL 2030 - Religion in Japan Credits: 4 hours
REL 2040 - Religion in India Credits: 4 hours
REL 2050 - Christianity Credits: 4 hours
REL 2065 - Islam in America Credits: 4 hours
REL 2070 - Judaism Credits: 4 hours
REL 2080 - Religion in Europe Credits: 4 hours
REL 3015 - Christianity in the United States Credits: 4 hours
REL 3025 - The Qur'an Credits: 4 hours
REL 3325 - Muslim Cultures and Societies Credits: 4 hours
REL 4000 - Topics in Religion Credits: 4 hours
REL 5000 - Historical Studies in Religion Credits: 2 to 4 hours

Comparative and Theoretical Topics:
REL 3111 - Superhero Comic Book Religion Credits: 4 hours
REL 3115 - Myth and its Study Credits: 4 hours
REL 3145 - New Religious Movements Credits: 4 hours
REL 3155 - Religion and Conflict Credits: 4 hours
REL 3160 - Religion and State Credits: 4 hours
REL 3165 - Religion and Globalization Credits: 4 hours
REL 3170 - Religion and Gender Credits: 4 hours
REL 3180 - Death, Dying, and Beyond Credits: 4 hours
REL 3190 - Religion and Health Credits: 4 hours
REL 3220 - Spirituality and the Environment Credits: 4 hours
REL 3230 - Religion and Revolution Credits: 4 hours
REL 3240 - Psychological Elements in Religion Credits: 4 hours
REL 3320 - Religion and Social Ethics Credits: 4 hours
REL 3340 - Religion in Modern Society Credits: 4 hours
REL 3360 - Zen and Buddhist Meditation Credits: 4 hours
REL 4500 - Capstone Seminar in Religion Credits: 4 hours
REL 4980 - Independent Study  Credits: 1 to 6 hours
REL 5100 - Comparative Studies in Religion  Credits: 2 to 4 hours
REL 5980 - Readings in Religion  Credits: 1 to 4 hours
Economists study fundamental problems arising from scarcity such as how to manage resources efficiently, how to organize individual and social efforts to improve standards of living, and how to avoid excessive unemployment and inflation. They also apply rational decision-making procedures to complex questions. Economists analyze policies in such specific areas as international trade; money and credit; government finance; industrial organization; labor and other resources; and economic development.

You may select economics as a field of study in order to obtain pre-professional training for business, law, journalism, public administration, foreign service, teaching, and social work; to prepare for graduate work in economics; and/or to gain an understanding of the economy as an essential part of the modern world. Several courses are designed to contribute to General Education by providing basic understanding of the U. S. economy, as well as other economies throughout the world.

A career as a professional economist typically requires graduate study and a master's or doctoral degree in economics.

Economics is a prestigious major or minor that is appreciated by prospective employers who recognize it as a demanding curriculum. The undergraduate advisor of the department will assist students in selecting courses suited to their needs in fulfilling the minor and major requirements.

Undergraduate students wishing to take 5000-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the approval of the department chairperson.

**Economics Major (30 hours)**

**Requirements**
A major in economics consists of a minimum of 30 hours of credit in the department. The following are required courses for majors:

ECON 2010 - Principles of Microeconomics  Credits: 3 hours
ECON 2020 - Principles of Macroeconomics  Credits: 3 hours
ECON 4020 - Introductory Economic Statistics  Credits: 3 hours
ECON 4030 - Intermediate Microeconomics  Credits: 3 hours
ECON 4060 - Intermediate Macroeconomics  Credits: 3 hours  
ECON 4090 - Econometrics  Credits: 3 hours  

Calculus  
Majors should choose the remainder of their economics courses in consultation with the undergraduate advisor. A major in economics is also required to take one semester of calculus as a cognate course.  
MATH 1220 - Calculus I  Credits: 4 hours or  
MATH 2000 - Calculus with Applications  Credits: 4 hours  

Mathematics  
Those who intend to do graduate work in economics are advised to take additional mathematics courses, such as:  
MATH 1230 - Calculus II Credits: 4 hours  
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours  
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours  

Baccalaureate Writing Requirement  
Students who have chosen the economics major through the College of Arts and Sciences will satisfy the Baccalaureate Writing Requirement by successfully completing either ECON 3050 – History of Economic Thought or ECON 4840 - Comparative Economic Systems.  

Economics Minor (15 hours)  
A minor in economics consists of a minimum of 15 hours in the department.  

Courses By Topic - Economics  

Principles and General Theory  
ECON 1000 - Economics for Elementary Education  Credits: 3 hours  
ECON 2010 - Principles of Microeconomics  Credits: 3 hours  
ECON 2020 - Principles of Macroeconomics  Credits: 3 hours  
ECON 3050 - History of Economic Thought  Credits: 3 hours  
ECON 3150 - Sports Economics  Credits: 3 hours  
ECON 3180 - The Economics of Medical Care  Credits: 3 hours  
ECON 4000 - Managerial Economics  Credits: 3 hours  
ECON 4020 - Introductory Economic Statistics  Credits: 3 hours  
ECON 4030 - Intermediate Microeconomics  Credits: 3 hours  
ECON 4060 - Intermediate Macroeconomics  Credits: 3 hours  
ECON 4090 - Econometrics  Credits: 3 hours  
ECON 5040 - Mathematics for Economists  Credits: 3 hours  

Labor and Resource Economics  
ECON 3090 - Women and the Economy  Credits: 3 hours  
ECON 3100 - Labor Economics  Credits: 3 hours  
ECON 3190 - Environmental Economics  Credits: 3 hours  

Money, Credit and Finance  
ECON 3200 - Money and Banking  Credits: 3 hours  
ECON 3240 - Public Finance  Credits: 3 hours  

Industrial Organization and Public Control  
ECON 3040 - The Organization of Industries  Credits: 3 hours  
ECON 3450 - Business, Government, and Society  Credits: 3 hours  

International Economics
ECON 3800 - International Economics Credits: 3 hours
ECON 3840 - Economic Development Credits: 3 hours
ECON 3870 - Studies in Asian Economies Credits: 3 hours
ECON 3880 - African Economies Credits: 3 hours
ECON 3890 - Latin American Economies Credits: 3 hours
ECON 4840 - Comparative Economic Systems Credits: 3 hours

Special Studies
ECON 5910 - Guest Economist Seminar Credits: 1 hour
ECON 5920 - Guest Economist Seminar Credits: 1 hour
ECON 5980 - Readings in Economics Credits: 1 to 3 hours
English
Nicolas S. Witschi, Chair
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Staci Perryman-Clark
Judith Rypma
John Saillant
Eve Salisbury
Jana Schulman
Scott Slawinski
Gwen Tarbox
Charlotte Thralls
Grace Tiffany
Karen Vocke
Daneen Wardrop
Allen Webb

The Department of English serves students in two principal ways: in developing their power to communicate and express themselves and in enhancing their ability to participate in and understand the experiences of other people, real and imaginary, past and present.

Courses and programs offered by our department - in writing, English language, and literature (including film) - enable students to concentrate in English, complement their other studies, or simply explore and sample the disciplines of language and literature. As a department we are traditionally engaged in training teachers and preparing students for graduate study. We are equally concerned with serving those students preparing for the many professions in which humane perceptions and the skills of communication, especially writing, are important.

Special Note to Non-Majors
The Department of English offers many courses, including a variety of writing courses, suitable for students not majoring in English: 1050: Thought and Writing, 1070: Good Books, 1100: Literary Interpretation, 1120: Literary Classics, 1500: Literature and Other Arts, 2100: Film Interpretation, 2110: Myth and Folk Literature, 2220: Literatures and Cultures of the United States, 2230: African American Literature, 2520: Shakespeare, 2660: Writing Fiction and Poetry, 3830: Literature for the Intermediate Reader, 3070: Literature In Our Lives, 3080: Quest for Self, 3110: Our Place In Nature, 3120: Western World Literature, 3130: Asian Literature, 3140: African Literature, 3150: The English Bible as Literature, and certain advanced courses that may be appropriate to the interests and background of the student. Many of these English courses may be used to satisfy General Education requirements.

English advisors will help any student select courses in writing, English language, or literature which will be useful in General Education or as background for a career. Advisors' offices are on the sixth floor of Sprau Tower (phone 387-2575).

Major and Minor Requirements

The requirements for the English majors (listed below) allow students some choices in their courses of study. As soon as students decide to major in English they should confer with one of the English advisors, who can help plan the major. All major programs must be approved by an English advisor. Minor slips are required for all minors. Students minoring in English should see the advisor as soon as possible after they begin work on the minor.

A minimum of 34 hours is required for a major in English, 20 hours are required for a minor. Students are urged, however, to take as many additional hours as they can. In particular, students planning to teach or attend graduate school should consider taking additional work in preparation.

Only courses in which a grade of "C" or better is earned may be applied to an English major or minor. Moreover, all majors and minors in the Department of English need to earn at least a 2.5 grade point average in the major or minor to graduate.

Foreign Language Requirement: Eight semesters hours of a foreign language with a grade of "C" or better, or two years of foreign language in high school with a minimum grade of "B-" in the second semester of the second year, or appropriate score on a placement exam. The department recommends as much additional work in the language as students can manage. Students planning to do graduate work beyond the M.A. ought to develop competence in at least one foreign language.

Special Note to Transfer Students. All transfer students majoring or minoring in English should consult with one of the department's undergraduate advisors (269-387-2575) about transferring credit in English courses from other colleges. An early conference will enable students to avoid duplication of courses and possible loss of transfer credit and may enable them to bypass some of the department's basic requirements as listed below. It is departmental policy to accept no more than 20 hours of transferred credit toward a major and no more than 12 hours of transferred credit toward a minor.

Baccalaureate-Level Writing Requirement:

Students who have chosen an English major will satisfy the Baccalaureate-Level Writing requirement by successfully completing one of the following courses:

- ENGL 3050 – Introduction to Professional Writing
- ENGL 3620 - Readings in Creative Non-Fiction
- ENGL 4150 - Literary Theory and Criticism
- ENGL 4400 - Studies in Verse
- ENGL 4420 - Studies in Drama
- ENGL 4440 - Studies in the Novel
- ENGL 4520 - Shakespeare Seminar
- ENGL 4790 – Writing in the Secondary School

The prerequisites to 5000-level courses are: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by approval of Director of Undergraduate Studies.

English Major - Rhetoric and Writing Studies Emphasis (34 hours)
1. Required Entry-level Course (4 hours)
ENGL 1100 - Literary Interpretation  
Credits: 4 hours

2. Required Courses (13 hours)
ENGL 3050 - Introduction to Professional Writing  
Credits: 4 hours
(Also meets Baccalaureate writing requirement.)

And 9 hours of credit from the following:
ENGL 3060 - Rhetoric, Writing, and Culture  
Credits: 3 hours
ENGL 4060 - Topics in Textual Production  
Credits: 3 hours
ENGL 4080 - Topics in Rhetoric and Writing  
Credits: 3 hours

3. Literature Courses (6 hours)
Select 6 credit hours from the following:
ENGL 2070 - Topics in Literature  
Credits: 4 hours
ENGL 2100 - Film Interpretation  
Credits: 4 hours
ENGL 2110 - Folklore and Mythology  
Credits: 4 hours
ENGL 2220 - Literatures and Cultures of the United States  
Credits: 4 hours
ENGL 2230 - African American Literature  
Credits: 4 hours
ENGL 2520 – Shakespeare  
Credits: 4 hours
ENGL 3120 - Western World Literature  
Credits: 3 hours
ENGL 3130 - Asian Literature  
Credits: 3 hours
ENGL 3140 - African Literature  
Credits: 3 hours
ENGL 3150 - The English Bible as Literature  
Credits: 3 hours
ENGL 3200 - American Literature I  
Credits: 3 hours
ENGL 3210 - American Literature II  
Credits: 3 hours
ENGL 3300 - British Literature I  
Credits: 3 hours
ENGL 3310 - British Literature II  
Credits: 3 hours
ENGL 3100 - Special Topics in Literature  
Credits: 4 hours

Linguistics:
Select 4 credit hours from the following:
ENGL 3710 - Structures of Modern English  
Credits: 4 hours
ENGL 3720 - Development of Modern English  
Credits: 4 hours
ENGL 4720 - Language Variation in American English  
Credits: 4 hours

4. Electives (6 hours)
Select at least two courses from the following:
ENGL 4950 - Internship/Field Work  
Credits: 1 to 4 hours
ENGL 3700 - Writing Creative Non-Fiction  
Credits: 3 hours
ENGL 3620 - Readings in Creative Non-Fiction  
Credits: 3 hours
ENGL 4060 - Topics in Textual Production  
Credits: 3 hours
(Different topics not used to satisfy required courses in section 2 above.)
ENGL 4080 - Topics in Rhetoric and Writing  
Credits: 3 hours
(Different topics not used to satisfy required courses in section 2 above.)

External elective options:
Course from an external department, contingent upon department and advisor approvals. Examples:
GPS 1500 - Introduction to Graphic and Printing Science  
Credits: 4 hours
PADM 5830 - Grant Writing for Nonprofit Organizations  
Credits: 3 hours
EDMM 1420 - Engineering Graphics  
Credits: 3 hours
EDMM 2460 - Introduction to Computer-Aided Design  
Credits: 3 hours

5. Foreign Language Requirement
Minimum of two semesters of a modern or classical foreign language at the college level with a grade of "C" or better, or two years of such study at the high school level with a minimum grade of "B-" in the second semester of the second year. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.

**English Major - Creative Writing Emphasis (34 hours)**

1. Required Entry-level Course (4 hours)
   ENGL 1100 - Literary Interpretation Credits: 4 hours

2. Required Writing Courses (14 hours)
   A. ENGL 2660 - Writing Fiction and Poetry Credits: 4 hours

   B. Six (6) hours of credit from the following courses. Any of these courses may be repeated one time for credit.
      ENGL 3660 - Advanced Fiction Writing Credits: 3 hours
      ENGL 3670 - Advanced Poetry Writing Credits: 3 hours
      ENGL 3680 - Playwriting Credits: 3 hours
      ENGL 3700 - Writing Creative Non-Fiction Credits: 3 hours

   C. Four hours of credit from the following courses. These courses may be repeated one time for credit. Courses in the same genre may not be taken concurrently.
      ENGL 5660 – Creative Writing Workshop – Fiction Credits: 4 hours
      ENGL 5670 - Creative Writing Workshop – Poetry Credits: 4 hours
      ENGL 5680 - Creative Writing Workshop – Playwriting Credits: 4 hours
      ENGL 5700 - Creative Writing Workshop – Creative Non-fiction Credits: 4 hours

3. Literature and English Language Courses (13 to 14 hours)
   A. Two of the following courses:
      ENGL 3200 - American Literature I Credits: 3 hours
      ENGL 3210 - American Literature II Credits: 3 hours
      ENGL 3300 - British Literature I Credits: 3 hours
      ENGL 3310 - British Literature II Credits: 3 hours

   B. One of the following courses:
      ENGL 4400 - Studies in Verse Credits: 4 hours
      ENGL 4420 - Studies in Drama Credits: 4 hours
      ENGL 4440 - Studies in the Novel Credits: 4 hours

   C. One Additional Course
      One additional English Department literature or English language course at the 2000, 3000, 4000, or 5000 levels.

4. Elective Courses
   At least one additional English Department course at the 2000, 3000, 4000, or 5000 levels to complete the major. The following courses cannot be used for this purpose: ENGL 3070, 3080, 3110, or 4800.

5. Foreign Language Requirement
   Minimum of two semesters of a modern or classical foreign language at the college level with a grade of "C" or better, or two years of the same language in high school with a minimum grade of "B" in the second semester of the second year. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.

**English Major - Secondary Education Curriculum (34-40 Hours + 8 Hour Professional Component)**
A minimum grade of CB is required for all courses applied to the major.

1. Required Entry-level Course (4 hours)
   ENGL 1100 - Literary Interpretation  Credits: 4 hours

2. Required Courses (24 to 28 hours)

   A. Required Entry Level Course
   
   ENGL 2790 - Introduction to English Education  Credits: 3 hours

   B. One of the following British Literature courses:
   
   ENGL 2520 - Shakespeare  Credits: 4 hours
   ENGL 3300 - British Literature I  Credits: 3 hours
   ENGL 3310 - British Literature II  Credits: 3 hours

   C. One of the following American Literature courses:
   
   ENGL 3200 - American Literature I  Credits: 3 hours
   ENGL 3210 - American Literature II  Credits: 3 hours

   D. One of the following Multi-Cultural American Literature courses:
   
   ENGL 2220 - Literatures and Cultures of the United States  Credits: 4 hours
   ENGL 2230 - African American Literature  Credits: 4 hours
   ENGL 5830 - Multicultural Adolescent Literature  Credits: 3 hours
   SPAN 2650 - Hispanic Culture in the U.S.  Credits: 3 hours
   SPAN 2750 - Latino Writing/Latino Culture  Credits: 3 hours

   E. One of the following World Literature courses
   
   ENGL 3120 - Western World Literature  Credits: 3 hours
   ENGL 3130 - Asian Literature  Credits: 3 hours
   ENGL 3140 - African Literature  Credits: 3 hours
   ENGL 3160 - Storytellers  Credits: 3 hours
   ENGL 5390 - Post-colonial Literature  Credits: 3 hours

   F. Adolescent Literature
   
   ENGL 3840 - Adolescent Literature  Credits: 3 hours

   G. One of the following writing/rhetoric/communication courses:
   
   ENGL 2660 - Writing Fiction and Poetry  Credits: 4 hours
   ENGL 3050 - Introduction to Professional Writing  Credits: 4 hours
   ENGL 3060 - Rhetoric, Writing, and Culture  Credits: 3 hours
   JRN 1000 - Foundations of Journalism  Credits: 3 hours

   H. One of the following English Language courses
   
   ENGL 3710 - Structures of Modern English  Credits: 4 hours
   ENGL 3720 - Development of Modern English  Credits: 4 hours
   ENGL 3770 - Language and Learning in Multilingual Classrooms  Credits: 3 hours
   ENGL 4720 - Language Variation in American English  Credits: 4 hours

3. Advanced Studies in English (6 to 8 hours)
   Two elective English courses at the 4000-5000 level.

4. Professional Component (8 hours)
   ENGL 4790 - Writing in the Secondary School  Credits: 4 hours
   ENGL 4800 - Teaching Literature in the Secondary Schools  Credits: 4 hours
5. Foreign Language Requirement
Minimum of two semesters of one modern or classical foreign language at the college level, or two years of one foreign language at the high school level with a minimum grade of "B-" at the end of the second year. One year of high school level foreign language coupled with the second semester of the same language at the college level is also satisfactory.

**English Major - Liberal Education Curriculum (34 hours)**

1. Required Entry-level Course (4 hours)
   ENGL 1100 - Literary Interpretation Credits: 4 hours

2. Required Courses (27 to 28 hours)
   A. Three of the following four:
   ENGL 3200 - American Literature I Credits: 3 hours
   ENGL 3210 - American Literature II Credits: 3 hours
   ENGL 3300 - British Literature I Credits: 3 hours
   ENGL 3310 - British Literature II Credits: 3 hours

   B. One of the following three:
   ENGL 3710 - Structures of Modern English Credits: 4 hours
   ENGL 3720 - Development of Modern English Credits: 4 hours
   ENGL 4720 - Language Variation in American English Credits: 4 hours

   C. Two courses at the 4000 level, including at least one of the following four:
   Students who use ENGL 4720 to satisfy requirement 2.B. may not use that course to satisfy this requirement.
   ENGL 4150 - Literary Theory and Criticism Credits: 4 hours
   ENGL 4400 - Studies in Verse Credits: 4 hours
   ENGL 4420 - Studies in Drama Credits: 4 hours
   ENGL 4440 - Studies in the Novel Credits: 4 hours

   D. At least two of the following courses:
   Students who use ENGL 4520 to satisfy requirement 3.C. may not use that course to satisfy this requirement.
   ENGL 4520 - Shakespeare Seminar Credits: 4 hours
   ENGL 5220 - Studies in American Literature Credits: 3 hours
   ENGL 5300 - Medieval Literature Credits: 3 hours
   ENGL 5320 - English Renaissance Literature Credits: 3 hours
   ENGL 5340 - Restoration and 18th-Century Literature Credits: 3 hours
   ENGL 5360 - Romantic Literature Credits: 3 hours
   ENGL 5370 - Victorian Literature Credits: 3 hours
   ENGL 5380 - Modern Literature Credits: 3 hours
   ENGL 5550 - Studies in Major Writers Credits: 3 hours

3. Elective Courses
At least one additional English Department course at the 2000, 3000, 4000, or 5000 levels to complete the major, unless an elective course has already been taken under #2 above. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1120, 3070, 3080, 3110 or 4800.

4. Foreign Language Requirement
Minimum of two semesters of a modern or classical foreign language at the college level with a grade of "C" or better, or two years of such study at the high school level with a minimum grade of "B-" in the second semester of the second year. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.

**English Minor – Rhetoric and Writing Studies (20 hours)**
1. **Required Entry-level Course (4 hours)**
   ENGL 1100 - Literary Interpretation   Credits: 4 hours

2. **Required Courses (13 hours)**
   ENGL 3050 – Introduction to Professional Writing   Credits: 4 hours
   
   And 9 hours of credit from the following:
   ENGL 3060 - Rhetoric, Writing, and Culture   Credits: 3 hours
   ENGL 4060 - Topics in Textual Production   Credits: 3 hours
   ENGL 4080 - Topics in Rhetoric and Writing   Credits: 3 hours

3. **Literature, English Language, and Creative Writing Courses (3-4 hours)**
   Select 3 credit hours from the following:
   ENGL 2070 - Topics in Literature   Credits: 4 hours
   ENGL 2100 - Film Interpretation   Credits: 4 hours
   ENGL 2110 - Folklore and Mythology   Credits: 4 hours
   ENGL 2220 - Literatures and Cultures of the United States   Credits: 4 hours
   ENGL 2230 - African American Literature   Credits: 4 hours
   ENGL 2520 - Shakespeare   Credits: 4 hours
   ENGL 3120 - Western World Literature   Credits: 3 hours
   ENGL 3130 - Asian Literature   Credits: 3 hours
   ENGL 3140 - African Literature   Credits: 3 hours
   ENGL 3150 - The English Bible as Literature   Credits: 3 hours
   ENGL 3200 - American Literature I   Credits: 3 hours
   ENGL 3210 - American Literature II   Credits: 3 hours
   ENGL 3300 - British Literature I   Credits: 3 hours
   ENGL 3310 - British Literature II   Credits: 3 hours
   ENGL 3620 - Readings in Creative Non-Fiction   Credits: 3 hours
   ENGL 3700 - Writing Creative Non-Fiction   Credits: 3 hours
   ENGL 3710 - Structures of Modern English   Credits: 4 hours
   ENGL 3720 - Development of Modern English   Credits: 4 hours
   ENGL 4100 - Special Topics in Literature   Credits: 4 hours
   ENGL 4720 - Language Variation in American English   Credits: 4 hours

**English Minor - Writing Emphasis (20 hours)**

1. **Required Entry-Level Courses (8 hours)**
   ENGL 1100 - Literary Interpretation   Credits: 4 hours
   ENGL 2660 - Writing Fiction and Poetry   Credits: 4 hours

2. **Literature Course (3 hours)** One course chosen from among the following:
   ENGL 3200 - American Literature I   Credits: 3 hours
   ENGL 3210 - American Literature II   Credits: 3 hours
   ENGL 3300 - British Literature I   Credits: 3 hours
   ENGL 3310 - British Literature II   Credits: 3 hours

3. **Advanced Writing Courses (6-7 hours)** (ENGL 3660, 3670, 3680, and 3700 may be repeated one time for credit.)
   ENGL 3050 – Introduction to Professional Writing   Credits: 4 hours
   ENGL 3660 - Advanced Fiction Writing   Credits: 3 hours
   ENGL 3670 - Advanced Poetry Writing   Credits: 3 hours
   ENGL 3680 - Playwriting   Credits: 3 hours
   ENGL 3700 - Writing Creative Non-Fiction   Credits: 3 hours

4. **Electives**
At least one additional English Department course. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1120, 3070, 3080, 3110, or 4800.

**English Minor - Secondary Education Curriculum (23-25 Hours + 8 Hour Professional Component)**

A minimum grade of "CB" is required for all courses applied to the minor.

1. Required Entry-level Course (4 hours)
   ENGL 1100 - Literary Interpretation Credits: 4 hours

2. Required Courses (19 to 21 hours)
   A. Required Entry-Level Course:
      ENGL 2790 - Introduction to English Education Credits: 3 hours
   
      B. One of the following British or American Literature courses:
         ENGL 2520 - Shakespeare Credits: 4 hours
         ENGL 3300 - British Literature I Credits: 3 hours
         ENGL 3310 - British Literature II Credits: 3 hours
         ENGL 3200 - American Literature I Credits: 3 hours
         ENGL 3210 - American Literature II Credits: 3 hours
   
      C. One of the following Multi-Cultural American literature courses:
         ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
         ENGL 2230 - African American Literature Credits: 4 hours
         ENGL 5830 - Multicultural Adolescent Literature Credits: 3 hours
         SPAN 2650 - Hispanic Culture in the U.S. Credits: 3 hours
         SPAN 2750 - Latino Writing/Latino Culture Credits: 3 hours
   
      D. One of the following World Literature courses:
         ENGL 3120 - Western World Literature Credits: 3 hours
         ENGL 3130 - Asian Literature Credits: 3 hours
         ENGL 3140 - African Literature Credits: 3 hours
         ENGL 3160 - Storytellers Credits: 3 hours
         ENGL 5390 - Post-colonial Literature Credits: 3 hours
   
      E. Adolescent Literature:
         ENGL 3840 - Adolescent Literature Credits: 3 hours
   
      F. One of the following English Language courses:
         ENGL 3710 - Structures of Modern English Credits: 4 hours
         ENGL 3720 - Development of Modern English Credits: 4 hours
         ENGL 3770 - Language and Learning in Multilingual Classrooms Credits: 3 hours
         ENGL 4720 - Language Variation in American English Credits: 4 hours
   
5. Professional Component (8 hours)
   ENGL 4790 - Writing in the Secondary School Credits: 4 hours
   ENGL 4800 - Teaching Literature in the Secondary Schools Credits: 4 hours

**English Minor - Liberal Education Curriculum (20 hours)**

1. Required Entry-level Course (4 hours)
ENGL 1100 - Literary Interpretation  Credits: 4 hours

2. Literature Courses (9 hours)  Three courses chosen from among the following:
ENGL 3200 - American Literature I  Credits: 3 hours
ENGL 3210 - American Literature II  Credits: 3 hours
ENGL 3300 - British Literature I  Credits: 3 hours
ENGL 3310 - British Literature II  Credits: 3 hours

3. Electives
At least two additional English Department courses, one of which must be at the 3000 or 4000 level. The following courses cannot be used for this purpose: ENGL 1000, 1050, 1070, 1120, 3070, 3080, 3110, or 4800.
One of the goals of our University's Mission Statement is “to advance responsible environmental stewardship;” in that same vein, the College of Arts and Sciences in its Strategic Plan, seeks to raise “awareness about the . . . environmental and international contexts of knowledge . . .” and has as one of its goals interdisciplinary education on all aspects of environmental problems. Accordingly, our Program, as we conceive it, has two major duties: One, fostering environmental awareness and scientific literacy for the general student; Two, careful interdisciplinary training of majors and minors to understand environmental complexity and health, enabling them to be creative and able problem solvers.

The Program will also serve the Kalamazoo community and greater Southwestern Michigan as the center for environmental action and for the sharing of environmental knowledge; we see ourselves as both participating in and leading the larger community toward environmental knowledge and environmental repair.

For our students, the results of this combination of abstract and experiential learning, along with community activism, will be periodically assessed by both subjective and objective measurements, but always central to any such assessment will be the quality of the professional and personal lives our students lead after they have graduated from WMU.

Advising

Given the interdisciplinary nature of the program, it is very important that students work regularly with program advisors. Information about career choices, internships, summer jobs, graduate programs, and second majors is also available from our office.

Academic Standards

Students in all options of the Environmental and Sustainability Studies Program must earn at least a grade of “C” in all courses counted for their major/minor.

Baccalaureate-Level Writing Requirement

Students who have chosen an Environmental and Sustainability Studies major will satisfy the Baccalaureate-Level Writing requirement by successfully completing ENVS 3200: Major Environmental Writings, or ENVS 4150: Environmental Law.

Liberal Education/General Education Requirements

Students in any curriculum who successfully complete the Environmental and Sustainability Studies program will be deemed to have satisfied the criteria for Areas V, VI, and VII of the new General Education requirements (limited to 10 hours). Those
students enrolled in the Arts and Sciences LEC curriculum will be deemed to have also satisfied the second required course from the LEC core in Areas V and VI.

Second Major

Because the Program is broadly interdisciplinary, Environmental and Sustainability Studies (ENVS) is called a coordinate major; thus, students who choose ENVS are required to take a second major, chosen from any college in the University, to provide depth in a particular discipline.

Students choosing their disciplinary major from within the College of Arts and Sciences have the option, upon graduation, to select either of their two majors as their “degree” major. If Environmental and Sustainability Studies is selected, students will graduate with a Bachelor of Arts degree if their second major is in the Humanities or Social Sciences; they will graduate with a Bachelor of Science degree if that major is in the Sciences. Students choosing their disciplinary major as first degree will graduate accordingly.

Those students whose disciplinary major is in another college must graduate with their ENVS major as their second major.

In addition to satisfying all Environmental and Sustainability Studies Program requirements, students selecting Environmental and Sustainability Studies as their first major must satisfy the College of Arts and Sciences curriculum requirements as well as all University requirements. Those selecting ENVS as their second major must satisfy all requirements as designated by the College of the first major, as well as all University degree requirements.

Environmental and Sustainability Studies Major (32 hours minimum)

The Environmental and Sustainability Studies core curriculum embraces the interdisciplinary nature of environmental issues through scientific, social, and humanistic approaches to undergraduate scholarship. The curriculum envisages core themes, or Domains, that are essential to modern environmental education: the physical and biological sciences; the history of human interactions with the non-human world; the social and cultural dimensions of environmental problems; environmental thought as reflected in literature, ethics and philosophy; policy and decision-making; and practical experience.

A student may declare a major in Environmental and Sustainability Studies when the student has done the following:

1. Completed 30 hours of college work, at least 15 hours of which are at Western Michigan University.
2. Achieved an overall GPA of 2.50 or above.
3. Completed the Entry Option and the Physical Science Domain with a grade of “C” or better in each.

After completing these requirements, students must take at least one course from each of the remaining domains. All domains have a prerequisite of one of the courses in the Entry Option.

At the advanced level, undergraduates will develop interdisciplinary competency by taking advanced courses outside the ENVS core. Students will also take a senior seminar capstone course. The senior seminar will bring together ENVS undergraduates from diverse disciplinary majors, who will work in teams outside the classroom to address complex environmental problems in both theoretical and experiential modes.

Note: Because of the complexity of this course of study, students are encouraged to speak regularly with an advisor.

Entry Options (4 hours)

Any of these four courses serves as the prerequisite for all subsequent Domains.

ENVS 1100 - Nature and Society Credits: 4 hours
ENVS 3000 - Introduction to Sustainability: A Local to Global Survey Credits: 3 hours
(A minimum grade of "B" is required to count towards the Environmental and Sustainability Studies major.)
ENVS 3000 - The Honors Cluster section is also applicable.
GEOG 1000 - World Ecological Problems and Man Credits: 4 hours
(A minimum grade of "B" is required to count towards the Environmental and Sustainability Studies major.)

**Physical Science Domain (3 hours)**
- ENVS 2150 - Environmental Systems and Cycles  Credits: 3 hours
- GEOS 2320 - Integrated Earth System Studies  Credits: 3 hours

**Biological Science Domain (4 hours)**
- BIOS 1050 - Environmental Biology  Credits: 3 hours
- Honors Section Only
  - (BIOS 1050 must be taken with ENVS 2260 for 4 credit hours total)
- BIOS 3010 – Ecology  Credits: 5 hours
- ENVS 2250 - Environmental Ecology  Credits: 3 hours
- ENVS 2260 - Field Environmental Ecology  Credits: 1 hour

**Historical Domain (3 hours)**
- HIST 3180 - American Environmental History  Credits: 3 hours

**Cultural and Societal Domain (3 hours)**
- ENVS 3600 - Environment and Culture  Credits: 3 hours

**Environmental Thought Domain (3 hours)**
- ENVS 3200 - Major Environmental Writings  Credits: 3 hours

**Policy Domain (4 hours)**
- ENVS 3400 - Environmental Policy  Credits: 4 hours

**Capstone Experience (3 hours)**
- ENVS 4500 - Senior Seminar in Environmental Studies  Credits: 3 hours
- GEOS 5500 – Environmental Field Geochemistry  Credits: 3 hours

**Interdisciplinary Competency (6 hours) (two courses)**
Students must demonstrate competency in advanced fields of knowledge and practice outside the ENVS core. Students must choose, in consultation with a Program advisor, two approved courses emphasizing instruction in and application of advanced research methods, within a discipline of their choosing. A minimum of two separate courses must be taken to satisfy the competency requirement, with a minimum total of six hours accumulated credit for both courses. No more than one course of the two may be taken in the same area as the student's disciplinary major.

Examples of suitable courses that will fulfill the Competency requirement within the following disciplines are shown below. Other disciplines and their courses will be added to this list as they are deemed appropriate by the ENVS faculty.

**Natural Sciences Area**

*Environmental Studies*
- ENVS 4010 - Selected Environmental Topics  Credits: 3 hours
- ENVS 4100 - Appropriate Technologies and Sustainability  Credits: 3 hours
- ENVS 4150 - Environmental Law  Credits: 3 hours (not if PSCI 4240 is taken)

*Biological Sciences*
- BIOS 4560 - Tropical Biology  Credits: 3 hours
- BIOS 4990 - Independent Research in Biological Sciences  Credits: 1 to 4 hours
- BIOS 5440 - Global Change Ecology  Credits: 3 hours
- BIOS 5555 - Freshwater Ecology  Credits: 4 hours
- BIOS 5970 - Topics in Biological Sciences  Credits: 3 to 4 hours

*Chemistry*
CHEM 2250 - Quantitative Analysis  Credits: 3 hours (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 2260 - Quantitative Analysis Laboratory  Credits: 1 hour (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 3700 - Introduction to Organic Chemistry  Credits: 3 hours (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 3710 - Introduction to Organic Chemistry Lab  Credits: 1 hour (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 4300 - Physical Chemistry I  Credits: 3 hours (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 4360 - Physical Chemistry Laboratory I  Credits: 2 hours (Course may not be used to satisfy this competency requirement if the student's coordinate major is Chemistry.)
CHEM 5090 - Topics in Chemistry  Credits: 3 hours
CHEM 5900 - Special Problems in Chemistry  Credits: 2 hours

Geography
GEOG 5010 - Introduction to Geographic Information Systems  Credits: 4 hours
GEOG 5440 - Studies in Economic Geography  Credits: 2 to 3 hours
GEOG 5570 - Environmental Impact Assessment  Credits: 3 hours
GEOG 5820 - Remote Sensing of the Environment  Credits: 4 hours

Geosciences
GEOS 5230 - Hazardous Waste Operation and Emergency Response  Credits: 1 hour
GEOS 5240 - Remediation Design and Implementation  Credits: 1 hour
GEOS 5250 - Surface Geophysics  Credits: 1 hour
GEOS 5260 - Principles and Practices of Aquifer Testing  Credits: 1 hour
GEOS 5270 - Principles of Well Drilling and Installation  Credits: 1 hour
GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring  Credits: 1 hour
GEOS 5550 - Introduction to Geochemistry  Credits: 3 hours
GEOS 5600 - Introduction to Geophysics  Credits: 3 hours

Statistics
STAT 5630 - Sample Survey Methods  Credits: 3 hours
STAT 5650 - Design of Experiments of Quality Improvement  Credits: 3 hours
STAT 5670 - Statistical Design and Analysis of Experiments  Credits: 4 hours

Social Sciences Area

Anthropology
ANTH 4500 - Primate Behavior and Ecology  Credits: 3 hours
ANTH 4800 - Garbage: Humans and their Refuge  Credits: 3 hours
ANTH 4900 - Archaeological Field School  Credits: 6 hours
ANTH 5010 - The Rise of Civilization  Credits: 3 hours
ANTH 5220 - Poverty, Power, and Privilege  Credits: 3 hours

Economics
ECON 3190 - Environmental Economics  Credits: 3 hours

History
HIST 4100 - Historic Preservation  Credits: 3 hours

Political Science
PSCI 4050 - Public Policy and the Economy  Credits: 3 hours
PSCI 4240 - Environmental Law  Credits: 3 hours (not if ENVS 4150 is taken)

Sociology
Freshwater Science and Sustainability Major (92 hours)

The freshwater science and sustainability major is an interdisciplinary and integrative program that provides students with the scientific knowledge and skills to: 1) understand and research freshwater ecosystems, including biology, chemistry, hydrology, limnology, resource management and flow processes, and 2) integrate scientific research with the environmental, social and economic issues of sustainable management. The program fosters an understanding of both the core principles within and the intersections between three pillars of sustainability, environmental, social and economic systems, with a particular emphasis on freshwater sciences. The degree will prepare students to address the complex regional, national, and global challenges related to the sustainability of freshwater resources. Because of the interdisciplinary nature of the program and the large number of credit hours required, this program does not require students to have a minor. Several courses (totaling 29 credits) required for the major also satisfy general education requirements.

Academic Standards
Students in this program must earn a grade of "C" or better in all courses counted toward their major.

Advising
Given the interdisciplinary nature of the program, it is very important that students work regularly with program advisors. Additionally, this program contains a number of courses that will be offered in hybrid or online formats, and that include significant fieldwork components. Please consult with a program advisor and review the schedule of courses closely when selecting your classes.

Bacalaureate-Level Writing Requirement
Students who have chosen the freshwater science and sustainability major will satisfy the Baccalaureate-Level Writing Requirement by completing the following course:
ENVS 3200 - Major Environmental Writings Credits: 3 hours

Required Courses
Introductory Courses
(Transfer student should consult the relevant transfer guides and with a program advisor to discuss specific course equivalencies. The specific course equivalencies for students entering the program from NMC are detailed in supporting materials.)

ANTH 1200 - Peoples of the World Credits: 3 hours
(Satisfies General Education Area IV)
ECON 2010 - Principles of Microeconomics Credits: 3 hours
(Satisfies General Education Area V)
OR
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
(Satisfies General Education Area V)
MATH 1110 - Algebra II Credits: 3 hours
STAT 3660 - Data Analysis for Biosciences Credits: 4 hours
(Satisfies General Education Proficiency 3)
GEOG 2250 - Introduction to Meteorology and Climatology  Credits: 4 hours
GEOS 3220 - Ocean Systems  Credits: 3 hours
(Satisfies General Education Area VII)
BIOS 1610 - Molecular and Cellular Biology  Credits: 4 hours
BIOS 1620 - Ecology and Evolution  Credits: 4 hours
CHEM 1100 - General Chemistry I  Credits: 3 hours
(Satisfies General Education Area VI)
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
(Satisfies General Education Area VI)

Sustainability Core
ANTH 3470 - Ethnicity/Multiculturalism  Credits: 3 hours
(Satisfies General Education Area III)
PHIL 3160 - Ethics in Engineering and Technology  Credits: 3 hours
(Satisfies General Education Area II)
ECON 3190 - Environmental Economics  Credits: 3 hours
ACTY 3990 - Sustainability Accounting  Credits: 3 hours
MGMT 3120 - Sustainability Operations  Credits: 3 hours
MKTG 3330 - Sustainability Marketing  Credits: 3 hours
ENVS 2150 - Environmental Systems and Cycles  Credits: 3 hours
ENVS 2250 - Environmental Ecology  Credits: 3 hours
ENVS 3000 - Introduction to Sustainability: A Local to Global Survey  Credits: 3 hours
(Satisfies General Education Area VII)
ENVS 3400 - Environmental Policy  Credits: 4 hours
GEOG 3500 - Conservation and Environmental Management  Credits: 3 hours
(Satisfies General Education Area VII)

Freshwater Core
BIOS 5535 - Freshwater Ecology Credits: 4 hours
BIOS 5545 - Human Impact on Great Lakes Ecosystem Credits: 3 hours
OR
GEOG 5530 - Water Resources Management Credits: 3 hours
ENVS 5400 - Freshwater Policy Credits: 3 hours

Freshwater Science Elective Courses
A minimum of 12 credit hours should be chosen from any of the following courses:
BIOS 4990 - Independent Research in Biological Sciences  Credits: 1 to 4 hours
BIOS 5440 - Global Change Ecology  Credits: 3 hours
BIOS 5970 - Topics in Biological Sciences  Credits: 3 to 4 hours
BIOS 5525 - Fish Biology  Credits: 3 hours
GEOG 4120 - Professional Practice  Credits: 1 to 3 hours
GEOG 5550 - Contemporary Issues in Resources Management  Credits: 3 hours
GEOG 5570 - Environmental Impact Assessment  Credits: 3 hours
GEOG 5630 - Surveying Techniques  Credits: 4 hours
GEOS 5090 - Surface Water Hydrology  Credits: 3 hours
GEOS 5120 - Principles of Hydrogeology  Credits: 3 hours
GEOS 5230 - Hazardous Waste Operation and Emergency Response  Credits: 1 hour
GEOS 5240 - Remediation Design and Implementation  Credits: 1 hour
GEOS 5270 - Principles of Well Drilling and Installation  Credits: 1 hour
GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring  Credits: 1 hour
GEOS 5500 - Environmental Field Geochemistry  Credits: 3 hours

Environmental and Sustainability Studies Minor (18 hours minimum)
This minor is offered to students who seek insight into the nature of the environment and into the complexity of environmental problems, but who do not have time to be a major.

**Entry Options (4 hours minimum)**
- ENVS 1100 - Nature and Society Credits: 4 hours
- ENVS 3000 - Introduction to Sustainability: A Local to Global Survey Credits: 3 hours (The Honors Cluster section is also applicable)

**Domains**
The remaining 14-15 hours will be completed by choosing not more than one elective course in each of the domains listed below. One of these elective courses must be completed in either the Biological or Physical Science domain.

*Physical Science Domain (3 hours)*
- ENVS 2150 - Environmental Systems and Cycles Credits: 3 hours
- GEOS 2320 - Integrated Earth System Studies Credits: 3 hours

*Biological Science Domain (3 hours)*
- BIOS 1050 - Environmental Biology Credits: 3 hours
  - Honors Section Only
  - (BIOS 1050 must be taken with ENVS 2260 for 4 credit hours total)
- ENVS 2260 - Field Environmental Ecology Credits: 1 hour
- BIOS 3010 - Ecology Credits: 5 hours
- ENVS 2250 - Environmental Ecology Credits: 3 hours

*Historical Domain (3 hours)*
- HIST 3180 - American Environmental History Credits: 3 hours

*Cultural and Societal Domain (3 hours)*
- ENVS 3600 - Environment and Culture Credits: 3 hours

*Environmental Thought Domain (3 hours)*
- ENVS 3200 - Major Environmental Writings Credits: 3 hours

*Policy Domain (4 hours)*
- ENVS 3400 - Environmental Policy Credits: 4 hours

Note: Students are urged to see a Program advisor early in their course work.
Gender and Women's Studies
Susan Freeman, Chair
Main Office: 3061 Moore Hall
Telephone: (269) 387-2511

Cathryn Bailey
Joetta Carr
Mariam Konaté
Ilana Nash
Jennifer Richardson

Gender and Women's Studies courses are open to all students and may fulfill General Education, Liberal Education, major/minor, and elective requirements. Gender and Women's Studies courses encourage a spirit of inquiry and teach approaches to thought and action that prepare students to function effectively in a diverse, rapidly changing society. The organizing principle of the field is the concept of gender as a social construction, especially in the context of sexual identity and race; also important are the categories of ethnicity, class, age, and nationality. Course work investigates the function of gender in societies, historically and currently, and approaches gender-related issues through multi-disciplinary and interdisciplinary methods. Gender and Women's Studies seeks to develop students' critical skills and creative potential in analyzing issues and conceiving solutions to problems regarding women and gender.

The Gender and Women's Studies major requires a minimum of thirty-one credit hours. Course work includes an interdisciplinary core consisting of an introductory course, intermediate courses focusing on particular topics, and concluding courses providing research possibilities and practical experience. Further course work is to be selected from the list of approved electives in consultation with the Gender and Women's Studies advisor.

The Gender and Women's Studies minor brings a uniquely relevant perspective to any field of study. It consists of twenty-two hours of course work, including the required Introduction to Gender and Women's Studies and other courses to be selected from Gender and Women's Studies core courses or the approved electives list.

In addition to the courses listed, students may pursue special interests and projects through independent studies, which offer variable credit hours for projects developed in consultation with the Gender and Women's Studies advisor.

Courses in Gender and Women’s Studies at the 5000-level are designed to serve advanced undergraduate and graduate students. These courses provide the most advanced work in the program and are restricted to students with 12 hours in GWS approved courses, including GWS 2000, and at least junior status. Some courses impose further prerequisites and departmental approval. The 5000-level courses are also open to graduate students.

Gender and Women's Studies Major (31 hours)
A grade of “C” or better is required in all courses in the major.

Both of the following core courses (7 hours):
GWS 2000 - Introduction to Gender and Women's Studies Credits: 4 hours
GWS 4010 - Foundations of Feminist Theory Credits: 3 hours

At least ONE of the following 3000-level courses (3 hours):
GWS 3200 - Women, Globalization and Social Change Credits: 3 hours
GWS 3700 – Special Topics in Gender and Women's Studies Credits: 3 hours
PSCI 3460 – Women in Developing Countries Credits: 4 hours

At least ONE of the following 4000-level GWS courses (3 hours):
GWS 4100 – Special Topics in Gender and Women’s Studies Credits: 3 hours
GWS 4400 - Internship Seminar Credits: 3 hours
GWS 4980 - Independent Study Credits: 1 to 4 hours
At least ONE of the following History courses (3 hours):
HIST 3160 – Women in United States History  Credits: 3 hours
HIST 3360 – Women in European History  Credits: 3 hours
HIST 4245 – Topics in U.S. History and Culture (BW)  Credits: 3 hours

Topic: U.S. Women's History

At least ONE of the following (3 hours):
AAAS 3100 – The Black Woman: Historical Perspective and Contemporary Status  Credits: 3 hours
ANTH 3090 – Archaeology of Inequality and Resistance  Credits: 3 hours
ANTH 3480 – Gender and Plastic Bodies  Credits: 3 hours
COM 4790 – Gender and Communication  Credits: 3 hours
ECON 3090 – Women and the Economy  Credits: 3 hours
PSCI 4210 – Gender and Law  Credits: 3 hours
SOC 5630 – Gender and Justice  Credits: 3 hours

Other courses that address issues associated with Gender and Women’s Studies, including those outside the College of Arts and Sciences, may also count with the approval of the Chair of Gender and Women’s Studies.

The remaining 12 hours should be taken from among the following:
GWS 1000 – Media and the Sexes  Credits: 3 hours
GWS 2010 – LGBT Studies  Credits: 3 hours
GWS 3200 – Women, Globalization and Social Change  Credits: 3 hours
GWS 3400 – Race, Gender and Science  Credits: 3 hours
GWS 3500 – Psychological Perspectives on Gender  Credits: 3 hours
GWS 3700 – Special Topics in Gender and Women’s Studies  Credits: 1 to 4 hours
GWS 4010 – Foundations of Feminist Theory  Credits: 3 hours
GWS 4100 – Special Topics in Gender and Women’s Studies  Credits: 1 to 4 hours
GWS 4400 – Internship Seminar  Credits: 3 hours
GWS 4980 – Independent Study  Credits: 1 to 4 hours
GWS 5500 – Contemporary Feminist Theory  Credits: 3 hours
GWS 5970 – Issues in Gender and Women’s Studies: Variable Topics  Credits: 1 to 3 hours
GWS 5980 – Readings in Gender and Women’s Studies  Credits: 1 to 4 hours
AAAS 3100 – The Black Woman: Historical Perspective and Contemporary Status  Credits: 3 hours
ANTH 2600 – Sex, Gender, Culture  Credits: 3 hours
ANTH 3090 – Archaeology of Inequality and Resistance  Credits: 3 hours
ANTH 3480 – Gender and Plastic Bodies  Credits: 3 hours
ANTH 5060 – The Archaeology of Gender  Credits: 3 hours
ANTH 5070 – Gender Theories  Credits: 3 hours
ANTH 5220 – Poverty, Power, and Privilege  Credits: 3 hours
ANTH 5450 – Topics in Sociocultural Anthropology  Credits: 3 hours

Topic: Feminist Theory
Topic: Women and Health

ART 5210 – Topics in Art History: Variable Topics  Credits: 3 hours

Topic: Women in Art

COM 3070 – Freedom of Expression  Credits: 3 hours
COM 4750 – Family Communication  Credits: 3 hours
COM 4790 – Gender and Communication  Credits: 3 hours
ECON 3090 – Women and the Economy  Credits: 3 hours
ENGL 4100 – Special Topics in Literature  Credits: 4 hours

Topic: American Women Poets
Topic: Images of Women in Media

ENGL 4160 – Women in Literature  Credits: 4 hours
FCS 2100 – Human Sexuality  Credits: 3 hours
FCS 3150 – Global Ecology of the Family  Credits: 3 hours
FCS 5680 – Gender, Culture, and Families  Credits: 3 hours
FREN 5100 – Topics in French and Francophone Studies  Credits: 3 hours
   Topic: Women in French Society
HIST 3160 – Women in United States History  Credits: 3 hours
HIST 3360 – Women in European History  Credits: 3 hours
HIST 4245 – Topics in U.S. History and Culture (BW)  Credits: 3 hours
   Topic: U.S. Women’s History
NUR 3550 – Perspectives in Women’s Health  Credits: 3 hours
PADM 2000 – Introduction to Nonprofit Leadership  Credits: 3 hours
PADM 3000 – Nonprofit Advancement  Credits: 3 hours
PADM 4000 – Seminar in Nonprofit Leadership  Credits: 3 hours
PHIL 3150 – Race and Gender Issues  Credits: 3 hours
PSCI 3460 – Women in Developing Countries  Credits: 4 hours
PSCI 4210 – Gender and Law  Credits: 3 hours
PSCI 4410 – Issues in International Politics  Credits: 3 hours
   Topic: Women and Politics
PSCI 5490 – Gender and Development  Credits: 3 hours
REL 3170 – Religion and Gender  Credits: 4 hours
SOC 5630 – Gender and Justice  Credits: 3 hours
SOC 5900 – Variable Topics in Sociology  Credits: 3 hours
   Topic: Women and Health

No more than 7 total hours of elective credits below the 3000 level may count toward the major.

Gender and Women's Studies Minor (22 hours)

The 2000 level introduction:
GWS 2000 – Introduction to Gender and Women's Studies  Credits: 4 hours

Electives (18 hours)
The remaining 18 hours should be taken from among the following:

GWS 1000 – Media and the Sexes  Credits: 3 hours
GWS 2010 – LGBT Studies  Credits: 3 hours
GWS 3200 – Women, Globalization and Social Change  Credits: 3 hours
GWS 3400 – Race, Gender and Science  Credits: 3 hours
GWS 3500 – Psychological Perspectives on Gender  Credits: 3 hours
GWS 3700 – Special Topics in Gender and Women’s Studies  Credits: 1 to 4 hours
GWS 4010 – Foundations of Feminist Theory  Credits: 3 hours
GWS 4100 – Special Topics in Gender and Women’s Studies  Credits: 1 to 4 hours
GWS 4400 – Internship Seminar  Credits: 3 hours
GWS 4980 – Independent Study  Credits: 1 – 4 hours
GWS 5500 – Contemporary Feminist Theory  Credits: 3 hours
GWS 5970 – Issues in Gender and Women’s Studies: Variable Topics  Credits: 1 to 3 hours
GWS 5980 – Readings in Gender and Women’s Studies  Credits: 1 to 4 hours
AAAS 3100 – The Black Woman: Historical Perspective and Contemporary Status  Credits: 3 hours
ANTH 2600 – Sex, Gender, Culture  Credits: 3 hours
ANTH 3090 – Archaeology of Inequality and Resistance  Credits: 3 hours
ANTH 5060 – The Archaeology of Gender  Credits: 3 hours
ANTH 5070 – Gender Theories  Credits: 3 hours
ANTH 5220 – Poverty, Power, and Privilege  Credits: 3 hours
ANTH 5450 – Topics in Sociocultural Anthropology  Credits: 3 hours
   Topic: Feminist Theory
   Topic: Women and Health
ART 5210 – Topics in Art History  Credits: 3 hours
   Topic: Women in Art
COM 3070 – Freedom of Expression  Credits: 3 hours
COM 4750 – Family Communication  Credits: 3 hours
COM 4790 – Gender and Communication  Credits: 3 hours
ECON 3090 – Women and the Economy  Credits: 3 hours
ENGL 4100 – Special Topics in Literature  Credits: 4 hours
  Topic: American Women Poets
  Topic: Images of Women in the Media
ENGL 4160 – Women in Literature  Credits: 4 hours
FCS 2100 – Human Sexuality  Credits: 3 hours
FCS 3150 – Global Ecology of the Family  Credits: 3 hours
FCS 5680 – Gender, Culture, and Families  Credits: 3 hours
FREN 5100 – Topics in French and Francophone Studies  Credits: 3 hours
  Topic: Women and Health
HIST 3160 – Women in United States History  Credits: 3 hours
HIST 3360 – Women in European History  Credits: 3 hours
HIST 4245 – Topics in U.S. History and Culture (BW)  Credits: 3 hours
  Topic: U.S. Women's History
NUR 3550 – Perspectives in Women's Health  Credits: 3 hours
PADM 2000 – Introduction to Nonprofit Leadership  Credits: 3 hours
PADM 3000 – Nonprofit Advancement  Credits: 3 hours
PADM 4000 – Seminar in Nonprofit Leadership  Credits: 3 hours
PHIL 3150 – Race and Gender Issues  Credits: 3 hours
PSCI 3460 – Women in Developing Countries  Credits: 4 hours
PSCI 4110 – Issues in International Politics  Credits: 3 hours
  Topic: Women and Politics
PSCI 4210 – Gender and Law  Credits: 3 hours
PSCI 5490 – Gender and Development  Credits: 3 hours
REL 3170 – Religion and Gender  Credits: 4 hours
SOC 5630 – Gender and Justice  Credits: 3 hours
SOC 5900 – Variable Topics in Sociology  Credits: 3 hours
  Topic: Women and Health
Modern geography provides understanding of the physical and socio-cultural systems of planet earth. Specialized majors prepare students for careers in community and regional planning, environmental analysis and resource management, geographic information science, tourism and travel, and geographic education. Geographic information science is a new and rapidly growing field that uses computerized databases linked to maps (cartography) and aerospace images (from satellite scans and aerial photography) to monitor, analyze, and manage government, business, and environmental issues.

Students should complete at least 14 hours of geography courses and have junior or senior standing before enrolling in 5000-level courses. Students should consult with a geography advisor early in their major to plan their program of study. Additional information is also available from the geography website, brochures, and department bulletin boards.

**Geography Major (32 hours)**

Geography is concerned with the occurrence, distribution, and interrelationships of the earth's physical and social elements. Geography is unique in that it is both a physical and social science. Our majors prepare students for employment opportunities in both the public and private sectors (in environmental analysis and management, geospatial technologies, and economic analysis) and for graduate study in law, management, urban and regional planning, education, and other biophysical and social sciences, as well as in geography.

**Required Core (18 hours)**

- GEOG 1050 - Physical Geography Credits: 4 hours
- GEOG 2050 - Human Geography Credits: 3 hours
- GEOG 2650 - Introduction to Geospatial Technologies Credits: 3 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems Credits: 4 hours
- GEOG 3030 - Geographic Inquiry Credits: 4 hours

(Satisfies Baccalaureate-Level Writing requirement.)

**Concentration Requirements (6 - 8 hours)**

Students should select from one or more of the following concentrations:

**Climatology Requirements (7 hours)**

- GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
- GEOG 4250 - Climatology Credits: 3 hours

**Environmental Analysis and Resource Management (6 hours)**

- GEOG 3500 - Conservation and Environmental Management Credits: 3 hours
- GEOG 5570 - Environmental Impact Assessment Credits: 3 hours
Geographic Information Science (7-8 hours)
GEOG 5820 - Remote Sensing of the Environment Credits: 4 hours

And one of the following GIS classes:
GEOG 4670 - GIS Projects and Programming Credits: 3 hours
GEOG 4685 - Internet GIS Credits: 3 hours
GEOG 5690 - Geodatabase Design and GIS Workflows Credits: 4 hours

Economic and Regional Geography (6 hours)
GEOG 2440 - Economic Geography Credits: 3 hours

And one of the following regional geography classes:
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 3810 - South America Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean Credits: 3 hours
GEOG 3830 - Geography of Europe Credits: 3 hours
GEOG 3860 - Geography of Africa Credits: 3 hours
GEOG 3890 - Monsoon Asia Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Lands and Cultures Credits: 3 hours

Electives (6 - 8 hours)
The remaining 6 to 8 hours may be selected from any of those listed above or any other geography course offered at the 2000-level or above as approved by the Department of Geography undergraduate advisor.

Community and Regional Planning (CORP) (69 hours)
The B.S. in Community and Regional Planning program prepares students to be professional planners who have strong foundations in theory and practice of urban and regional planning with particular focus on small cities and their regional communities. Prospective students will complete 32 credits of core courses in planning theory, history, techniques, methods, ethics, law, and administration. In addition, they will complete 25 credits of required courses from cognate social science disciplines and statistics, to gain additional knowledge and skills relevant to planning. After that students will take 12 elective credits in one of the following areas: environmental analysis and resource management, local economic development, tourism development and planning, local government, and application of geographic techniques to planning. Students will also have the opportunity to gain pre-professional practical experience through internships. There will be no minor required for the program.

Required Core Courses (32 hours)
CORP 2560 - Introduction to Community and Regional Planning Credits: 3 hours
CORP 3000 - History and Theory of Planning Credits: 3 hours
GEOG 3010 - Fundamentals of Geographic Information Systems Credits: 4 hours
CORP 3030 - Planning Inquiry Credits: 4 hours
(Satisfies Baccalaureate-Level Writing requirement)
CORP 3040 - Methods of Planning Analysis Credits: 3 hours
CORP 4030 - Planning Law and Administration Credits: 3 hours
CORP 4120 - Professional Practice (Internship) Credits: 3 hours
CORP 4560 - Seminar in Community and Regional Planning Credits: 3 hours
CORP 5580 - Planning Studio Credits: 3 hours
CORP 5700 - Cities and Urban Systems Credits: 3 hours

Required From Outside Planning (25 hours)
ECON 2010 - Principles of Microeconomics Credits: 3 hours
ECON 2020 - Principles of Macroeconomics Credits: 3 hours
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2440 - Economic Geography  Credits: 3 hours
GEOG 2650 - Introduction to Geospatial Technologies  Credits: 3 hours
PSCI 3000 - Urban Politics in the United States  Credits: 3 hours

And one of the following:
STAT 2160 - Business Statistics  Credits: 3 hours or
STAT 2600 - Data Analysis Using R  Credits: 4 hours or
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours

Electives (12 hours)
ECON 3190 - Environmental Economics  Credits: 3 hours
ECON 5880 - Economic Development  Credits: 3 hours
GEOG 3100 - Introduction to Tourism  Credits: 3 hours
GEOG 3500 - Conservation and Environmental Management  Credits: 3 hours
GEOG 4080 - Tourism Marketing  Credits: 3 hours
GEOG 4180 - Tourism Planning and Development  Credits: 3 hours
CORP 5430 - Transportation Planning  Credits: 3 hours
GEOG 5440 - Studies in Economic Geography  Credits: 3 hours
GEOG 5530 - Water Resources Management  Credits: 3 hours
CORP 5540 - Outdoor Recreation: Resources and Planning  Credits: 3 hours
GEOG 5570 - Environmental Impact Assessment  Credits: 3 hours
GEOG 5670 - Spatial Analysis  Credits: 3 hours
GEOG 5690 - Geodatabase Design and GIS Workflows  Credits: 4 hours
GEOG 5820 - Remote Sensing of the Environment  Credits: 4 hours
HIST 3240 - Everyday Life in America  Credits: 3 hours
HIST 4100 - Historic Preservation  Credits: 3 hours
PADM 2000 - Introduction to Nonprofit Leadership  Credits: 3 hours
PADM 3000 - Nonprofit Advancement  Credits: 3 hours
PADM 4000 - Seminar in Nonprofit Leadership  Credits: 3 hours
PADM 3100 - Internship in Nonprofit Leadership  Credits: 1 to 8 hours
PADM 5830 - Grant Writing for Nonprofit Organizations  Credits: 3 hours
PADM 5840 - Promoting Nonprofit Organizations  Credits: 3 hours
PSCI 2020 - State and Local Government  Credits: 4 hours
PSCI 3040 - Introduction to Public Policy  Credits: 3 hours
PSCI 3060 - Environmental Politics  Credits: 4 hours

This major does not require a minor, but students may choose additional electives outside the above list with the help of the Undergraduate Advisor.

Tourism And Travel Major (32 hours)

The Tourism major is designed for students planning to pursue careers in the tourism industry. The major is composed of 16 credit hours of required core courses; at least three elective courses; and one of the following: a professional internship, a research experience, or a study abroad experience.

Required (20 hours)
GEOG 1000 - World Ecological Problems and Man  Credits: 4 hours
GEOG 1050 - Physical Geography  Credits: 4 hours
GEOG 2050 - Human Geography  Credits: 3 hours
GEOG 3100 - Introduction to Tourism  Credits: 3 hours
GEOG 4080 - Tourism Marketing  Credits: 3 hours
(Satisfies Baccalaureate-Level Writing requirement)
GEOG 4180 - Tourism Planning and Development  Credits: 3 hours

Electives (3 – 4 courses)
You may enroll for up to two regional geography courses. Select additional elective courses to complete the major from the list below. Other elective courses may be permissible with the consent of the undergraduate advisor. Consult with the Tourism advisor about your plan.

Regional Geography Courses
GEOG 3800 - United States and Canada Credits: 3 hours
GEOG 3810 - South America Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean Credits: 3 hours
GEOG 3830 – Geography of Europe Credits: 3 hours
GEOG 3860 – Geography of Africa Credits: 3 hours
GEOG 3890 - Monsoon Asia Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Lands and Cultures Credits: 3 hours

Other Courses
CORP 2560 - Introduction to Community and Regional Planning Credits: 3 hours
CORP 5540 - Outdoor Recreation: Resources and Planning Credits: 3 hours
GEOG 1020 - World Geography through Media and Maps Credits: 3 hours
GEOG 2440 - Economic Geography Credits: 3 hours
GEOG 2650 – Introduction to Geospatial Technologies Credits: 3 hours
GEOG 3010 – Fundamentals of Geographic Information Systems Credits: 4 hours
GEOG 3030 – Geographic Inquiry Credits: 4 hours
GEOG 3200 - Culinary Tourism Credits: 3 hours
GEOG 5000 - Advanced Tourism Studies Credits: 3 hours

Non-Classroom Experience
You must enroll in one of the following non-classroom experiences:
GEOG 4120 - Professional Practice Credits: 1 to 3 hours
GEOG 5970 – Independent Study Credits: 3 hours
INTL 3300 - Education Abroad-WMU Programs Credits: 1 to 16 hours

Note: The following minors are recommended to accompany the major concentration in Tourism and Travel: World Language, Communication, Journalism, English (Rhetoric and Writing Studies), History, Public History, Global and International Studies, Marketing, Advertising, Real Estate, General Business, or Event Planning.

Geography Minor (20 hours)

Required Core Courses (6 to 7 hours)
GEOG 1050 - Physical Geography Credits: 4 hours or
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 2650 – Introduction to Geospatial Technology Credits: 3 hours

Remaining (13 to 14 hours)
Students select the remaining 13-14 hours will be selected with the consent of your advisor. There are no specific courses which you must take.

Geography Minor (with Social Studies major) (24-25 hours)

The Geography Minor (with Social Studies major) requires the course of study indicated below. Students must complete the Social Studies major to fulfill the requirements of this minor.

Required Core (15-16 hours)
GEOG 2650 - Introduction to Geospatial Technologies Credits: 3 hours
GEOG 3110 - Geography of Michigan Credits: 3 hours
Select either:
Since GEOG 1050 or GEOG 2050 is required for the Social Studies Major, the other course not already taken will be required for the Geography minor (with Social Studies major).

GEOG 1050 - Physical Geography  Credits: 4 hours
GEOG 2050 - Human Geography  Credits: 3 hours

Electives
Beyond the required courses, the geography teaching minor requires three additional courses in Geography at or above the 2000-level for a total of 24-25 hours.

Courses By Topic –

Systematic Geography
GEOG 1000 - World Ecological Problems and Man  Credits: 4 hours
GEOG 1020 - World Geography Through Media and Maps  Credits: 3 hours
GEOG 1050 - Physical Geography  Credits: 4 hours
GEOG 2050 - Human Geography  Credits: 3 hours
GEOG 2250 - Introduction to Meteorology and Climatology  Credits: 4 hours
GEOG 2440 - Economic Geography  Credits: 3 hours
GEOG 3060 - Climate Change: Atmospheric Perspectives  Credits: 3 hours
GEOG 3100 - Introduction to Tourism  Credits: 3 hours
GEOG 3500 - Conservation and Environmental Management Credits: 3 hours
GEOG 4080 - Tourism Marketing  Credits: 3 hours
GEOG 4180 - Tourism Planning and Development  Credits: 3 hours
GEOG 4240 - Biogeography  Credits: 3 hours
GEOG 4260 - Natural Disasters and Risk Management  Credits: 3 hours
GEOG 5440 - Studies in Economic Geography  Credits: 2 to 3 hours
GEOG 5450 - Studies in Human Geography  Credits: 2 to 3 hours
GEOG 5530 - Water Resources Management  Credits: 3 hours
GEOG 5550 - Contemporary Issues in Resources Management  Credits: 3 hours
GEOG 5570 - Environmental Impact Assessment  Credits: 3 hours

Regional Geography
GEOG 3110 - Geography of Michigan  Credits: 3 hours
GEOG 3800 - United States and Canada  Credits: 3 hours
GEOG 3810 - South America  Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean  Credits: 3 hours
GEOG 3830 – Geography of Europe  Credits: 3 hours
GEOG 3860 – Geography of Africa  Credits: 3 hours
GEOG 3890 - Monsoon Asia  Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Lands and Cultures  Credits: 3 hours

Geographic Methodology and Research
GEOG 2650 - Introduction to Geospatial Technologies  Credits: 3 hours
GEOG 3030 - Geographic Inquiry  Credits: 4 hours
GEOG 3100 - Introduction to Tourism  Credits: 3 hours
GEOG 4120 - Professional Practice Credits: 1 to 3 hours
GEOG 4600 - Geography/Social Studies Teaching in Middle and High School  Credits: 3 hours
GEOG 5010 - Introduction to Geographic Information Systems  Credits: 4 hours
GEOG 5670 - Spatial Analysis  Credits: 3 hours
GEOG 5690 - Geodatabase Design and GIS Workflows  Credits: 4 hours
GEOG 5820 - Remote Sensing of the Environment  Credits: 4 hours
GEOG 5970 - Independent Study  Credits: 1 to 3 hours
GEOG 3010 - Fundamentals of Geographic Information Systems  Credits: 4 hours
GEOG 5630 - Surveying Techniques  Credits: 4 hours
Geosciences
Mohamed Sultan, Chair
Main Office: 1187 Rood Hall
Telephone: (269) 387-5485
Fax: (269) 387-5513

Daniel P. Cassidy
Johnson R. Haas
Duane Hampton
Stephen Kaczmarek
Alan E. Kehew
Michelle Kominz
Carla Koretsky
R. V. Krishnamurthy
Heather Petcovic
Donald (Matt) Reeves
William A. Sauck
Joyashish Thakurta

Geology Major (GELJ) (38 hours)

Required Courses

- GEOS 1300 - Physical Geology  Credits: 4 hours
- GEOS 1310 - Historical Geology  Credits: 4 hours
- GEOS 3350 – Mineralogy  Credits: 4 hours
- GEOS 4300 - Structural Geology  Credits: 3 hours
- GEOS 4350 - Sedimentation and Stratigraphy  Credits: 4 hours
- GEOS 5010 - Geologic Communications and Presentations  Credits: 1 hour
- GEOS 5430 - Petrology and Petrography  Credits: 3 hours

Select one of the following:
- ENVS 2150 – Environmental Systems and Cycles  Credits: 3 hours
- GEOS 2320 – Integrated Earth System Studies  Credits: 3 hours

Select one of the following:
- GEOS 5550 – Introduction to Geochemistry  Credits: 3 hours
- GEOS 5600 – Introduction to Geophysics  Credits: 3 hours

Complete 6 credit hours of electives from the following:
- GEOS 4320 – Geomorphology  Credits: 3 hours
  AND/OR
  Any 5000-level GEOS course(s), in consultation with the major advisor. Courses taken in fulfillment of the field requirement below, will not count toward this elective. However, additional 5000-level field courses may count toward this elective requirement.

Select 3 credit hours of field course(s) from the following:
- GEOS 5230 – Hazardous Waste Operation and Emergency Response  Credits: 1 hour
- GEOS 5240 – Remediation Design and Implementation  Credits: 1 hour
- GEOS 5250 – Surface Geophysics  Credits: 1 hour
- GEOS 5260 – Principles and Practices of Aquifer Testing  Credits: 1 hour
- GEOS 5270 – Principles of Well Drilling and Installation  Credits: 1 hour
- GEOS 5280 – Principles and Practices of Ground-water Sampling and Monitoring  Credits: 1 hour
- GEOS 5390 - Geologic Mapping  Credits: 3 hours
Or a field course at another university  Credits: 3 hours

Additional Information
A minimum of a “C” is required in each of the required Geology courses, and a “C” average in all cognate courses.

Baccalaureate-Level Writing Requirement
Students who have chosen the Geology major will satisfy the Baccalaureate-Level Writing requirement by successfully completing one of the following courses:
GEOS 4320 - Geomorphology  Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy  Credits: 4 hours

Cognate Required Courses
CHEM 1100 - General Chemistry I  Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
CHEM 1120 - General Chemistry II  Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour

Select one of the following (3-4 hours):
BIOS 1050 – Environmental Biology  Credits: 3 hours or
BIOS 1120 - Principles of Biology  Credits: 3 hours
or as arranged by advisor

Computational Tools: Select one of the following two options (4 hours)
CS 1110 - Computer Science I  Credits: 4 hours
GEOG 3010 - Fundamentals of Geographic Information Systems  Credits: 4 hours

Select Either
MATH 1220 - Calculus I  Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours

Select Either
MATH 1230 - Calculus II  Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours

Select Either
PHYS 1130 - General Physics I  Credits: 4 hours
PHYS 1140 - General Physics I Laboratory  Credits: 1 hour
and
PHYS 1150 - General Physics II  Credits: 4 hours
PHYS 1160 - General Physics II Laboratory  Credits: 1 hour
OR
PHYS 2050 – University Physics I  Credits: 4 hours
PHYS 2060 – University Physics I Laboratory  Credits: 1 hour
and
PHYS 2070 – University Physics II  Credits: 4 hours
PHYS 2080 – University Physics II Laboratory  Credits: 1 hour

Additional Information
Some modification of these requirements may be made in consultation with the student's departmental advisor.

Note: Geology majors should elect minors in mathematics, computer science, chemistry, physics, or biology. Students electing one of the above minors must still complete all other cognate required courses. Students not electing one of the above minors may elect the group science minor for Geology majors.

Earth Science Education Major (40 hours)
The Earth Science education major is designed to prepare students to teach in the areas of earth science, environmental science, astronomy, and oceanography in middle and high schools (grades 8-12). A minor in another secondary science education program (biology, chemistry, physics, or integrated science) or math education is strongly recommended.

No grade below a "C" will be accepted in the required courses. A "C" average must be obtained across all cognate requirements.

**Required Courses (40 hours)**
- GEOG 2250 - Introduction to Meteorology and Climatology  
  Credits: 4 hours
- GEOS 1300 - Physical Geology  
  Credits: 4 hours
- GEOS 1310 - Historical Geology  
  Credits: 4 hours
- GEOS 2320 - Integrated Earth System Studies  
  Credits: 3 hours
- GEOS 3010 - Minerals and Rocks  
  Credits: 4 hours
- GEOS 3220 - Ocean Systems  
  Credits: 3 hours
- GEOS 4380 - Field Studies in Geology  
  Credits: 3 hours
- GEOS 4500 - Teaching & Learning Earth Science  
  Credits: 4 hours
- PHYS 1030 - Sky and Solar System Laboratory  
  Credits: 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System  
  Credits: 3 hours
- PHYS 1050 - Stars and Galaxies Laboratory  
  Credits: 1 hour
- PHYS 1060 - Introduction to Stars and Galaxies  
  Credits: 3 hours
- SCI 4040 - Teaching of Secondary Science  
  Credits: 3 hours

**Required Cognate Courses (17 hours)**
- CHEM 1100 - General Chemistry I  
  Credits: 3 hours
- CHEM 1110 - General Chemistry Laboratory I  
  Credits: 1 hour
- PHYS 1070 - Elementary Physics  
  Credits: 4 hours
- PHYS 1080 - Elementary Physics Laboratory  
  Credits: 1 hour

Or
- PHYS 1130 - General Physics I  
  Credits: 4 hours
- PHYS 1140 - General Physics I Laboratory  
  Credits: 1 hour
- GEOG 1050 - Physical Geography  
  Credits: 4 hours
- MATH 1180 - Precalculus Mathematics  
  Credits: 4 hours

**Baccalaureate-Level Writing Requirement**
Students who have chosen the Earth Science Education major will satisfy the Baccalaureate-Level Writing requirement by successfully completing the following course:
- ES 3950 - School and Society  
  Credits: 3 hours

**Earth Science Major (36 hours)**

The Earth Science major program is a flexible course of instruction for students desiring a broad understanding of the earth and environmental processes. The program is interdisciplinary in nature and offers students an opportunity to select approved courses from several science departments, including Geosciences, Engineering, Biological Sciences, Geography, Chemistry, and Physics. Courses are selected in consultation with the earth science advisor to design programs that are tailored to the individuals' needs and professional objectives. Elective courses must be approved by the advisor.

The Earth Science major is not recommended as a stand alone major. It should be undertaken by students who are taking a double major (e.g., Environmental Science, Law, Business, Engineering, etc.).

For employment in geosciences with this degree alone, as many as possible of the following geoscience classes are highly recommended (note many of these classes have prerequisites beyond those in this major so you must plan ahead):
- GEOS 4320 – Geomorphology  
  Credits: 3 hours
- GEOS 5120 – Principles of Hydrogeology  
  Credits: 3 hours
- GEOS 5210 – Geological and Environment Remote Sensing  
  Credits: 4 hours
GEOS 5230 – Hazardous Waste Operation and Emergency Response Credits: 1 hour
GEOS 5240 – Remediation Design and Implementation Credits: 1 hour
GEOS 5250 – Surface Geophysics Credits: 1 hour
GEOS 5260 – Principles and Practices of Aquifer Testing Credits: 1 hour
GEOS 5270 – Principles of Well Drilling and Installation Credits: 1 hour
GEOS 5280 – Principles and Practices of Ground-water Sampling and Monitoring Credits: 1 hour
GEOS 5350 – GIS Applications in Geological and Environmental Sciences Credits: 3 hours
GEOS 5550 – Introduction to Geochemistry Credits: 3 hours
GEOS 5600 – Introduction to Geophysics Credits: 3 hours

Required Courses
GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours
GEOS 2320 – Integrated Earth System Studies Credits: 3 hours
GEOS 4380 - Field Studies in Geology Credits: 3 hours
GEOS 5010 - Geologic Communications and Presentations Credits: 1 hour

Select one of the following:
GEOS 3010 – Minerals and Rocks Credits: 4 hours
GEOS 3350 – Mineralogy Credits: 4 hours

Electives
Seventeen (17) hours must be selected in consultation with the advisor. A minimum of six (6) elective hours for the major must be taken in the Geosciences Department.

Required Cognate Courses For The Major
A College-Level Chemistry Course
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour

A College-Level Physics Course
PHYS 1070 - Elementary Physics Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour

And
MATH 1180 - Precalculus Mathematics Credits: 4 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the Earth Science Major will satisfy the Baccalaureate-Level Writing requirement by successfully completing one of the following courses:
GEOS 4320 - Geomorphology Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy Credits: 4 hours

Geochemistry Major (67 hours) (Geosciences) (GCMJ)

The Geosciences and Chemistry Departments offer a program of study leading to a major in geochemistry. Students choosing this major will not be required to complete an additional minor. The geochemistry major is designed to meet the needs of students preparing for a professional career in geochemistry or environmental chemistry. Students contemplating a geochemistry major should contact the Geosciences Department as early as possible for advising.

Geosciences Core (19 hours)
GEOS 1300 - Physical Geology Credits: 4 hours
GEOS 1310 - Historical Geology Credits: 4 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 2320</td>
<td>Integrated Earth System Studies</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 3350</td>
<td>Mineralogy</td>
<td>4 hours</td>
</tr>
<tr>
<td>GEOS 5010</td>
<td>Geologic Communications and Presentations</td>
<td>1 hour</td>
</tr>
<tr>
<td>GEOS 5550</td>
<td>Introduction to Geochemistry</td>
<td>3 hours</td>
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</table>

**Chemistry Core (12 hours)**

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<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 1100</td>
<td>General Chemistry I</td>
<td>3 hours</td>
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<tr>
<td>CHEM 1110</td>
<td>General Chemistry Laboratory I</td>
<td>1 hour</td>
</tr>
<tr>
<td>CHEM 1120</td>
<td>General Chemistry II</td>
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<tr>
<td>CHEM 1130</td>
<td>General Chemistry Laboratory II</td>
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</tr>
<tr>
<td>CHEM 2250</td>
<td>Quantitative Analysis</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHEM 2260</td>
<td>Quantitative Analysis Laboratory</td>
<td>1 hour</td>
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</tbody>
</table>

**Math Core (8 hours)**

Either

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 1220</td>
<td>Calculus I</td>
<td>4 hours</td>
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<tr>
<td>MATH 1700</td>
<td>Calculus I, Science and Engineering</td>
<td>4 hours</td>
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and

Either

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 1230</td>
<td>Calculus II</td>
<td>4 hours</td>
</tr>
<tr>
<td>MATH 1710</td>
<td>Calculus II, Science and Engineering</td>
<td>4 hours</td>
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</table>

**Geosciences Electives (Choose at least 9 hours)**

An approved field course (up to 3 hrs. total)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOS 4350</td>
<td>Sedimentation and Stratigraphy</td>
<td>4 hours</td>
</tr>
<tr>
<td>GEOS 5020</td>
<td>Problems in Geology and Earth Science</td>
<td>1 to 3 hours</td>
</tr>
<tr>
<td>GEOS 5060</td>
<td>Introduction to Soils</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 5120</td>
<td>Principles of Hydrogeology</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 5280</td>
<td>Principles and Practices of Ground-water Sampling and Monitoring</td>
<td>1 hour</td>
</tr>
<tr>
<td>GEOS 5430</td>
<td>Petrology and Petrography</td>
<td>3 hours</td>
</tr>
<tr>
<td>GEOS 5450</td>
<td>Hazardous Waste Remediation</td>
<td>3 hours</td>
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</table>

**Chemistry Electives (Choose at least 8 hours)**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CHEM 3700</td>
<td>Introduction to Organic Chemistry</td>
<td>3 hours</td>
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<tr>
<td>CHEM 3710</td>
<td>Introduction to Organic Chemistry Lab</td>
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<tr>
<td>CHEM 3750</td>
<td>Organic Chemistry I</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHEM 3760</td>
<td>Organic Chemistry Lab I</td>
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<tr>
<td>CHEM 3770</td>
<td>Organic Chemistry II</td>
<td>3 hours</td>
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<td>CHEM 3780</td>
<td>Organic Chemistry Lab II</td>
<td>1 hour</td>
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<tr>
<td>CHEM 4300</td>
<td>Physical Chemistry I</td>
<td>3 hours</td>
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<tr>
<td>CHEM 4310</td>
<td>Physical Chemistry II</td>
<td>3 hours</td>
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<tr>
<td>CHEM 4360</td>
<td>Physical Chemistry Laboratory I</td>
<td>2 hours</td>
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<td>CHEM 4370</td>
<td>Physical Chemistry Laboratory II</td>
<td>1 hour</td>
</tr>
<tr>
<td>CHEM 5090</td>
<td>Topics in Chemistry</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHEM 5200</td>
<td>Instrumental Methods in Chemistry</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHEM 5500</td>
<td>Biochemistry I</td>
<td>3 hours</td>
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</table>

**Math and General Sciences Electives (Choose at least 11 hours) (hours cannot all be in the same department)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOS 2320</td>
<td>Microbiology and Infectious Diseases</td>
<td>4 hours</td>
</tr>
<tr>
<td>BIOS 3010</td>
<td>Ecology</td>
<td>5 hours</td>
</tr>
<tr>
<td>MATH 2720</td>
<td>Multivariate Calculus and Matrix Algebra</td>
<td>4 hours</td>
</tr>
<tr>
<td>MATH 3740</td>
<td>Differential Equations and Linear Algebra</td>
<td>4 hours</td>
</tr>
<tr>
<td>PHYS 2050</td>
<td>University Physics I</td>
<td>4 hours</td>
</tr>
<tr>
<td>PHYS 2060</td>
<td>University Physics I Laboratory</td>
<td>1 hour</td>
</tr>
<tr>
<td>PHYS 2070</td>
<td>University Physics II</td>
<td>4 hours</td>
</tr>
<tr>
<td>PHYS 2080</td>
<td>University Physics II Laboratory</td>
<td>1 hour</td>
</tr>
</tbody>
</table>
PHYS 3300 - Thermodynamics  Credits: 3 hours  
STAT 3640 - Foundations of Data Analysis  Credits: 4 hours

Notes: Either CHEM 3700/3710 or CHEM 3750-3780 will count toward the major an outside geology field camp is strongly recommended.

Geophysics Major (GEPJ) (43 to 45 hours) (Geosciences)

The Geosciences and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study are also required to take mathematics courses, which correspond to a minor in mathematics. Students contemplating a geophysics major should contact the Geosciences and Physics Departments as early as possible for advising. Students need to meet with advisors in both departments.

Major Core: (40 to 41 hours)

Geosciences (GEOS) (22 hours)
GEOS 1300 - Physical Geology  Credits: 4 hours  
GEOS 1310 - Historical Geology  Credits: 4 hours  
GEOS 4300 - Structural Geology  Credits: 3 hours  
GEOS 5010 - Geologic Communications and Presentations  Credits: 1 hour  
GEOS 5390 - Geologic Mapping  Credits: 3 hours  
GEOS 5600 - Introduction to Geophysics  Credits: 3 hours

Select one of the following two core courses:  
GEOS 3010 - Minerals and Rocks  Credits: 4 hours  
GEOS 3350 - Mineralogy  Credits: 4 hours

Physics (PHYS) (18 to 19 hours)
PHYS 2050 – University Physics I  Credits: 4 hours  
PHYS 2060 – University Physics I Laboratory  Credits: 1 hour  
PHYS 2070 – University Physics II  Credits: 4 hours  
PHYS 2080 - University Physics II Laboratory  Credits: 1 hour  
PHYS 3090 – Introductory Modern Physics  Credits: 4 hours  
PHYS 3100 – Introductory Modern Physics Lab  Credits: 1 hour

One of the following  
PHYS 2500 - Waves and Optics  Credits: 3 hours  
PHYS 3250 - Introduction to Astrophysics  Credits: 3 hours  
PHYS 3300 - Thermodynamics  Credits: 3 hours  
PHYS 3420 - Electronics  Credits: 4 hours  
PHYS 4400 - Electromagnetism  Credits: 4 hours

Electives: (3 to 4 hours)  
One elective from upper-level geosciences, physics, and engineering courses to be chosen with consent of advisor (3-4 hours).

Additional Information
A minimum grade of “C” is required in each of the required courses as well as in each of the prerequisites for all required courses.

Required Mathematics Minor (19 hours)
Select either  
MATH 1220 - Calculus I  Credits: 4 hours or  
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours (Recommended)
Select either
MATH 1230 - Calculus II  Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours (Recommended)

And
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours
MATH 5070 - Numerical Analysis I  Credits: 3 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the Geophysics major will satisfy the Baccalaureate-Level Writing requirement by successfully completing one of the following courses:
ENGL 3050 – Introduction to Professional Writing  Credits: 4 hours
GEOS 4320 - Geomorphology  Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy  Credits: 4 hours

Required Supporting Courses (7 hours)
CS 1110 - Computer Science I  Credits: 4 hours
Select Either
CHEM 1100 - General Chemistry I  Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
OR
CHEM 1120 - General Chemistry II  Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour

Hydrogeology Major (75-79 hours)
The hydrogeology major gives individuals a strong background in math and the sciences, focusing on geology and hydrogeology. This major prepares students to enter graduate programs and the job market as hydrogeologists.

Required Core:

Required Courses
A minimum of a “C” grade is required in the following courses.
GEOS 1300 - Physical Geology  Credits: 4 hours
GEOS 1310 - Historical Geology  Credits: 4 hours
GEOS 2320 - Integrated Earth System Studies  Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy  Credits: 4 hours
GEOS 5010 - Geologic Communications and Presentations  Credits: 1 hour
GEOS 5120 - Principles of Hydrogeology  Credits: 3 hours

Select one of the following two core courses:
GEOS 3010 - Minerals and Rocks  Credits: 4 hours
GEOS 3350 - Mineralogy  Credits: 4 hours

Hydrogeology Upper Level Electives (take 2 of 6):
GEOS 4300 – Structural Geology  Credits: 3 hours
GEOS 4320 – Geomorphology  Credits: 3 hours
GEOS 5060 – Introduction to Soils  Credits: 3 hours
GEOS 5090 – Surface Water Hydrogeology  Credits: 3 hours
GEOS 5140 – Isotope Hydrogeology  Credits: 3 hours
GEOS 5450 – Hazardous Waste Remediation  Credits: 3 hours

Choose two courses from the list below and/or the four not selected from the list above:
GEOS 5360 - Glacial Geology  Credits: 3 hours
GEOS 5390 - Geologic Mapping  Credits: 3 hours
Or Geology field course taken elsewhere up to 6 hours
GEOS 5550 - Introduction to Geochemistry   Credits: 3 hours
GEOS 5600 - Introduction to Geophysics   Credits: 3 hours

Hydrogeology Summer Field Courses:
GEOS 5230 - Hazardous Waste Operation and Emergency Response   Credits: 1 hour
GEOS 5240 - Remediation Design and Implementation   Credits: 1 hour
GEOS 5250 - Surface Geophysics   Credits: 1 hour (waived if GEOS 5640 is taken)
GEOS 5260 - Principles and Practices of Aquifer Testing   Credits: 1 hour
GEOS 5270 - Principles of Well Drilling and Installation   Credits: 1 hour
GEOS 5280 - Principles and Practices of Ground-water Sampling and Monitoring   Credits: 1 hour

Required Supporting Courses
CHEM 1100 - General Chemistry I   Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I   Credits: 1 hour
CHEM 1120 - General Chemistry II   Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II   Credits: 1 hour
PHYS 2050 – University Physics I   Credits: 4 hours
PHYS 2060 – University Physics I Laboratory   Credits: 1 hour
PHYS 2070 – University Physics II   Credits: 4 hours
PHYS 2080 – University Physics II Laboratory   Credits: 1 hour

Either of the following two semester sequences:
MATH 1220 - Calculus I   Credits: 4 hours
AND
MATH 1230 - Calculus II   Credits: 4 hours

OR
MATH 1700 - Calculus I, Science and Engineering   Credits: 4 hours
AND
MATH 1710 - Calculus II, Science and Engineering   Credits: 4 hours

Supporting Tool Skills—choose two courses from the list below (6 credits):
CHEM 3700 - Introduction to Organic Chemistry   Credits: 3 hours
AND
CHEM 3710 - Introduction to Organic Chemistry Lab   Credits: 1 hour
GEOG 5010 - Introduction to Geographic Information Systems   Credits: 4 hours
GEOS 5210 - Geological and Environmental Remote Sensing   Credits: 4 hours
GEOS 5350 – GIS Applications in Geological and Environmental Sciences   Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra   Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra   Credits: 4 hours
IEE 2610 - Engineering Statistics Credits: 3 hours

OR
STAT 3640 - Foundations of Data Analysis   Credits: 4 hours

Required Minor
The Group Science minor for Geology Majors is recommended. Other options include Anthropology, Data Analysis, Biological Sciences, Chemistry, Computer Science, Economics, any Foreign Language, Geography, Mathematics, and Physics, or one can take a coordinate major in Environmental Sciences.

Baccalaureate-Level Writing Requirement
Students who have chosen the Hydrogeology major will satisfy the Baccalaureate-Level Writing requirement by successfully completing one of the following:
GEOS 4320 - Geomorphology   Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy   Credits: 4 hours
Secondary Integrated Science Education Major (65-66 hours)

The Secondary Integrated Science Education major is designed for students preparing to teach science as integrated content in middle and high school (grades 6-12). This program is only available as a second major, and requires a first major in biology, chemistry, earth science, or physics secondary education. Any courses applied to the first major will be waived from this program.

No grade below a "C" will be accepted in the required courses.

Required Courses

**Required Biology (14 hours)**
- BIOS 1600 - Biological Form and Function Credits: 3 hours
- BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
- BIOS 1620 - Ecology and Evolution Credits: 4 hours
- BIOS 2500 - Genetics Credits: 4 hours

**Required Chemistry (12 hours)**
- CHEM 1100 - General Chemistry I Credits: 3 hours
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
- CHEM 1120 - General Chemistry II Credits: 3 hours
- CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
- CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours
- CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour

**Required Earth/Space Science (23 hours)**
- GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
- GEOS 1000 - Dynamic Earth Credits: 4 hours
  OR
- GEOG 1050 - Physical Geography Credits: 4 hours
- PHYS 1030 - Sky and Solar System Laboratory Credits: 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System Credits: 3 hours
- GEOS 1310 - Historical Geology Credits: 4 hours
- GEOS 2320 - Integrated Earth System Studies Credits: 3 hours
- GEOS 3010 - Minerals and Rocks Credits: 4 hours

**Required Physics (10 hours)**
- PHYS 1130 - General Physics I Credits: 4 hours
- PHYS 1140 - General Physics I Laboratory Credits: 1 hour
- PHYS 1150 - General Physics II Credits: 4 hours
- PHYS 1160 - General Physics II Laboratory Credits: 1 hour

**Required Pedagogy (6-7 hours)**
- SCI 3030 - Teaching About Scientific Inquiry and Nature of Science Credits: 3 hours
  OR
- GEOS 4500 - Teaching & Learning Earth Science Credits: 4 hours
  OR
- PHYS 4220 - Teaching and Learning in Physics Credits: 4 hours
- SCI 4040 - Teaching of Secondary Science Credits: 3 hours

**Mathematics Cognate Requirement (4 hours)**
- MATH 1180 - Precalculus Mathematics Credits: 4 hours
  OR Higher level mathematics course work
  OR STAT 3640 if pre-requisite mathematics requirements are met

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**Baccalaureate-Level Writing Requirement**
Students who have chosen the Secondary Integrated Science Education major will satisfy the General Education Proficiency 2: Baccalaureate-Level Writing requirement by successfully completing the following course:
ES 3950 - School and Society  Credits: 3 hours

**Geology Minor (21 hours)**

The Geology minor is designed as a supporting minor for students preparing to do professional work in the fields of chemistry, physics, engineering, zoology, botany, and geography. It cannot be combined with earth science as a major-minor or double minor relationship. A student may design a Geology minor for his/her specific need.

**Required Courses Hours (11 hours)**
GEOS 1300 - Physical Geology  Credits: 4 hours
GEOS 1310 - Historical Geology  Credits: 4 hours
GEOG 2320 – Integrated Earth System Studies  Credits: 3 hours

Select Either (7 hours):
GEOS 3350 - Mineralogy  Credits: 4 hours
GEOS 5430 - Petrology and Petrography  Credits: 3 hours
OR
GEOS 3010 - Minerals and Rocks  Credits: 4 hours
And one additional geology course selected with the consent of advisor.

Select (3 hours):
And one additional geology course selected with the consent of advisor.

Note: Course substitution from other Geology offerings can be made with the consent of advisor (e.g., a geography major minoring in Geology might elect Geomorphology and/or Glacial Geology).

**Group Science Minor for Geology Majors (26 hours)**

The group science minor is designed for students not electing a mathematics, chemistry, physics, or biology minor. Some modification of these requirements may be made in consultation with the student's departmental advisor. This minor is not acceptable for education majors and minors.

**Required Courses Hours**

*Biological Sciences (4 hours)*
Select either:
BIOS 1050 - Environmental Biology  Credits: 3 hours and
BIOS 1100 – Biological Sciences Laboratory  Credits: 1 hour
Or
BIOS 1120 - Principles of Biology  Credits: 3 hours and
BIOS 1100 - Biology Laboratory
Or
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours

*Chemistry (8 hours)*
CHEM 1100 - General Chemistry I  Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
CHEM 1120 - General Chemistry II  Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
Physics (10 hours)
Either
PHYS 1130 - General Physics I  Credits: 4 hours and
PHYS 1140 - General Physics I Laboratory  Credits: 1 hour and
PHYS 1150 - General Physics II  Credits: 4 hours and
PHYS 1160 - General Physics II Laboratory  Credits: 1 hour
Or
PHYS 2050 - University Physics I  Credits: 4 hours and
PHYS 2060 - University Physics I Laboratory  Credits: 1 hour and
PHYS 2070 - University Physics II  Credits: 4 hours and
PHYS 2080 - University Physics II Laboratory  Credits: 1 hour

Electives
At least 4 credit hours selected from the physical or biological sciences with approval of student's advisor.

Earth Science Minor (20 hours)

Required Courses:
GEOS 2320 - Integrated Earth System Studies  Credits: 3 hours

Select one from the following:
GEOS 1300 - Physical Geology  Credits: 4 hours
GEOS 1000 - Dynamic Earth  Credits: 4 hours

Select one from the following:
GEOS 1310 - Historical Geology  Credits: 4 hours
GEOS 1900 - Evolution of Life - A Geological Perspective  Credits: 4 hours

Electives
Nine (9) hours must be selected in consultation with the advisor. All elective hours for the minor must be taken in the Geosciences Department.
The Department of History offers several academic and professional programs with varying requirements. Students intending to major in history should meet at least once a semester with a faculty advisor in the department advising office, 4451 Friedmann, phone (269) 387-4659. For current advising hours and to schedule an appointment please visit the department's undergraduate advising home page www.wmich.edu/history/undergraduate/advising.html.

History majors lead to the degree of Bachelor of Arts. At least half of the minimum credit hour requirement for any major or minor must be earned at Western Michigan University. Only courses in which a grade of "C" or better is earned may be applied toward a major, minor, and required electives or cognates, including the last semester of requirements in a language other than English. Course work in allied social sciences and humanities is specified by curriculum. For additional information consult the Department of History Undergraduate Handbook.

The Department of History strongly encourages foreign study at one of WMU's international centers or in similar programs, and acquisition of skills in a language other than English beyond minimum program requirements. HIST 2900 is an orientation course in the historical professions, and to basic research and skills in the discipline and should be taken in the spring semester freshman year or fall semester sophomore year.

Honors in History

History majors may apply for and receive the Honors in History designation on their official transcript. At the time of application, history majors must have completed 30 credit hours in history including 6 hours in writing-intensive or 4000-level history courses. Applicants must also have completed at least 90 credit hours overall. At least half of all credit hours and all writing-intensive and 4000-level history courses used for the Honors designation must be completed at Western Michigan University. A minimum overall Western Michigan University GPA of 3.5 and a GPA of 3.75 in History is required for the Honors designation. Students must also submit the recommendation of a faculty mentor and a substantial writing
sample that shows a capacity for original thought in the interpretation, analysis, and effective communication of historical information. Additional information about the Honors in History designation and application forms may be obtained in the Department of History Advising Office, 4451 Friedmann Hall. Information is also available at the Department of History website: www.wmich.edu/history/undergraduate.

History Major (36 hours)

1. Minimum of 36 hours in history selected from categories listed below.
2. Minimum grade of “C” in all course work required for the major, including cognates.
3. Completion of 12 hours of required cognates.
4. Completion of a language through the 2010 level, by college/university course work or examination.
5. Completion of either HIST 1000 or HIST 3020 and a class selected from the following: HIST 3000, 3101, 3102, 3260, 3265, 3490, 3500, 3510, 3531, 3600, 3604, 3606, 3611, 3612, 3662, 3700, 3702, 3766, 3880, 3882, 3884.
6. Completion of at least 6 hours of “writing-intensive” courses at the 3000-level. (See the list of courses below).
7. With permission of the history faculty advisor, students may substitute advanced level (4000-level) history courses for intermediate level (3000-level) courses in the same topical area.

Major Requirements:

1. Introductory level history courses (12 hours)
   - HIST 2900 – The Historian’s Craft: An Introduction to the Study of History Credits: 3 hours
   - Select either:
     - HIST 1000 – Early Western World Credits: 3 hours or
     - HIST 1010 – Modern Western World Credits: 3 hours
   - Select either:
     - HIST 2100 – American History to 1877 Credits: 3 hours or
     - HIST 2110 – American History since 1877 Credits: 3 hours

2. Intermediate level history courses: 15 hours including at least two (6 hours) writing intensive courses.
   - 3000-level ANY AREA Credits: 3 hours
   - 3000-level ANY AREA Credits: 3 hours
   - 3000-level (Africa, Asia, Latin America, or Middle East) Credits: 3 hours
   - 3000-level (European/General) Credits: 3 hours
   - 3000-level (U.S.) Credits: 3 hours

   Writing intensive courses at the 3000-level are: HIST 3101, 3102, 3103, 3104, 3105, 3191, 3251, 3265, 3285, 3500, 3510, 3531, 3604, 3606, 3611, 3612, 3614, 3616, 3618, 3662, 3664, 3702, 3762, 3764, 3766, 3768, 3882, 3884. The prerequisite is HIST 2900 or instructor approval. Writing intensive courses are designated "(WI)" in the online schedule of classes.

3. Advanced level, baccalaureate history courses (9 hours). All 4000-level U.S., Africa, Asia, Latin America, Middle East and European history courses meet the baccalaureate-level writing requirement. Baccalaureate history courses are designated "(BW)" in the online schedule of classes. Students considering graduate school are strongly advised to select the Senior Thesis or 5000-level Seminar as one of the three required advanced level baccalaureate history courses. 4000-level prerequisite: one 3000-level writing intensive course or instructor approval.
   - 4000-level (U.S.) Credits: 3 hours
   - 4000-level (Africa, Asia, Latin America, Middle East, or European) Credits: 3 hours
   - Capstone course- select from:
Cognate Requirements:

1. Four Humanities or Social Science courses (12 hours), generally at the 3000-level that complement the area of emphasis in history. Appropriate cognates must be approved by a Department of History advisor.

2. A foreign language through the 2010-level (ir equivalency) by University course work or by examination (16 hours)

Courses meeting requirements for United States history include: HIST 3015, 3101, 3102, 3103, 3104, 3105, 3130, 3150, 3160, 3180, 3191, 3200, 3230, 3240, 3251, 3260, 3265, 3280, 3285, 3290, 4245.

Courses meeting requirements for Africa, Asia, Latin America, and Middle East history include: HIST 3020, 3030, 3325, 3330, 3700, 3702, 3760, 3762, 3764, 3766, 3768, 3790, 3850, 3880, 3882, 3884, 4825, 4845.

Course meeting requirements for European history include: HIST 3000, 3010, 3020, 3030, 3330, 3360, 3490, 3500, 3510, 3531, 3600, 3604, 3606, 3611, 3612, 3614, 3616, 3618, 3630, 3640, 3660, 3662, 3664, 4495.

Courses meeting requirements for any geographical area include: HIST 4006, 4008, 4010, 4016.

History Major-Secondary Education Curriculum

The secondary teacher preparation program complies with Guidelines for the Certification of Teachers of History established by the American Historical Association.

1. Minimum of 36 hours in history selected from categories listed below.
2. Minimum grade of “C” in all course work required for the major, including cognates.
3. Completion of 15 hours of required cognates.
4. All course work at the 3000/4000-level must be completed within 10 years of intern teaching.
5. At least one approved history course (3 hours) exploring diversity in U.S. society. Select from: HIST 3160, 3191, 3251, 3260, 3265, 3280, or 3285. Some 4000-level baccalaureate writing courses may also meet this requirement.
6. With permission of the advisor, students may substitute advanced level (4000-level) history courses for intermediate level (3000-level) courses in the same topical area, providing the student has the appropriate prerequisite.

Major Requirements:

1. Introductory level History courses (12 hours)
HIST 2900 – The Historian’s Craft: An Introduction to the Study of History Credits: 3 hours

Select either:
HIST 1000 – Early Western World Credits: 3 hours or
HIST 1010 – Modern Western World Credits: 3 hours

Select either:
HIST 2100 – American History to 1877 Credits: 3 hours or
HIST 2110 – American History since 1877 Credits: 3 hours

Select either:
HIST 3020 – World History to 1500 Credits: 3 hours or
HIST 3030 – World History since 1500 Credits: 3 hours

2. Intermediate level history courses (15 hours including at least two (6 hours) writing intensive courses).
   - 3000-level ANY AREA Credits: 3 hours
• 3000-level (Africa, Asia, Latin America, or Middle East) Credits: 3 hours
• 3000-level (European/General) Credits: 3 hours
• 3000-level (U.S.) Credits: 3 hours
• 3000-level (U.S.) Credits: 3 hours

3. Advanced level, baccalaureate history courses (9 hours). All 4000-level U.S., Africa, Asia, Latin America, Middle East and European history courses meet the baccalaureate-level writing requirement. Baccalaureate history courses are designated "(BW)" in the online schedule of classes. 4000-level prerequisite: one 3000-level writing intensive course or instructor approval.
• 4000-level (U.S.) Credits: 3 hours
• 4000-level (Africa, Asia, Latin America, Middle East, or European) Credits: 3 hours
• HIST 4940 – Teaching Methods for Secondary Schools Credits: 3 hours

Cognate Requirements (15 hours):

1. One approved course in literature selected from:
   ENGL 1120 – Literary Classics Credits: 4 hours
   ENGL 2220 – Literature and Cultures of the United States Credits: 4 hours
   ENGL 2230 – African American Literature Credits: 4 hours
   ENGL 3120 – Western World Literature Credits: 3 hours
   ENGL 3130 – Asian Literature Credits: 3 hours
   ENGL 3140 – African Literature Credits: 3 hours
   ENGL 3150 – The English Bible as Literature Credits: 3 hours

2. One approved course in economics. Select either:
   ECON 2010 – Principles of Microeconomics Credits: 3 hours or
   ECON 2020 – Principles of Macroeconomics Credits: 3 hours

3. One approved course in geography selected from:
   GEOG 1020 – World Geography Through Media and Maps Credits: 3 hours
   GEOG 1050 – Physical Geography Credits: 4 hours
   GEOG 2050 – Human Geography Credits: 3 hours

4. Two approved courses in political science. Select
   PSCI 2000 – National Government Credits: 3 hours
   And either:
   PSCI 2400 – Comparative Politics Credits: 3 hours or
   PSCI 2500 – International Relations Credits: 3 hours

Writing intensive courses at the 3000-level are: HIST 3101, 3102, 3103, 3104, 3105, 3191, 3251, 3265, 3285, 3500, 3510, 3531, 3604, 3606, 3611, 3612, 3614, 3615, 3616, 3618, 3662, 3664, 3702, 3762, 3764, 3766, 3768, 3882, 3884. The prerequisite is HIST 2900 or instructor approval. Writing intensive courses are designated "(WI)" in the online schedule of classes.

Courses meeting requirements for United States history include: HIST 3015, 3101, 3102, 3103, 3104, 3105, 3130, 3150, 3160, 3180, 3191, 3200, 3230, 3240, 3251, 3260, 3265, 3280, 3285, 3290, 4245.

Courses meeting requirements for Africa, Asia, Latin America, and Middle East history include: HIST 3020, 3030, 3325, 3330, 3700, 3702, 3760, 3762, 3764, 3766, 3768, 3790, 3850, 3880, 3882, 3884, 4825, 4845.

Course meeting requirements for European history include: HIST 3000, 3010, 3020, 3030, 3330, 3360, 3490, 3500, 3510, 3531, 3600, 3604, 3606, 3611, 3612, 3614, 3616, 3618, 3630, 3640, 3660, 3662, 3664, 4495.

Courses meeting requirements for any geographical area include: HIST 4006, 4008, 4010, 4016.
Public History Major

This program is designed to prepare students for entry-level positions in fields of public history such as museum and archival administration, preservation/restoration work, interpretation, consulting, and applied research.

Major Requirements:

1. Minimum of 63 hours in history and approved electives from other departments selected from categories listed below.
2. Minimum grade of “C” in all course work required for the major, including electives and required cognates.
3. Completion of at least 6 hours of “writing-intensive” courses at the 3000-level. (See the list of courses below).
4. With permission of the advisor, students may substitute advanced level (4000-level) history courses for intermediate level (3000-level) courses in the same topical area, providing the student has the appropriate prerequisite.
5. No minor required.

1. Introductory level history courses (9 hours)

HIST 2900 – The Historian’s Craft: An Introduction to the Study of History Credits: 3 hours

Select either:
HIST 2100 – American History to 1877 Credits: 3 hours or
HIST 2110 – American History since 1877 Credits: 3 hours

Choose one of the following:
HIST 1000 – Early Western World Credits: 3 hours
HIST 1010 – Modern Western World Credits: 3 hours
HIST 3020 – World History to 1500 Credits: 3 hours
HIST 3030 – World History since 1500 Credits: 3 hours

2. Intermediate level history courses: 15 hours including at least two (6 hours) writing intensive courses.

- HIST 3404 - Introduction to Public History Credits: 3 hours
- 3000-level ANY AREA Credits: 3 hours
- 3000-level ANY AREA Credits: 3 hours
- 3000-level (U.S.) AREA Credits: 3 hours
- Select either:
  - HIST 3150 – Popular Art and Architecture in America Credits: 3 hours
  - HIST 3180 – American Environmental History Credits: 3 hours

Writing intensive courses at the 3000-level are: HIST 3101, 3102, 3103, 3104, 3105, 3191, 3251, 3265, 3285, 3500, 3510, 3531, 3604, 3606, 3611, 3612, 3614, 3615, 3616, 3618, 3662, 3664, 3702, 3762, 3764, 3766, 3768, 3768, 3882, 3884. The prerequisite is HIST 2900 or instructor approval. Writing intensive courses are designated "(WI)" in the online schedule of classes.

3. Advanced level history courses (6 hours). All 4000-level U.S., Africa, Asia, Latin America, Middle East and European history courses meet the baccalaureate-level writing requirement. Baccalaureate history courses are designed "(BW)" in the online schedule of classes.

- 4000-level (U.S.) Credits: 3 hours
- 4000-level ANY AREA Credits: 3 hours

4. Public History core courses (9 hours):

HIST 4060 - Archives Administration Credits: 3 hours
HIST 4080 - Museum Studies Credits: 3 hours
HIST 4100 - Historic Preservation Credits: 3 hours

5. Electives (18 hours):
Consult the History Advising Office and Undergraduate Handbook for approved elective courses from other departments that meet this requirement.

6. Internship (6 hours)
Students must confer with the Public History Internship Supervisor before registering for internship credit.
   HIST 4950 - Internship Credits: 3 to 9 hours

7. Cognate Requirement (8 hours)
Completion of a foreign language through the 1010 level (or equivalency) by University course work or examination.

Courses meeting requirements for United States history include: HIST 3015, 3101, 3102, 3103, 3104, 3105, 3130, 3150, 3160, 3180, 3191, 3200, 3230, 3240, 3251, 3260, 3265, 3280, 3285, 3290, 4245.

Courses meeting requirements for Africa, Asia, Latin America, and Middle East history include: HIST 3020, 3030, 3325, 3330, 3700, 3702, 3760, 3762, 3764, 3766, 3768, 3790, 3850, 3880, 3882, 3884, 4825, 4845.

Course meeting requirements for European history include: HIST 3000, 3010, 3020, 3030, 3330, 3360, 3490, 3500, 3510, 3531, 3600, 3604, 3606, 3611, 3612, 3614, 3616, 3618, 3630, 3640, 3660, 3662, 3664, 4495.

Courses meeting requirements for any geographical area include: HIST 4006, 4008, 4010, 4016.

**History Minor**

**Minor Requirements**
Minimum of 24 hours of course work in history, with a maximum of nine hours at the introductory level (this includes 1000/2000-level courses, two-year institution transfers, and AP credits); Students must complete History 2900 and a minimum of six hours (two courses) selected from the 3000-level writing intensive classes or 4000-level baccalaureate writing courses.

Writing intensive courses at the 3000-level are: HIST 3101, 3102, 3103, 3104, 3105, 3191, 3251, 3265, 3285, 3500, 3510, 3531, 3604, 3606, 3611, 3612, 3614, 3615, 3616, 3618, 3662, 3664, 3702, 3762, 3764, 3766, 3768, 3882, 3884. The prerequisite is HIST 2900 or instructor approval. Writing intensive courses are designated "(WI)" in the online schedule of classes.

**History Minor-Secondary Education Curriculum**

1. Completion of a minimum of 21 hours in history selected from categories listed below.
2. Minimum grade of “C” in all course work required for the minor, including required cognates.
3. Completion of 6 (or 9) hours of required cognates.
4. Completion of at least 3 hours of “writing-intensive” courses at the 3000-level. (See the list of courses below).
5. All course work at the 3000/4000-level must be completed within 10 years of intern teaching.
6. With permission of the advisor, students may substitute advanced level (4000-level) history courses for intermediate level (3000-level) courses in the same topical area, providing the student has the appropriate prerequisite.

**Minor Requirements**

1. Introductory level history courses (6 hours)
   Select one of the following:
   HIST 1000 – Early Western World Credits: 3 hours or
   HIST 1010 – Modern Western World Credits: 3 hours
   HIST 3020 – World History to 1500 Credits: 3 hours or
   HIST 3030 – World History since 1500 Credits: 3 hours

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Select either:
HIST 2100 – American History to 1877  Credits: 3 hours  or  
HIST 2110 – American History since 1877  Credits: 3 hours

2. Intermediate level history courses (12 hours including a 3 hour writing intensive course.)
   • HIST 3000-level (U.S.)  Credits: 3 hours
   • HIST 3000-level (Africa, Asia, Latin America, or the Middle East)  Credits: 3 hours
   • HIST 3000-level (Europe)  Credits: 3 hours
   • HIST 3000-level ANY AREA or HIST 2900  Credits: 3 hours

Writing intensive courses at the 3000-level are listed below. The prerequisite is HIST 2900 or instructor approval.

3. Advanced level history course (3 hours)  4000-level prerequisite: One 3000-level writing intensive course or instructor approval.
   • HIST 4000-level ANY AREA  Credits: 3 hours

3. Cognate Requirements

One course in Geography (3 to 4 hours)
   GEOG 1020 – World Geography Through Media and Maps  Credits: 3 hours
   GEOG 1050 – Physical Geography  Credits: 4 hours
   GEOG 2050 – Human Geography  Credits: 3 hours

One course in Political Science (3 to 4 hours)
   PSCI 2000 – National Government  Credits: 3 hours
   PSCI 2400 – Comparative Politics  Credits: 3 hours  or
   PSCI 2500 – International Relations  Credits: 3 hours

Students whose teaching major is outside the College of Arts and Sciences must complete the following course:
   HIST 4940 – Teaching Methods for Secondary Schools  Credits: 3 hours

Writing intensive courses at the 3000-level are: HIST 3101, 3102, 3103, 3104, 3105, 3191, 3251, 3265, 3285, 3500, 3510, 3531, 3604, 3606, 3611, 3612, 3614, 3615, 3616, 3618, 3662, 3664, 3702, 3762, 3764, 3766, 3768, 3882, 3884. The prerequisite is HIST 2900 or instructor approval. Writing intensive courses are designated "(WI)" in the online schedule of classes.

Courses meeting requirements for United States history include: HIST 3015, 3101, 3102, 3103, 3104, 3105, 3130, 3150, 3160, 3180, 3191, 3200, 3230, 3240, 3251, 3260, 3265, 3280, 3285, 3290, 4245.

Courses meeting requirements for Africa, Asia, Latin America, and Middle East history include: HIST 3020, 3030, 3325, 3330, 3700, 3702, 3760, 3762, 3764, 3766, 3768, 3790, 3850, 3880, 3882, 3884, 4825, 4845.

Course meeting requirements for European history include: HIST 3000, 3010, 3020, 3030, 3330, 3360, 3490, 3500, 3510, 3531, 3600, 3604, 3606, 3611, 3612, 3614, 3616, 3618, 3630, 3640, 3660, 3662, 3664, 4495.

Courses meeting requirements for any geographical area include: HIST 4006, 4008, 4010, 4016.

**Public History Minor**

1. Minimum of 24 hours in history selected from categories listed below.
2. Minimum grade of “C” in all course work required for the major.
3. Completion of one "writing intensive" course at the 3000-level. (See list of courses below)

**Minor Requirements:**

1. Introductory level history course (3 hours)
Choose one of the following:
HIST 1000 - Early Western World Credits: 3 hours
HIST 1010 - Modern Western World Credits: 3 hours
HIST 2100 – American History to 1877 Credits: 3 hours or
HIST 2110 – American History since 1877 Credits: 3 hours

2. Intermediate level history courses (9 hours)
Complete each of the following:
HIST 2900 - The Historian’s Craft: An Introduction to the Study of History Credits: 3 hours
HIST 3404 - Introduction to Public History Credits: 3 hours

And select either:
HIST 3150 – Popular Art and Architecture in America Credits: 3 hours
HIST 3180 – American Environmental History Credits: 3 hours

3. Writing Intensive Course. Complete one 3000-level writing intensive course.
Choose one of the following:
Writing intensive courses at the 3000-level are: HIST 3101, 3102, 3103, 3104, 3105, 3191, 3251, 3265, 3285, 3500, 3510, 3531, 3604, 3606, 3611, 3612, 3614, 3616, 3618, 3662, 3664, 3702, 3762, 3764, 3766, 3768, 3882, 3884. The prerequisite is HIST 2900 or instructor approval. Writing intensive courses are designated "(WI)" in the online schedule of classes.

4. Public History Core Courses: (6 hours)
Select two of the following:
HIST 4060 - Archives Administration Credits: 3 hours
HIST 4080 - Museum Studies Credits: 3 hours
HIST 4100 - Historic Preservation Credits: 3 hours

5. Internship/work experience (3 hours). Students must confer with the Public History Internship Supervisor before registering for internship credit.
   HIST 4950 – Internship Credits: 3 hours

History Minor (with Social Studies Major) (27 hours)

Requirements
1. Minimum of 27 hours in History. Minor must be completed in conjunction with the Social Studies-Secondary Education major.
2. At least one approved history courses (3 hours) exploring diversity in the U.S. society. Select from: HIST 3160, 3191, 3251, 3260, 3265, 3280, or 3285.
3. At least two “writing intensive” courses at the 3000-level (See list of courses below).
4. With permission of the advisor, students may substitute advanced level (4000-level) history courses for intermediate level (3000-level) courses in the same topical area, providing the student has the appropriate prerequisite.

1. Introductory level history courses (3 hours)
HIST 2900 - The Historian’s Craft: An Introduction to the Study of History Credits: 3 hours

2. Intermediate level history courses (15 hours including 6 hours of writing intensive courses)
Writing intensive prerequisite: HIST 2900 or instructor approval
- 3000-level Any Area Credits: 3 hours
- 3000-level (Africa, Asia, Latin America, Middle East) Credits: 3 hours
- 3000-level (Europe/General) Credits: 3 hours
- 3000-level (U.S.) Credits: 3 hours
- 3000-level (U.S.) Credits: 3 hours
3. Advanced level history courses (9 hours)

All U.S., Africa, Asia, Latin American, Middle East and European History courses meet the baccalaureate-level writing requirement. 4000-level prerequisite: one 3000-level writing intensive course or instructor approval.

- 4000-level (U.S.) Credits: 3 hours
- 4000-level (Africa, Asia, Latin American, Middle East, or Europe) Credits: 3 hours
- HIST 4940 - Teaching Methods for Secondary Schools Credits: 3 hours

**Diversity Courses - History**

- HIST 3160 - Women in United States History Credits: 3 hours
- HIST 3191 - American Sport History (WI) Credits: 3 hours
- HIST 3251 - American Work and Workers (WI) Credits: 3 hours
- HIST 3260 - Native American History and Culture Credits: 3 hours
- HIST 3265 - Readings in Native American History (WI) Credits: 3 hours
- HIST 3280 - African-American History and Culture Credits: 3 hours
- HIST 3285 - African Americans in Michigan (WI) Credits: 3 hours

Writing intensive courses at the 3000-level are: HIST 3101, 3102, 3103, 3104, 3105, 3191, 3251, 3265, 3285, 3500, 3510, 3531, 3604, 3606, 3611, 3612, 3614, 3615, 3616, 3618, 3662, 3664, 3702, 3762, 3764, 3766, 3768, 3768, 3882, 3884. The prerequisite is HIST 2900 or instructor approval. Writing intensive courses are designated "(WI)" in the online schedule of classes.

**Writing-Intensive Courses**

- HIST 3101 - Colonial America (WI) Credits: 3 hours
- HIST 3102 - Era of the American Revolution (WI) Credits: 3 hours
- HIST 3103 - The United States in the Nineteenth Century to the Guilded Age (WI) Credits: 3 hours
- HIST 3104 - The Guilded Age through the World Wars (WI) Credits: 3 hours
- HIST 3105 - The United States in the Global Era 1945-Present (WI) Credits: 3 hours
- HIST 3191 - American Sport History (WI) Credits: 3 hours
- HIST 3251 - American Work and Workers (WI) Credits: 3 hours
- HIST 3265 - Readings in Native American History (WI) Credits: 3 hours
- HIST 3285 - African Americans in Michigan (WI) Credits: 3 hours
- HIST 3500 - Ancient Greece and the Hellenistic World (WI) Credits: 3 hours
- HIST 3510 - Ancient Rome (WI) Credits: 3 hours
- HIST 3531 - Early Christianity (WI) Credits: 3 hours
- HIST 3604 - Europe After Rome, 400-1000 (WI) Credits: 3 hours
- HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) Credits: 3 hours
- HIST 3611 - The Crusades: West Meets East (WI) Credits: 3 hours
- HIST 3612 - Era of the Thirty Years War: Europe 1500 – 1650 (WI) Credits: 3 hours
- HIST 3614 - Revolutions, Industry, and Nation States Europe, 1815-1914 (WI) Credits: 3 hours
- HIST 3615 - The European Witch-Hunt (WI) Credits: 3 hours
- HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) Credits: 3 hours
- HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) Credits: 3 hours
- HIST 3662 - Russia to 1855 (WI) Credits: 3 hours
- HIST 3664 - Russia from 1855 (WI) Credits: 3 hours
- HIST 3702 - Colonial Latin America (WI) Credits: 3 hours
- HIST 3762 - Traditional Japan The Age of the Samurai (WI) Credits: 3 hours
- HIST 3764 - Modern Japan (WI) Credits: 3 hours
- HIST 3766 - Traditional China (WI) Credits: 3 hours
- HIST 3768 - Modern China (WI) Credits: 3 hours
- HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) Credits: 3 hours
- HIST 3884 - History of West Africa (WI) Credits: 3 hours
Courses by Chronological Area – History

Premodern
HIST 3000 - Arts and Ideas: Ancient/Medieval Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3101 - Colonial America (WI) Credits: 3 hours
HIST 3102 - Era of the American Revolution (WI) Credits: 3 hours
HIST 3490 - Ancient Near East Credits: 3 hours
HIST 3500 - Ancient Greece and the Hellenistic World (WI) Credits: 3 hours
HIST 3510 - Ancient Rome (WI) Credits: 3 hours
HIST 3531 - Early Christianity (WI) Credits: 3 hours
HIST 3600 - The Medieval World: Society and Culture Credits: 3 hours
HIST 3604 - Europe after Rome, 400-1000 (WI) Credits: 3 hours
HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI) Credits: 3 hours
HIST 3611 - The Crusades: West Meets East (WI) Credits: 3 hours
HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI) Credits: 3 hours
HIST 3615 - The European Witch-Hunt (WI) Credits: 3 hours
HIST 3662 - Russia to 1855 (WI) Credits: 3 hours
HIST 3702 - Colonial Latin America (WI) Credits: 3 hours
HIST 3762 - Traditional Japan The Age of the Samurai (WI) Credits: 3 hours
HIST 3766 - Traditional China (WI) Credits: 3 hours
HIST 3880 - Introduction to African Civilization Credits: 3 hours
HIST 3882 - History of Africa and the Atlantic Slave Trade (WI) Credits: 3 hours
HIST 4490 - Topics in Early European History and Culture (BW) Credits: 3 hours

Modern
HIST 3010 - Modern Arts and Ideas Credits: 3 hours
HIST 3015 - History and Film Credits: 3 hours
HIST 3030 - World History since 1500 Credits: 3 hours
HIST 3060 - Technology and Culture Credits: 3 hours
HIST 3100 - Topics in History Credits: 1 to 3 hours
HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI) Credits: 3 hours
HIST 3104 - The Gilded Age through the World Wars (WI) Credits: 3 hours
HIST 3105 - The United States in the Global Era 1945-Present (WI) Credits: 3 hours
HIST 3130 - The U.S. and the World Credits: 3 hours
HIST 3135 - American Legal History Credits: 3 hours
HIST 3150 - Popular Art and Architecture in America Credits: 3 hours
HIST 3160 - Women in United States History Credits: 3 hours
HIST 3180 - American Environmental History Credits: 3 hours
HIST 3191 - American Sport History (WI) Credits: 3 hours
HIST 3200 - American Military History Credits: 3 hours
HIST 3230 - History of Healthcare in the United States Credits: 3 hours
HIST 3240 - Everyday Life in America Credits: 3 hours
HIST 3251 - American Work and Workers (WI) Credits: 3 hours
HIST 3260 - Native American History and Culture Credits: 3 hours
HIST 3265 - Readings in Native American History (WI) Credits: 3 hours
HIST 3280 - African-American History and Culture Credits: 3 hours
HIST 3285 - African Americans in Michigan (WI) Credits: 3 hours
HIST 3290 - Michigan History Credits: 3 hours
HIST 3300 - Canadian History and Culture Credits: 3 hours
HIST 3325 - History of Healthcare in the World Credits: 3 hours
HIST 3330 - The World since 1945 Credits: 3 hours
HIST 3360 - Women in European History Credits: 3 hours
HIST 3404 - Introduction to Public History Credits: 3 hours
HIST 3614 - Revolutions, Industry, and Nation States Europe, 1815-1914 (WI) Credits: 3 hours
HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI) Credits: 3 hours
HIST 3618 - The Cold War to Unification Europe 1945-Present (WI) Credits: 3 hours
HIST 3630 - History of Modern Britain Credits: 3 hours
HIST 3640 - Modern Europe: Culture and Society Credits: 3 hours
HIST 3660 - Russia Yesterday and Tomorrow Credits: 3 hours
HIST 3664 - Russia from 1855 (WI) Credits: 3 hours
HIST 3760 - Modern East Asia Credits: 3 hours
HIST 3764 - Modern Japan (WI) Credits: 3 hours
HIST 3768 - Modern China (WI) Credits: 3 hours
HIST 3790 - World War II in American and Japanese History Credits: 3 hours
HIST 3850 - Modern Middle East Credits: 3 hours
HIST 3884 - History of West Africa (WI) Credits: 3 hours
HIST 3981 - Directed Reading in History Credits: 1 to 3 hours
HIST 4006 - Topics in Race and Ethnicity (BW) Credits: 3 hours
HIST 4008 - Topics in Ethnolhistory (BW) Credits: 3 hours
HIST 4010 - Environment and History (BW) Credits: 3 hours
HIST 4016 - History of Material Life (BW) Credits: 3 hours
HIST 4060 - Archives Administration Credits: 3 hours
HIST 4080 - Museum Studies Credits: 3 hours
HIST 4100 - Historic Preservation Credits: 3 hours
HIST 4245 - Topics in U.S. History and Culture (BW) Credits: 3 hours
HIST 4491 - Topics in Modern European History and Culture (BW) Credits: 3 hours
HIST 4495 - Topics in European History and Culture (BW) Credits: 3 hours
HIST 4825 - Topics in Asian History (BW) Credits: 3 hours
HIST 4845 - Topics in Latin American History (BW) Credits: 3 hours

Courses by Geographical Area – History

United States
Course meeting requirements for United States history include:
HIST 3015 - History and Film Credits: 3 hours
HIST 3101 - Colonial America (WI) Credits: 3 hours
HIST 3102 - Era of the American Revolution (WI) Credits: 3 hours
HIST 3103 - The United States in the Nineteenth Century to the Guilded Age (WI) Credits: 3 hours
HIST 3104 - The Guilded Age through the World Wars (WI) Credits: 3 hours
HIST 3105 - The United States in the Global Era 1945-Present (WI) Credits: 3 hours
HIST 3130 - The U.S. and the World Credits: 3 hours
HIST 3135 - American Legal History Credits: 3 hours
HIST 3150 - Popular Art and Architecture in America Credits: 3 hours
HIST 3160 - Women in United States History Credits: 3 hours
HIST 3180 - American Environmental History Credits: 3 hours
HIST 3191 - American Sport History (WI) Credits: 3 hours
HIST 3200 - American Military History Credits: 3 hours
HIST 3230 - History of Healthcare in the United States Credits: 3 hours
HIST 3240 - Everyday Life in America Credits: 3 hours
HIST 3251 - American Work and Workers (WI) Credits: 3 hours
HIST 3260 - Native American History and Culture Credits: 3 hours
HIST 3265 - Readings in Native American History (WI) Credits: 3 hours
HIST 3280 - African-American History and Culture Credits: 3 hours
HIST 3285 - African Americans in Michigan (WI) Credits: 3 hours
HIST 3290 - Michigan History Credits: 3 hours
HIST 4245 - Topics in U.S. History and Culture (BW) Credits: 3 hours

Africa, Asia, Latin America, and Middle East
Courses meeting requirements for this area include:
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3030 - World History since 1500   Credits: 3 hours
HIST 3325 - History of Healthcare in the World   Credits: 3 hours
HIST 3330 - The World since 1945   Credits: 3 hours
HIST 3702 – Colonial Latin America (WI)   Credits: 3 hours
HIST 3760 - Modern East Asia   Credits: 3 hours
HIST 3762 - Traditional Japan The Age of the Samurai (WI)   Credits: 3 hours
HIST 3764 - Modern Japan (WI)   Credits: 3 hours
HIST 3766 - Traditional China (WI)   Credits: 3 hours
HIST 3768 - Modern China (WI)   Credits: 3 hours
HIST 3790 - World War II in American and Japanese History   Credits: 3 hours
HIST 3850 - Modern Middle East   Credits: 3 hours
HIST 3880 - Introduction to African Civilization   Credits: 3 hours
HIST 3882 - History of Africa and the Atlantic Slave Trade (WI)   Credits: 3 hours
HIST 3884 - History of West Africa (WI)   Credits: 3 hours
HIST 4825 - Topics in Asian History (BW)   Credits: 3 hours
HIST 4845 - Topics in Latin American History (BW)   Credits: 3 hours

Europe
Courses meeting requirements for European history include:
HIST 3000 - Arts and Ideas: Ancient/Medieval   Credits: 3 hours
HIST 3010 - Modern Arts and Ideas   Credits: 3 hours
HIST 3020 - World History to 1500   Credits: 3 hours
HIST 3030 - World History since 1500   Credits: 3 hours
HIST 3330 - The World since 1945   Credits: 3 hours
HIST 3360 - Women in European History   Credits: 3 hours
HIST 3490 - Ancient Near East   Credits: 3 hours
HIST 3500 - Ancient Greece and the Hellenistic World (WI)   Credits: 3 hours
HIST 3510 - Ancient Rome (WI)   Credits: 3 hours
HIST 3531 - Early Christianity (WI)   Credits: 3 hours
HIST 3600 - The Medieval World: Society and Culture   Credits: 3 hours
HIST 3604 - Europe after Rome, 400-1000 (WI)   Credits: 3 hours
HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI)   Credits: 3 hours
HIST 3611 - The Crusades: West Meets East (WI)   Credits: 3 hours
HIST 3612 - Era of the Thirty Years War: Europe 1500-1650 (WI)   Credits: 3 hours
HIST 3614 - Revolutions, Industry, and Nation States Europe, 1815-1914 (WI)   Credits: 3 hours
HIST 3615 - The European Witch-Hunt (WI)   Credits: 3 hours
HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI)   Credits: 3 hours
HIST 3618 - The Cold War to Unification Europe 1945-Present (WI)   Credits: 3 hours
HIST 3630 - History of Modern Britain   Credits: 3 hours
HIST 3640 - Modern Europe: Culture and Society   Credits: 3 hours
HIST 3660 - Russia Yesterday and Tomorrow   Credits: 3 hours
HIST 3662 - Russia to 1855 (WI)   Credits: 3 hours
HIST 3664 – Russia from 1855 (WI)   Credits: 3 hours
HIST 4495 - Topics in European History and Culture (BW)   Credits: 3 hours

Geographical
Courses meeting requirements for any geographical area include:
HIST 4006 - Topics in Race and Ethnicity (BW)   Credits: 3 hours
HIST 4008 - Topics in Ethnohistory (BW)   Credits: 3 hours
HIST 4010 - Environment and History (BW)   Credits: 3 hours
HIST 4016 - History of Material Life (BW)   Credits: 3 hours

Courses by Topic - History

Introductory Level Courses
HIST 1000 - Early Western World  Credits: 3 hours  
HIST 1010 - Modern Western World  Credits: 3 hours  
HIST 1450 - Heroes and Villains in the Middle Ages  Credits: 3 hours  
HIST 2000 - Introductory Topics in History  Credits: 1 to 3 hours  
HIST 2100 - American History to 1877  Credits: 3 hours  
HIST 2110 - American History since 1877  Credits: 3 hours  
HIST 2120 - American Culture  Credits: 3 hours  
HIST 2125 - Sport in American Culture  Credits: 3 hours  
HIST 2900 - The Historian's Craft: An Introduction to the Study of History  Credits: 3 hours  
HIST 3981 - Directed Reading in History  Credits: 1 to 3 hours  

North America  
HIST 2125 - Sport in American Culture  Credits: 3 hours  
HIST 3101 - Colonial America (WI)  Credits: 3 hours  
HIST 3102 - Era of the American Revolution (WI)  Credits: 3 hours  
HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI)  Credits: 3 hours  
HIST 3104 - The Gilded Age through the World Wars (WI)  Credits: 3 hours  
HIST 3105 - The United States in the Global Era 1945-Present (WI)  Credits: 3 hours  
HIST 3130 - The US and the World  Credits: 3 hours  
HIST 3135 - American Legal History  Credits: 3 hours  
HIST 3150 - Popular Art and Architecture in America  Credits: 3 hours  
HIST 3160 - Women in United States History  Credits: 3 hours  
HIST 3180 - American Environmental History  Credits: 3 hours  
HIST 3191 - American Sport History (WI)  Credits: 3 hours  
HIST 3200 - American Military History  Credits: 3 hours  
HIST 3230 - History of Healthcare in the United States  Credits: 3 hours  
HIST 3240 - Everyday Life in America  Credits: 3 hours  
HIST 3251 - American Work and Workers (WI)  Credits: 3 hours  
HIST 3260 - Native American History and Culture  Credits: 3 hours  
HIST 3265 - Readings in Native American History (WI)  Credits: 3 hours  
HIST 3280 - African-American History and Culture  Credits: 3 hours  
HIST 3285 - African Americans in Michigan (WI)  Credits: 3 hours  
HIST 3290 - Michigan History  Credits: 3 hours  
HIST 3300 - Canadian History and Culture  Credits: 3 hours  
HIST 4006 - Topics in Race and Ethnicity (BW)  Credits: 3 hours  
HIST 4245 - Topics in U.S. History and Culture (BW)  Credits: 3 hours  

Europe  
HIST 3330 - The World since 1945  Credits: 3 hours  
HIST 3360 - Women in European History  Credits: 3 hours  
HIST 3490 - Ancient Near East  Credits: 3 hours  
HIST 3500 - Ancient Greece and the Hellenistic World (WI)  Credits: 3 hours  
HIST 3510 - Ancient Rome (WI)  Credits: 3 hours  
HIST 3531 - Early Christianity (WI)  Credits: 3 hours  
HIST 3600 - The Medieval World: Society and Culture  Credits: 3 hours  
HIST 3604 - Europe After Rome, 400-1000 (WI)  Credits: 3 hours  
HIST 3606 - Transformation of Medieval Europe, 1000-1500 (WI)  Credits: 3 hours  
HIST 3611 - The Crusades: West Meets East (WI)  Credits: 3 hours  
HIST 3612 - Era of the Thirty Years War: Europe 1500 – 1650 (WI)  Credits: 3 hours  
HIST 3614 - Revolutions, Industry, and Nation States Europe, 1815-1914 (WI)  Credits: 3 hours  
HIST 3615 - The European Witch-Hunt (WI)  Credits: 3 hours  
HIST 3616 - War, Fascism, and Communism Europe, 1914-1945 (WI)  Credits: 3 hours  
HIST 3618 - The Cold War to Unification Europe 1945-Present (WI)  Credits: 3 hours  
HIST 3630 - History of Modern Britain  Credits: 3 hours  
HIST 3640 - Modern Europe: Culture and Society  Credits: 3 hours  
HIST 3660 - Russia Yesterday and Tomorrow  Credits: 3 hours
HIST 3662 - Russia to 1855 (WI)  Credits: 3 hours
HIST 3664 - Russian from 1855 (WI)  Credits: 3 hours
HIST 4495 - Topics in European History and Culture (BW)  Credits: 3 hours
HIST 5500 - Topics in Medieval History  Credits: 3 hours

Non-Western
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3030 - World History since 1500 Credits: 3 hours
HIST 3702 - Colonial Latin America (WI)  Credits: 3 hours
HIST 3760 - Modern East Asia Credits: 3 hours
HIST 3762 - Traditional Japan The Age of the Samurai (WI)  Credits: 3 hours
HIST 3764 - Modern Japan (WI)  Credits: 3 hours
HIST 3766 - Traditional China (WI)  Credits: 3 hours
HIST 3768 - Modern China (WI)  Credits: 3 hours
HIST 3790 - World War II in American and Japanese History Credits: 3 hours
HIST 3850 - Modern Middle East Credits: 3 hours
HIST 3880 - Introduction to African Civilization Credits: 3 hours
HIST 3882 - History of Africa and the Atlantic Slave Trade (WI)  Credits: 3 hours
HIST 3884 - History of West Africa (WI)  Credits: 3 hours
HIST 4825 - Topics in Asian History (BW)  Credits: 3 hours
HIST 4845 - Topics in Latin American History (BW)  Credits: 3 hours
HIST 5850 - Topics in Asian, African, and Latin American History Credits: 3 hours

General
HIST 3000 - Arts and Ideas: Ancient/Medieval Credits: 3 hours
HIST 3010 - Modern Arts and Ideas Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours
HIST 3030 - World History since 1500 Credits: 3 hours
HIST 3060 - Technology and Culture Credits: 3 hours
HIST 3100 - Topics in History Credits: 1 to 3 hours
HIST 3330 - The World since 1945 Credits: 3 hours
HIST 3790 - World War II in American and Japanese History Credits: 3 hours

Theory And Practice
HIST 4060 - Archives Administration Credits: 3 hours
HIST 4080 - Museum Studies Credits: 3 hours
HIST 4100 - Historic Preservation Credits: 3 hours
HIST 4940 - Teaching Methods for Secondary Schools Credits: 3 hours
HIST 4990 - Senior Thesis Credits: 3 to 6 hours
HIST 5150 - Topics in Public History Credits: 3 hours
HIST 5910 - Topics in Historical Theory and Method Credits: 1 to 3 hours

Other Courses
HIST 4950 - Internship Credits: 3 to 9 hours
HIST 4980 - Directed Research Credits: 3 hours
HIST 5000 - Topics in History Credits: 3 hours
Mathematics
Steven Ziebarth, Chair
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Ok-Kyeong Kim
Kate Kline
Melinda Koelling
Yuri Ledyaev
Mariana Levin
Jane-Jane Lo
D. Steven Mackey
Niloufer Mackey
John Martino
Tabitha Mingus
Anneegret Paul
Dennis Pence
John Petrovic
David Richter
Jeffrey Strom
Jay Treiman
Laura Van Zoest
Jay Wood
Ping Zhang
Qiji Zhu

The Department of Mathematics offers a wide variety of courses and programs in both theoretical and applied areas. There are three majors available: Applied, General, and Elementary and Secondary Teaching. Minors available include the General Mathematics Minor, Secondary Teaching of Mathematics Minor, the Elementary and Middle School Teaching Minor and the Actuarial Science Minor. These major and minor programs incorporate emphasis on use of computing techniques, mathematical modeling, and problem solving.

The various mathematics majors (and most minors) all require two semesters of calculus. Students may take either the MATH 1220/1230 sequence or the MATH 1700/1710 sequence, with the recommendation that they pick the last sequence if they will be taking a physics course soon. Students may begin this course work while deciding on a branch of mathematics in which to specialize from the options below.

During the first year, interested students should contact Steve Culver, student advisor/assistant to the chair, through the Department of Mathematics. Phone (269) 387-4510 or write: Department of Mathematics, Western Michigan University, Kalamazoo, MI 49008. All majors should contact a faculty advisor in mathematics once a year and must contact a faculty advisor in mathematics during their second year of study. All minors, except General Math minors, must contact an advisor.

At most one course with a grade below "C" can be applied toward a major or minor in Mathematics.
Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 5000-level courses with prior approval of the department chair.

Honors in Mathematics

Qualified students may plan a program to graduate with honors in mathematics. The following are the requirements for graduation with Honors in Mathematics:

- Grade point average of at least 3.7 in mathematics and statistics courses
- Overall grade point average of at least 3.25
- Completion of two of the following:
  - an honors seminar (can be the Putnam Seminar)
  - an upper-level theoretical course
  - an approved independent study project leading to a paper or presentation

Interested students should see the Curriculum Coordinator in their junior year or early in their senior year to plan an "honors program."

Putnam Seminar

The Putnam Seminar is a problem-solving seminar. Under the direction of a faculty member students practice techniques for solving very challenging problems. Students in the seminar may participate in the William Lowell Putnam national intercollegiate mathematics competition.

Mathematics Major - Applied Mathematics Option

There is a growing need for people who combine knowledge of mathematics and science to formulate and solve practical problems. The intent of the Applied Mathematics Option is to provide a broad range of computational and analytical skills, practice in mathematical modeling, and some fundamental knowledge of a scientific discipline. Computational and applied mathematicians are employed in a variety of positions in industry, business, and government. Students must complete a minor in one of Actuarial Sciences, Astronomy, Biomedical Sciences, Chemistry, Computer Science, Economics, Physics, or Statistics. Students should select their minor in the area in which they intend to apply their mathematical talents, and then they should select electives that are particularly suited to the problems in that area.

Core Requirements
MATH 2300 - Elementary Linear Algebra Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
MATH 4020 - Mathematical Modeling Credits: 3 hours
MATH 5070 - Numerical Analysis I Credits: 3 hours

Select Either:
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Select Either:
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours

Select Either:
MATH 1450 - Discrete Mathematical Structures Credits: 3 hours or
MATH 3140 - Mathematical Proofs Credits: 3 hours

Three of the following: (9 to 12 hours)
MATH 3300 - Modern Algebra I Credits: 4 hours
MATH 4050 - Financial Mathematics Credits: 3 hours
MATH 4080 - Linear Programming Credits: 3 hours
MATH 4400 - Graphs and Mathematical Models Credits: 3 hours
MATH 4900 - Topics in Mathematics Credits: 3 hours
MATH 5270 - Differential Geometry of Curves and Surfaces Credits: 3 hours
MATH 5100 - Applied Matrix Algebra Credits: 3 hours
Or
MATH 5300 - Linear Algebra Credits: 3 hours
MATH 5700 - Advanced Calculus I Credits: 4 hours
MATH 5720 - Vector Calculus and Complex Variables Credits: 4 hours
MATH 5740 - Advanced Differential Equations Credits: 3 hours
STAT 3620 - Probability Credits: 4 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours
STAT 5680 - Regression Analysis Credits: 3 hours

Cognate Science Requirements:
PHYS 2050 - University Physics I Credits: 4 hours
PHYS 2060 - University Physics I Laboratory Credits: 1 hour
STAT 3640 - Foundations of Data Analysis Credits: 4 hours

Select:
CS 1110 - Computer Science I Credits: 4 hours
Or
CS course approved by an advisor.

Select:
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
OR
ECON 2010 – Principles of Microeconomics Credits: 3 hours
OR
PHYS 2070 – University Physics II Credits: 4 hours and
PHYS 2080 – University Physics II Laboratory Credits: 1 hour

Minor Requirement
Students must complete a minor in one of the following areas: Actuarial Sciences, Astronomy, Biomedical Sciences, Chemistry, Computer Science, Economics, Physics, or Statistics. The courses listed above under “Cognate Science Requirements” may also be used to fulfill requirements for the minor where applicable. The minor requirement will be waived for students completing one of the following engineering curricula: Aerospace Engineering, Chemical Engineering, Computer Engineering, Construction Engineering, Computer Science-General, Computer Science-Theory and Analysis, Electrical Engineering, Industrial and Entrepreneurial Engineering, Manufacturing Engineering, Materials Engineering, Mechanical Engineering, Paper Engineering, or Paper Science.

Recommendations
It is strongly suggested that Biomedical Sciences minors elect:
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
STAT 3620 - Probability Credits: 4 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours

Computer Science minors should select:
MATH 1450 - Discrete Mathematical Structures Credits: 3 hours
MATH 4400 - Graphs and Mathematical Models Credits: 3 hours

Physics minors should select:
MATH 3140 - Mathematical Proofs Credits: 3 hours and
MATH 5700 - Advanced Calculus I  Credits: 4 hours

Note: Graduate study in mathematics typically requires:
MATH 3140 - Mathematical Proofs  Credits: 3 hours
MATH 3300 - Modern Algebra I  Credits: 4 hours and
MATH 5700 - Advanced Calculus I  Credits: 4 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the Applied Mathematics option will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:
MATH 4020 - Mathematical Modeling  Credits: 3 hours

Mathematics Major - General Mathematics Option

The General Mathematics Option is a flexible program that may be combined with minors in diverse areas such as physics in the natural sciences, economics in the social sciences, or even be used as a base for law school. This option also serves as excellent preparation for graduate study in mathematics. A student in this program should develop, in addition to a broad background in mathematics, an ability for communicating mathematics and for rigorous logical thinking.

Core (12 hours)
Select either:
MATH 1220 - Calculus I  Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours

Select Either:
MATH 1230 - Calculus II  Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours

MATH 2300 - Elementary Linear Algebra  Credits: 4 hours

Required (17 to 18 hours)
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours
MATH 3140 - Mathematical Proofs  Credits: 3 hours
MATH 3300 - Modern Algebra I  Credits: 4 hours
MATH 4400 - Graphs and Mathematical Models  Credits: 3 hours
MATH 5070 - Numerical Analysis I  Credits: 3 hours or
MATH 5700 - Advanced Calculus I  Credits: 4 hours
(Strongly recommended for those planning on graduate school mathematics.)

Electives: (Select Three. At least one of the three electives must be at the 4000 level or higher.)
MATH 3400 - Fundamental Concepts of Geometry  Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours
MATH 4020 - Mathematical Modeling  Credits: 3 hours
MATH 4080 - Linear Programming  Credits: 3 hours
MATH 4300 - Modern Algebra II  Credits: 3 hours
MATH 4900 - Topics in Mathematics  Credits: 3 hours
MATH 5070 - Numerical Analysis I  Credits: 3 hours
MATH 5100 - Applied Matrix Algebra  Credits: 3 hours
MATH 5220 - Introduction to Topology  Credits: 3 hours
MATH 5270 - Differential Geometry of Curves and Surfaces  Credits: 3 hours
MATH 5300 - Linear Algebra  Credits: 3 hours
MATH 5710 - Advanced Calculus II  Credits: 3 hours
MATH 5720 - Vector Calculus and Complex Variables  Credits: 4 hours
MATH 5740 - Advanced Differential Equations  Credits: 3 hours
MATH 5800 - Number Theory  Credits: 3 hours
STAT 3620 - Probability  Credits: 4 hours
STAT 3640 - Foundations of Data Analysis  Credits: 4 hours

Note: Those planning to attend graduate school in mathematics should elect theoretical courses such as:
MATH 4300 - Modern Algebra II  Credits: 3 hours
MATH 5220 - Introduction to Topology  Credits: 3 hours
MATH 5300 - Linear Algebra  Credits: 3 hours
MATH 5700 - Advanced Calculus I  Credits: 4 hours
MATH 5710 - Advanced Calculus II  Credits: 3 hours
MATH 5800 - Number Theory  Credits: 3 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the General Mathematics option will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:
MATH 3140 - Mathematical Proofs  Credits: 3 hours

Mathematics Major - Secondary Teaching Option

The Secondary Teaching Option, which combines theoretical mathematics with teaching techniques, is designed for students planning to teach in a middle or high school. With the current national focus on the improvement of mathematics and science education, this program offers a timely and attractive option.

A minimum grade point average of 2.5 must be attained in this major option to satisfy the requirements of this program.

Core Requirements
Select either:
MATH 1220 - Calculus I  Credits: 4 hours  or
MATH 1700 – Calculus I, Science and Engineering  Credits: 4 hours

Select either:
MATH 1230 - Calculus II  Credits: 4 hours or
MATH 1710 – Calculus II, Science and Engineering  Credits: 4 hours

MATH 2300 - Elementary Linear Algebra  Credits: 4 hours
MATH 3140 - Mathematical Proofs  Credits: 3 hours
MATH 3300 - Modern Algebra I  Credits: 4 hours
MATH 3400 - Fundamental Concepts of Geometry  Credits: 3 hours
MATH 3500 - Teaching of Middle School Mathematics  Credits: 3 hours
MATH 3510 - Computing Technology in Secondary School Mathematics  Credits: 3 hours
MATH 4400 - Graphs and Mathematical Models  Credits: 3 hours
MATH 4500 - Teaching of Secondary School Mathematics  Credits: 3 hours
STAT 3640 - Foundations of Data Analysis  Credits: 4 hours

One of the following (3 to 4 hours)
MATH 4080 - Linear Programming  Credits: 3 hours
MATH 4300 - Modern Algebra II  Credits: 3 hours
MATH 5220 - Introduction to Topology  Credits: 3 hours
MATH 5700 - Advanced Calculus I  Credits: 4 hours
MATH 5800 - Number Theory  Credits: 3 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the Secondary Teaching option will satisfy the Baccalaureate-Level Writing requirement by successfully completing
MATH 3140 - Mathematical Proofs  Credits: 3 hours
Mathematics Minor – Actuarial Sciences Option

The profession of an actuary is rewarding and consistently rated among the top of all professions by U.S. News and World Report. Interested students should check out the website www.beanactuary.org maintained by the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS).

The Actuarial Sciences Minor is intended for majors in either mathematics (applied or general) or statistics. Students may elect this minor if their major program includes at least three semesters of calculus, including multivariate calculus (e.g., MATH 1220-1230-2720 or MATH 1700-1710-2720), a course in linear algebra (e.g., MATH 2300 or MATH 3740), and a calculus-based sequence in probability and statistics (e.g., STAT 3620-3640). Students with other majors, for example, economics or engineering, may still elect this minor if they take the above courses.

Students interested in the Actuarial Sciences Minor may plan their program using the information below. Approval from an actuarial sciences advisor in either the Department of Mathematics or the Department of Statistics is required.

Core Requirement
MATH 4050 - Financial Mathematics   Credits: 3 hours

Additional required courses are the Validation by Educational Experience (VEE) courses below. A grade of “B” or better is required by the SOA and the CAS for coursework to substitute for an exam.

VEE – Applied Statistical Methods
STAT 5820 - Time Series Analysis   Credits: 3 hours

VEE – Corporate Finance
FIN 3200 - Business Finance   Credits: 3 hours
FIN 3510 - Investment Analysis   Credits: 3 hours
Note: ACTY 2100 is a prerequisite for FIN 3200.

VEE – Economics
ECON 2010 - Principles of Microeconomics   Credits: 3 hours
ECON 2020 - Principles of Macroeconomics   Credits: 3 hours

Cognates
These classes should have been taken as part of the major.

MATH 1220 - Calculus I   Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering   Credits: 4 hours

MATH 1230 - Calculus II   Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering   Credits: 4 hours

MATH 2720 - Multivariate Calculus and Matrix Algebra   Credits: 4 hours

MATH 2300 - Elementary Linear Algebra   Credits: 4 hours or
MATH 3740 - Differential Equations and Linear Algebra   Credits: 4 hours

STAT 3620 - Probability   Credits: 4 hours or
STAT 3640 - Foundations of Data Analysis   Credits: 4 hours

STAT 5680 - Regression Analysis   Credits: 3 hours

Students preparing to be an actuary should also consider courses in business (e.g., marketing), computer science, communication, English, and the humanities. According to the Society of Actuaries: “Actuaries need a well-rounded
education. What sets actuaries apart from other professionals is their ability to learn and assimilate a wide range of information.”

Mathematics Minor - General Mathematics Option

Students interested in the General Mathematics Minor Option may plan their program using the information below. An advisor’s approval is not necessary unless a change in the requirements is requested.

Core Requirements
Select either:
MATH 1220 - Calculus I  Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours

Select Either:
MATH 1230 - Calculus II  Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours

Select Either:
MATH 2300 - Elementary Linear Algebra  Credits: 4 hours or
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours

Electives
Substitutions or exceptions require approval of departmental advisor. Some electives have other prerequisites. (Choose two)
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours
MATH 3300 - Modern Algebra I  Credits: 4 hours
MATH 3400 - Fundamental Concepts of Geometry  Credits: 3 hours
Select Either:
MATH 1450 - Discrete Mathematical Structures  Credits: 3 hours or
MATH 3140 - Mathematical Proofs  Credits: 3 hours

(At most, one of the following:)
IEE 2610 - Engineering Statistics  Credits: 3 hours
IME 2620 - Probability and Quality for Engineers  Credits: 3 hours
MATH 4020 - Mathematical Modeling  Credits: 3 hours
MATH 4080 - Linear Programming  Credits: 3 hours
MATH 4400 - Graphs and Mathematical Models  Credits: 3 hours or
MATH 5070 - Numerical Analysis I  Credits: 3 hours
STAT 3620 - Probability  Credits: 4 hours
STAT 3640 - Foundations of Data Analysis  Credits: 4 hours
STAT 5610 - Applied Multivariate Statistical Methods  Credits: 3 hours
STAT 5650 - Design of Experiments of Quality Improvement  Credits: 3 hours

Mathematics Minor - Secondary Teaching Option

Program Requirements
A minimum grade point average of 2.5 must be attained in this minor option to satisfy the requirements of this program.

Select either:
MATH 1220 - Calculus I  Credits: 4 hours or
MATH 1700 – Calculus I, Science & Engineering  Credits: 4 hours

Select either:
MATH 1230 - Calculus II  Credits: 4 hours  or
MATH 1710 – Calculus II, Science & Engineering  Credits: 4 hours

MATH 2300 - Elementary Linear Algebra  Credits: 4 hours
MATH 3140 - Mathematical Proofs  Credits: 3 hours
MATH 3400 - Fundamental Concepts of Geometry  Credits: 3 hours
MATH 3500 - Teaching of Middle School Mathematics  Credits: 3 hours
MATH 3510 - Computing Technology in Secondary School Mathematics  Credits: 3 hours

Approved electives
MATH 3300 - Modern Algebra I  Credits: 4 hours  or
STAT 3640 - Foundations of Data Analysis  Credits: 4 hours

Elementary/Middle School Math Minor

A minimum grade of "B" or better is required in MATH 1500, MATH 1510, MATH 2650, and MATH 3520. A grade of "C" or better is required in MATH 5531, 5540. A Minimum GPA of 2.5 must be obtained in the minor. Students must be accepted into the Elementary Education Professional program to take 3000 and 5000 level courses.

Courses
MATH 1500 - Number Concepts for Elementary/Middle School Teachers  Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers  Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers  Credits: 4 hours
MATH 3520 - Teaching of Elementary/Middle School Mathematics  Credits: 3 hours
MATH 5531 - Number Systems and Proportional Reasoning for Middle Grades Teachers  Credits: 4 hours
MATH 5540 - Functions and Modeling for Middle Grades Teachers  Credits: 4 hours
Philosophy
Timothy McGrew, Chair
Main Office: 3004 Moore Hall
Telephone: (269) 387-4390
Fax: (269) 387-4389

Fritz Allhoff
Marc Alspector-Kelly
Laura Ashley Atkins
Kent Baldner
David Paul

Undergraduate Advisor: David Paul
Room 3021, Moore Hall
david.paul@wmich.edu

Students majoring in philosophy may go into teaching, law, medicine, journalism, government, computer programming, business or any number of other careers. Philosophy is attractive to those who are prepared to search for understanding for its own sake, who do not expect ready-made answers or easy solutions, and who are willing to subject their assumptions to critical scrutiny. Prospective philosophy teachers, whether at the university, junior college, or even high school level, should anticipate continuing for an advanced degree.

The Philosophy Department offices are located on the third floor of Moore Hall. Students are invited to visit the department office and the offices of faculty at any time.

3000-level courses: Each semester detailed course descriptions are posted outside the department office prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.

Undergraduates with junior standing and 12 hours of Philosophy may enroll in 5000-level courses. Specific prerequisites may be added to individual courses.

Robert Friedmann Philosophy Prize
A prize named in honor of Dr. Friedmann, the first person to teach philosophy at Western, is awarded annually to an outstanding senior philosophy student. In some years two such prizes are awarded.

Students Not Majoring or Minoring in Philosophy
Students not majoring or minoring in philosophy find that philosophy adds intellectual depth to their major field of study. Philosophy by its nature touches on many areas of life and thought, frequently from a perspective that students find valuable and exciting. Non-majors often consider their philosophy courses an essential element in their general intellectual growth.

In recognition of this, the department offers a wide range of courses for non-major/minors. Students who wish to sharpen their critical thinking skills should consider PHIL 2200, PHIL 2250, or for more advanced students PHIL 3200 or 3250. Students interested in a general introduction to philosophy should consider PHIL 2000; students interested in a philosophical approach to a more specialized area should consider some of our upper-level courses, such as 3500 (Foundations of the Modern Worldview), PHIL 3120 (Philosophy of Art), PHIL 3550 (Philosophy of Science), and PHIL 3340 (Biomedical Ethics), among others. Students interested in a more detailed appreciation of the central problems of philosophy should consider such courses as PHIL 3310 (Moral Philosophy), PHIL 3320 (Theory of Knowledge) and PHIL 3330 (Metaphysics). Students interested in the history of philosophy should consider PHIL 3000 (Ancient and Medieval Philosophy) and PHIL 3010 (History of Modern Philosophy).

Philosophy Major

Program Requirements
Cognates: Appropriate courses in other departments may be used towards a philosophy major (not a minor) up to a maximum of four hours.

Flexibility is built into the philosophy major. Students are encouraged to speak with a faculty advisor about which combination of courses would best suit their individual interests.

The philosophy major requires the following:

1. Both of the following two courses:
   PHIL 3200 – Formal Logic Credits: 4 hours
   PHIL 4800 – Senior Seminar Credits: 4 hours

2. At least one of the following two courses:
   PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
   PHIL 3010 - History of Modern Philosophy Credits: 4 hours

3. At least one of the following three courses:
   PHIL 3310 - Moral Philosophy Credits: 4 hours
   PHIL 3320 - Theory of Knowledge Credits: 4 hours or
   PHIL 3330 - Metaphysics Credits: 4 hours

4. A minimum of 28 credit hours in philosophy overall, including at least 15 credit hours of courses at the 3000 level or above. At least 9 of the 28 credit hours must be earned by completion of courses offered by WMU Philosophy Department.

   **Baccalaureate-Level Writing Requirement**
   Students who have chosen the Philosophy major will satisfy the Baccalaureate-Level Writing requirement by successfully completing one of the following courses:
   PHIL 3310 - Moral Philosophy Credits: 4 hours
   PHIL 3320 - Theory of Knowledge Credits: 4 hours
   PHIL 3330 - Metaphysics Credits: 4 hours

**Philosophy Major - Professional and Applied Ethics Concentration**

**Program Requirements**
Philosophy majors who have a special interest in the study of ethics may have their major identified as a Professional and Applied Ethics Concentration, provided that the following course requirements are met:

1. A minimum of 28 hours in Philosophy.

2. One of the following:
   PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
   PHIL 3010 - History of Modern Philosophy Credits: 4 hours

3. Three of the following:
   PHIL 2010 - Introduction to Ethics Credits: 4 hours
   PHIL 3030 - Existentialist Philosophies Credits: 3 hours
   PHIL 3110 - Political Philosophy Credits: 3 hours
   PHIL 3130 - Philosophy of Law Credits: 3 hours
   PHIL 3140 - Philosophy and Public Affairs Credits: 3 hours
   PHIL 3150 - Race and Gender Issues Credits: 3 hours
   PHIL 3160 - Ethics in Engineering and Technology Credits: 3 hours
   PHIL 3310 - Moral Philosophy Credits: 4 hours
   PHIL 3340 - Biomedical Ethics Credits: 4 hours
   PHIL 4100 - Professional Ethics Credits: 3 hours
   PHIL 5440 - Practical Ethics Credits: 3 hours
4. Required Course:
PHIL 4800 - Senior Seminar Credits: 4 hours

The remaining credit hour requirements may be satisfied in a variety of ways, subject to the approval of the student's advisor. The student may apply up to four credit hours from an ethics-related course in another department, subject to advisor approval.

Baccalaureate-Level Writing Requirement
Students who have chosen the Philosophy major with the professional and applied ethics concentration will satisfy the Baccalaureate-Level Writing requirement by successfully completing one of the following courses:
PHIL 3310 - Moral Philosophy Credits: 4 hours
PHIL 3320 - Theory of Knowledge Credits: 4 hours
PHIL 3330 - Metaphysics Credits: 4 hours

Philosophy Minor

Program Requirements
A minor consists of at least 15 hours in philosophy, provided that the following requirements are met:

1. At least one of:
PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
PHIL 3010 - History of Modern Philosophy Credits: 4 hours
PHIL 3310 - Moral Philosophy Credits: 4 hours
PHIL 3320 - Theory of Knowledge Credits: 4 hours
PHIL 3330 - Metaphysics Credits: 4 hours

2. Remaining hours
A minimum of six hours of these 15 credit hours must be earned by completion of courses offered by the WMU Philosophy Department. Minors may choose any courses they find suitable.

Philosophy Minor - Professional and Applied Ethics

Program Requirements
Minimum of 18 credit hours. Required Philosophy courses:

1. One of the following:
PHIL 3000 - Ancient and Medieval Philosophy Credits: 4 hours
PHIL 3010 - History of Modern Philosophy Credits: 4 hours
PHIL 3110 - Political Philosophy Credits: 3 hours
PHIL 3130 - Philosophy of Law Credits: 3 hours
PHIL 3140 - Philosophy and Public Affairs Credits: 3 hours
PHIL 3150 - Race and Gender Issues Credits: 3 hours
PHIL 3160 - Ethics in Engineering and Technology Credits: 3 hours
PHIL 3310 - Moral Philosophy Credits: 4 hours
PHIL 3340 - Biomedical Ethics Credits: 4 hours
PHIL 4100 - Professional Ethics Credits: 3 hours
PHIL 5440 - Practical Ethics Credits: 3 hours
3. Remaining hours
The remaining credit hour requirements may be satisfied in a variety of ways. The student may complete the minor by doing additional course work within the Department of Philosophy. Any courses, including PHIL 4980: Independent Study, are applicable. Also, the student may apply up to four credit hours from an ethics-related course in another department, subject to advisor approval.
The Department of Physics offers three programs of study leading to a major in physics. Two of these are in the Liberal Education Curriculum. The Physics Major and the Geophysics Major (sponsored jointly by the Departments of Geosciences and Physics) are programs that prepare students for graduate study in physics or physics-related fields or for professional employment in applied physics fields. The Secondary Education Curriculum Physics Major prepares students to teach physics at the high school level.

Any student contemplating majoring or minoring in physics should contact the Department of Physics as early as possible. This is especially true for transfer students from community colleges in regard to transfer credit and course of study. Students will want to contact the department undergraduate advisor regarding courses, employment opportunities, and graduate study in physics.

A student majoring in physics may qualify for departmental honors in physics by fulfilling the following requirements:

1. Complete six credit hours of 5000 level physics courses OR complete a senior honors thesis project in physics with the Lee Honors College.
2. Attain a cumulative grade point average of at 3.5 or higher in the required physics courses and an accumulated overall grade point average of 3.2 or higher.

Minor programs are available in physics, secondary education physics, and astronomy.

All students majoring or minoring in physics are required to complete the introductory courses PHYS 2050, PHYS 2060, PHYS 2070, PHYS 2080, PHYS 3090, and PHYS 3100 with a grade of "C" or better in each course.

For all students, in all cases in which a course is listed as a prerequisite for a physics course, a grade of "C" or better must be earned in that course or the prerequisite is not satisfied. This includes math courses which are prerequisites.

5000-level courses are offered only to advanced physics majors. Department policy requires that undergraduates enrolling in these courses have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete course work in 5000-level physics and/or mathematics.

**Physics Major**

**Required Courses**
PHYS 2050 – University Physics I Credits: 4 hours
PHYS 2060 – University Physics I Laboratory Credits: 1 hour
PHYS 2070 – University Physics II Credits: 4 hours
PHYS 2080 – University Physics II Laboratory Credits: 1 hour
PHYS 2500 - Waves and Optics Credits: 3 hours
PHYS 3090 - Introductory Modern Physics Credits: 4 hours
PHYS 3100 - Introductory Modern Physics Lab Credits: 1 hour
PHYS 3300 - Thermodynamics Credits: 3 hours
PHYS 3420 - Electronics Credits: 4 hours
PHYS 4200 - Analytical Mechanics Credits: 3 hours
PHYS 4400 – Electromagnetism Credits: 4 hours
PHYS 4600 - Quantum Mechanics Credits: 3 hours
PHYS 4660 - Advanced Laboratory Credits: 3 hours

Required Cognates
CHEM 1100 - General Chemistry I Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
CHEM 1120 - General Chemistry II Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour

Required Math Minor
Select Either
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours (Recommended)

And Either
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours (Recommended)

And
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
MATH 5720 - Vector Calculus and Complex Variables Credits: 4 hours

Computer Programming Requirement
The Department requires physics majors to be proficient in a computer programming language before graduation. This requirement can be met by demonstrating proficiency or by passing the following course with a grade of “C” or higher.
CS 1110 - Computer Science I Credits: 4 hours

Higher level courses such as CS 2100 (Script Programming in Python), are encouraged and can be substituted with permission of the undergraduate advisor.

Baccalaureate-Level Writing Requirement
Students who have chosen the Liberal Education Physics Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:
PHYS 4660 - Advanced Laboratory Credits: 3 hours

Physics Major - Secondary Education

Required Courses
PHYS 1020 – Energy and the Environment Credits: 3 hours
PHYS 1030 - Sky and Solar System Laboratory Credits: 1 hour and
PHYS 1040 - Introduction to the Sky and Solar System Credits: 3 hours
PHYS 2050 – University Physics I  Credits: 4 hours
PHYS 2060 – University Physics I Laboratory  Credits: 1 hour
PHYS 2070 – University Physics II  Credits: 4 hours
PHYS 2080 – University Physics II Laboratory  Credits: 1 hour
PHYS 2500 - Waves and Optics  Credits: 3 hours
PHYS 3090 - Introductory Modern Physics  Credits: 4 hours
PHYS 3100 - Introductory Modern Physics Lab  Credits: 1 hour
PHYS 4220 – Teaching and Learning of Physics  Credits: 4 hours
SCI 4040 – Teaching of Secondary Science  Credits: 3 hours

Required Cognates
CHEM 1100 - General Chemistry I  Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
CHEM 1120 - General Chemistry II  Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours
PHIL 3550 – Philosophy of Science  Credits: 3 hours

Select Either
MATH 1220 - Calculus I  Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours  (Recommended)

Select Either
MATH 1230 - Calculus II  Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours  (Recommended)

Note: Refer to the College of Education and Human Development section of this catalog for additional curriculum requirements for this program. Students should meet with the undergraduate advisor to plan a course of study as soon as possible.

Baccalaureate-Level Writing Requirement
Students who have chosen the Secondary Education Physics Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:
ES 3950 - School and Society  Credits: 3 hours

Geophysics Major (GEPJ) (43 to 45 hours) (Physics)

The Geosciences and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study are also required to take mathematics courses, which correspond to a minor in mathematics. Students contemplating a geophysics major should contact the Geosciences and Physics Departments as early as possible for advising. Students need to meet with advisors in both departments.

Major Core: (40 to 41 hours)

Geosciences (GEOS) (22 hours)
GEOS 1300 - Physical Geology  Credits: 4 hours
GEOS 1310 - Historical Geology  Credits: 4 hours
GEOS 4300 - Structural Geology  Credits: 3 hours
GEOS 5010 - Geologic Communications and Presentations  Credits: 1 hour
GEOS 5390 - Geologic Mapping  Credits: 3 hours
GEOS 5600 - Introduction to Geophysics  Credits: 3 hours

Select one of the following two core courses:
GEOS 3010 - Minerals and Rocks  Credits: 4 hours
GEOS 3350 - Mineralogy  Credits: 4 hours
Physics (PHYS) (18 to 19 hours)
PHYS 2050 - University Physics I   Credits: 4 hours
PHYS 2060 - University Physics I Laboratory   Credits: 1 hour
PHYS 2070 - University Physics II   Credits: 4 hours
PHYS 2080 - University Physics II Laboratory   Credits: 1 hour
PHYS 3090 - Introductory Modern Physics   Credits: 4 hours
PHYS 3100 - Introductory Modern Physics Lab   Credits: 1 hour

One of the following
PHYS 2500 - Waves and Optics   Credits: 3 hours
PHYS 3250 - Introduction to Astrophysics   Credits: 3 hours
PHYS 3300 - Thermodynamics   Credits: 3 hours
PHYS 3420 - Electronics   Credits: 4 hours
PHYS 4400 - Electromagnetism   Credits: 4 hours

Electives: (3 to 4 hours)
One elective from upper-level geosciences, physics, and engineering courses to be chosen with consent of advisor (3-4 hours).

Additional Information
A minimum grade of “C” is required in each of the required courses as well as in each of the prerequisites for all required courses.

Required Mathematics Minor (19 hours)
Select either
MATH 1220 - Calculus I   Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering   Credits: 4 hours (Recommended)

Select either
MATH 1230 - Calculus II   Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering   Credits: 4 hours (Recommended)

And
MATH 2720 - Multivariate Calculus and Matrix Algebra   Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra   Credits: 4 hours
MATH 5070 - Numerical Analysis I   Credits: 3 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the Geophysics Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:
ENGL 3050 – Introduction to Professional Writing   Credits: 4 hours
GEOS 4320 - Geomorphology   Credits: 3 hours
GEOS 4350 - Sedimentation and Stratigraphy   Credits: 4 hours

Required Supporting Courses (7 hours)
CS 1110 - Computer Science I   Credits: 4 hours
Select Either
CHEM 1100 - General Chemistry I   Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I   Credits: 1 hour
OR
CHEM 1120 - General Chemistry II   Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II   Credits: 1 hour

Physics Minor
Required Courses
PHYS 2050 – University Physics I  Credits: 4 hours
PHYS 2060 – University Physics I Laboratory  Credits: 1 hour
PHYS 2070 – University Physics II  Credits: 4 hours
PHYS 2080 – University Physics II Laboratory  Credits: 1 hour
PHYS 3090 - Introductory Modern Physics  Credits: 4 hours
PHYS 3100 - Introductory Modern Physics Lab  Credits: 1 hour

Additional Courses
In addition, two physics courses numbered above 3000 and totaling a minimum of six hours of credit are required, subject to approval by the physics advisor.

Physics Minor - Secondary Education

Required Courses
PHYS 2050 – University Physics I  Credits: 4 hours
PHYS 2060 – University Physics I Laboratory  Credits: 1 hour
PHYS 2070 – University Physics II  Credits: 4 hours
PHYS 2080 – University Physics II Laboratory  Credits: 1 hour
PHYS 2500 - Waves and Optics  Credits: 3 hours
PHYS 3090 - Introductory Modern Physics  Credits: 4 hours
PHYS 3100 - Introductory Modern Physics Lab  Credits: 1 hour
PHYS 4220 – Teaching and Learning of Physics  Credits: 4 hours
SCI 4040 – Teaching of Secondary Science  Credits: 3 hours

Astronomy Minor

Required Courses
PHYS 1030 - Sky and Solar System Laboratory  Credits: 1 hour
PHYS 1040 - Introduction to the Sky and Solar System  Credits: 3 hours
PHYS 1050 - Stars and Galaxies Laboratory  Credits: 1 hour
PHYS 1060 - Introduction to Stars and Galaxies  Credits: 3 hours
PHYS 3250 - Introduction to Astrophysics  Credits: 3 hours
PHYS 4980 - Special Problems  Credits: 1 to 3 hours
AND
One additional course in physics or a related science, at least 3 credit hours, subject to approval by the physics advisor.

Note:
Students not majoring in physics should note that they must also complete all prerequisites for the courses listed above. See advisor for details.
Political Science
John A. Clark, Chair
Main Office: 3308 Friedmann Hall
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James M. Butterfield
Paul Clements
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Mark Hurwitz
Denise Keele
Priscilla Lambert
Mahendra Lawoti
Jacinda Swanson
Yuan-Kang Wang
Peter W. Wielhouwer

Courses in the department are designed to prepare a student to: (1) become a well-informed citizen; (2) become a teacher of government or civics; (3) become a governmental employee or officer; (4) understand the part government plays in everyday business or other activities; (5) develop sound methods of investigation and reflection as well as the ability to evaluate political information critically; (6) understand the role that individuals and organized groups can play in the political process; and (7) appreciate the relationship of the study of government and public affairs to other social sciences. Students who wish to major or minor in political science should come to the department office as soon as possible to complete the appropriate declaration form and to consult with a departmental advisor.

Institute of Government and Politics

The Department of Political Science houses and administers the Institute of Government and Politics (IGP). The mission of IGP is to introduce students, faculty and the greater Kalamazoo community to scholars of politics and political actors from outside the university and to the current research of department faculty and students. The IGP hosts events that feature experts on international and comparative politics, American politics and government, and political theory, as well as state and local elected officials, diplomatic and consular officials, and federal policymakers. The IGP teams with student groups and other academic units throughout the university to arrange these campus visits.

Foreign Study

Study abroad is encouraged by the Political Science Department. University funds are available to assist students who would like to spend a semester studying abroad. Credit toward any of the majors in political science can be obtained while studying in other countries. To explore these opportunities, talk with one of the faculty in the Political Science Department or contact the Study Abroad Director or Coordinator, B-2425 Ellsworth Hall.

Honors Program

Students have the opportunity to earn the bachelor’s degree with honors in political science. To be eligible a student must have an overall cumulative GPA of 3.0 or above, a GPA of 3.5 or above for courses in the major, prepare an original research paper with a department faculty member and pass an oral examination of the thesis with two additional faculty members. Students interested in the program should consult the departmental honors advisor.
Programs of Study

Programs of study offered by the department include: (1) a standard major and minor in political science; (2) a major in political science with an international and comparative politics concentration; (3) a major in political science with a public law concentration; (4) a major in political science with an American public policy concentration; and (5) a teaching major and minor in political science.

Advanced courses

Undergraduates may enroll in 5000-level courses only after attaining junior standing and taking PSCI 2000, either PSCI 2400 or PSCI 2500, and two additional courses in Political Science.

Political Science Major (33 hours minimum)

The major consists of a minimum of 33 semester hours of work in the department. A grade of "C" or better is required in all courses in the major, including courses in all concentrations of the major (i.e., international and comparative politics, public law, American public policy, and the secondary education curriculum). It is expected that transfer students will take at least one-half of the minimum required 33 hours in the department.

Required Core Courses

PSCI 2000 - National Government   Credits: 3 hours
PSCI 2400 - Comparative Politics   Credits: 3 hours or
PSCI 2500 - International Relations   Credits: 4 hours
PSCI 3950 - Data in Politics and Policy   Credits: 3 hours

One course in comparative politics to be chosen from:

PSCI 3400 - European Politics   Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa   Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics   Credits: 4 hours
PSCI 3450 - Latin American Politics   Credits: 4 hours
PSCI 3460 - Women in Developing Countries   Credits: 4 hours
PSCI 3500 – American Foreign Policy   Credits: 4 hours
PSCI 4400 – The European Union   Credits: 3 hours
PSCI 4410 – Issues in International Politics   Credits: 3 hours
PSCI 4420 – Studies in International Politics   Credits: 3 hours

Two courses in political theory to be chosen from:

PSCI 3600 - Ancient Political Thought   Credits: 3 hours
PSCI 3610 - Modern Political Thought   Credits: 3 hours
PSCI 3620 - Contemporary Political Ideologies   Credits: 3 hours
PSCI 3630 - American Political Theory   Credits: 3 hours

Baccalaureate-Level Writing Requirement

Students who have chosen the Political Science major may satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

PSCI 4050 - Public Policy and the Economy   Credits: 3 hours
PSCI 4210 - Gender and Law   Credits: 3 hours
PSCI 4240 - Environmental Law   Credits: 3 hours
PSCI 4500 - Seminar in International and Comparative Politics   Credits: 3 hours
PSCI 4940 - Seminar in Political Science   Credits: 3 hours

Political Science Major - International and Comparative Politics Concentration
This concentration is available within the political science major for students with particular career and/or advanced degree interests that would require concentrated knowledge of foreign politics and/or international politics. The concentration provides for students completing the program to receive designation of this specialization on their transcript.

The concentration in international and comparative politics is aimed at preparing students for careers in international affairs, the foreign service, development assistance, and international business.

Students interested in a major in political science with a concentration in international and comparative politics should see the designated departmental advisor.

A grade of “C” or better is required in all courses in the major in political science with a concentration in international and comparative politics, including cognates and language courses.

Program Requirements
For the political science major concentration in international and comparative politics, a student must complete the following:

Required Core Courses (16 hours)
PSCI 2000 - National Government Credits: 3 hours
PSCI 2400 - Comparative Politics Credits: 3 hours
PSCI 2500 - International Relations Credits: 4 hours

One course in methods to be chosen from:
PSCI 3950 - Data in Politics and Policy Credits: 3 hours

One course in political theory to be chosen from:
PSCI 3600 - Ancient Political Thought Credits: 3 hours
PSCI 3610 - Modern Political Thought Credits: 3 hours
PSCI 3620 - Contemporary Political Ideologies Credits: 3 hours
PSCI 3630 - American Political Theory Credits: 3 hours

Four of the following courses (12 to 16 hours)
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
PSCI 3500 - American Foreign Policy Credits: 4 hours
PSCI 4400 - The European Union Credits: 3 hours
PSCI 4410 - Issues in International Politics Credits: 3 hours
PSCI 4420 - Studies in International Politics Credits: 3 hours
PSCI 5320 - Administration in Developing Countries Credits: 3 hours
PSCI 5530 - United Nations Credits: 3 hours

Additional
One additional course (3 to 4 hours) from Political Science at the 3000-level or higher.

Baccalaureate-Level Writing Requirement
PSCI 4500 - Seminar in International and Comparative Politics Credits: 3 hours

Foreign Language Requirement
Student must complete two years of the same foreign language, and this can be met in one of the following four ways. First, successful completion (defined as passing) of the 2010-level course at WMU in the language of their choice. Second, successful completion of similar courses at another institution which are accepted as transfer credit by WMU. Third, passing the Foreign Language Placement Evaluation Exam in the language of their choice regularly offered by the Department of World Languages and Literatures. The student must be placed in the third year of study, which means the student's level of
competence is in accordance with two completed years. Fourth, if the student is a foreign student whose first language is not
English, the student is exempt from this requirement. Determination of eligibility for this exemption will be based on whether
the student was required to take the TOEFL test for admission.

Cognate Courses
Complete at least three additional courses on foreign, international, or cross-national topics (prior approval by advisor
required) from at least two of the following departments: Anthropology, Economics, Geography, History, World Languages
and Literatures (literature and culture classes only), Comparative Religion, Sociology or Spanish (literature and culture
classes only). Certain business courses may also be considered (see advisor).

Political Science Major - Public Law Concentration

This concentration is available within the political science major for students with particular career and/or advanced degree
interests in this field. The concentration allows students completing the program to receive designation of this specialization
on their transcript.

Public law is concerned with judicial and quasi-judicial institutions at the international, national, state, and local levels. The
concentration is primarily, though not exclusively, designed for students with career interests in the field of law.

A grade of “C” or better is required in all courses in the major in political science with a concentration in public law.

Program Requirements
For the political science major concentration in public law, a student must complete the following:

Required Core Courses
PSCI 2000 - National Government Credits: 3 hours
PSCI 2400 - Comparative Politics Credits: 3 hours or
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3200 - The American Judicial Process Credits: 4 hours
PSCI 3950 - Data in Politics and Policy Credits: 3 hours

One course in comparative politics (3/4 hours):
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
PSCI 3500 – American Foreign Policy Credits: 4 hours
PSCI 4400 – The European Union Credits: 3 hours
PSCI 4410 – Issues in International Politics Credits: 3 hours
PSCI 4420 – Studies in International Politics Credits: 3 hours

One course in political theory (3 hours)
PSCI 3600 - Ancient Political Thought Credits: 3 hours
PSCI 3610 - Modern Political Thought Credits: 3 hours
PSCI 3620 - Contemporary Political Ideologies Credits: 3 hours
PSCI 3630 - American Political Theory Credits: 3 hours

Two of the following courses (6 hours)
PSCI 3000 - Urban Politics in the United States Credits: 3 hours
PSCI 3040 - Introduction to Public Policy Credits: 3 hours
PSCI 3100 - Political Parties and Elections Credits: 3 hours
PSCI 3110 - American Politics and the Media Credits: 3 hours
PSCI 3140 - The Presidency Credits: 3 hours
PSCI 3150 - The Politics of Congress Credits: 3 hours
PSCI 3250 - Criminal Justice Policy  Credits: 3 hours

Two of the following courses (6 hours)
PSCI 4200 – Constitutional Law  Credits: 3 hours
PSCI 4210 – Gender and Law  Credits: 3 hours
PSCI 4220 – Civil Rights and Liberties  Credits: 3 hours
PSCI 4230 – The First Amendment  Credits: 3 hours
PSCI 4240 – Environmental Law  Credits: 3 hours

Baccalaureate-Level Writing Requirement (3 hours)
One course to be chosen from:
PSCI 4050 - Public Policy and the Economy  Credits: 3 hours
PSCI 4210 - Gender and Law  Credits: 3 hours
PSCI 4240 - Environmental Law  Credits: 3 hours
PSCI 4500 - Seminar in International and Comparative Politics  Credits: 3 hours
PSCI 4940 - Seminar in Political Science  Credits: 3 hours

One additional elective in political science (3/4 hours)

**Political Science Major - American Public Policy Concentration**

This concentration is designed for students who wish to study American government and public policy in depth, yet gain exposure to the broader discipline of political science as well. It aims to prepare students to pursue advanced degrees or careers in policy making, politics, law and public service. The concentration provides for students completing the program to receive designation of this specialization on their transcript.

Students interested in a major in political science with a concentration in American public policy should see the designated departmental advisor.

A grade of "C" or better is required in all courses in the major in political science with a concentration in American public policy.

**Program Requirements**

For the political science major concentration in American public policy, a student must complete the following:

**Required Core Courses**
PSCI 2000 - National Government  Credits: 3 hours
PSCI 3040 - Introduction to Public Policy  Credits: 3 hours
PSCI 3950 - Data in Politics and Policy  Credits: 3 hours
PSCI 4050 - Public Policy and the Economy  Credits: 3 hours

One international relations or comparative politics course to be chosen from:
PSCI 2400 - Comparative Politics  Credits: 3 hours
PSCI 2500 - International Relations  Credits: 4 hours

Two political theory courses to be chosen from:
PSCI 3600 - Ancient Political Thought  Credits: 3 hours
PSCI 3610 - Modern Political Thought  Credits: 3 hours
PSCI 3620 - Contemporary Political Ideologies  Credits: 3 hours
PSCI 3630 - American Political Theory  Credits: 3 hours

Three of the following courses
PSCI 2020 - State and Local Government  Credits: 4 hours
PSCI 3000 - Urban Politics in the United States  Credits: 3 hours
PSCI 3100 - Political Parties and Elections  Credits: 3 hours
Political Science - Secondary Education Major

The teaching major consists of a minimum of 30 semester hours of work in political science. It is expected that transfer students will take at least one-half of the minimum required 30 hours in the department. A grade of “C” or better is required in all courses in the secondary education major in political science. The following are the program requirements for teaching majors:

Required Courses
PSCI 2000 - National Government Credits: 3 hours
PSCI 2020 - State and Local Government Credits: 4 hours
PSCI 2400 - Comparative Politics Credits: 3 hours OR
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3950 - Data in Politics and Policy Credits: 3 hours

One course in comparative politics to be chosen from:
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
PSCI 3500 – American Foreign Policy Credits: 4 hours
PSCI 4400 – The European Union Credits: 3 hours
PSCI 4410 – Issues in International Politics Credits: 3 hours
PSCI 4420 – Studies in International Politics Credits: 3 hours

One course in political theory to be chosen from:
PSCI 3600 - Ancient Political Thought Credits: 3 hours
PSCI 3610 - Modern Political Thought Credits: 3 hours
PSCI 3620 - Contemporary Political Ideologies Credits: 3 hours OR
PSCI 3630 - American Political Theory Credits: 3 hours

Baccalaureate-Level Writing Requirement
ES 3950 - School and Society Credits: 3 hours

Additional Electives
Additional electives in Political Science at the 2000-level or higher to achieve a minimum of 30 semester hours

Cognate Requirements
Students planning to use this major to meet teacher certification requirements are required to complete GEOG 4600, Concepts and Strategies in the Teaching of Geography, or HIST 4940, Teaching Methods in the Secondary School.

Teaching majors must also complete a minor from the list of approved minors for the Secondary Education curriculum. The cognate requirements can be counted toward a minor in Geography or History.

ECON 2010 - Principles of Microeconomics Credits: 3 hours OR
Political Science Minor

The standard political science minor consists of 20 semester hours in political science. It is expected that transfer students will take at least one-half of the minimum required 20 hours in the department. A grade of "C" or better is required in all courses in the minor in Political Science.

Program Requirements
A political science minor shall complete the following:
PSCI 2000 - National Government Credits: 3 hours

Select Either:
PSCI 2400 - Comparative Politics Credits: 3 hours or
PSCI 2500 - International Relations Credits: 4 hours

One course in comparative politics to be chosen from:
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
PSCI 3500 – American Foreign Policy Credits: 4 hours
PSCI 4400 – The European Union Credits: 3 hours
PSCI 4410 – Issues in International Politics Credits: 3 hours
PSCI 4420 – Studies in International Politics Credits: 3 hours

One course in political theory to be chosen from:
PSCI 3600 - Ancient Political Thought Credits: 3 hours
PSCI 3610 - Modern Political Thought Credits: 3 hours
PSCI 3620 - Contemporary Political Ideologies Credits: 3 hours
PSCI 3630 - American Political Theory Credits: 3 hours

Political Science - Secondary Education Minor

A teaching minor consists of 21 semester hours of work in political science. It is expected that transfer students will take at least one-half of the minimum required 21 hours in the department. A grade of "C" or better is required in all courses in the secondary education minor in Political Science. The following are the program requirements for teaching minors:

Required Courses
PSCI 2000 - National Government Credits: 3 hours
PSCI 2020 - State and Local Government Credits: 4 hours
PSCI 2400 - Comparative Politics Credits: 3 hours or
PSCI 2500 - International Relations Credits: 4 hours

One course in comparative politics to be chosen from:
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
Political Science Minor – Social Studies Major

The teaching minor consists of 23 semester hours of work in political science. It is expected that transfer students will take at least one-half of the minimum required 23 hours in the department. A grade of “C” or better is required in all courses in the secondary education minor in Political Science.

The following are the program requirements for teaching minors. Students must complete the Social Studies – Secondary Education major to fulfill the requirements for this minor.

Required Courses
- PSCI 2020 - State and Local Government Credits: 4 hours
- PSCI 3950 - Data in Politics and Policy Credits: 3 hours

One course in comparative politics, chosen from:
- PSCI 3400 - European Politics Credits: 4 hours
- PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
- PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
- PSCI 3450 - Latin American Politics Credits: 4 hours
- PSCI 3460 - Women in Developing Countries Credits: 4 hours

One course in political theory, chosen from:
- PSCI 3600 - Ancient Political Thought Credits: 3 hours
- PSCI 3610 - Modern Political Thought Credits: 3 hours
- PSCI 3620 - Contemporary Political Ideologies Credits: 3 hours
- PSCI 3630 - American Political Theory Credits: 3 hours

Electives
Additional electives in Political Science at the 2000-level or higher to achieve a minimum of 23 semester hours.
Cognate Requirements
GEOG 4600 - Concepts and Strategies in the Teaching of Geography  Credits: 3 hours
OR
HIST 4940 - Teaching Methods in the Secondary School  Credits: 3 hours

Additional Information
Requirements may be waived with the written permission of the chairperson of the department.

Courses by Topic - Political Science

Principles
PSCI 1050 - Critical Thinking About Politics Credits: 3 hours

American Political System
PSCI 2000 - National Government  Credits: 3 hours
PSCI 2020 - State and Local Government  Credits: 4 hours
PSCI 3000 - Urban Politics in the United States  Credits: 3 hours
PSCI 3040 - Introduction to Public Policy  Credits: 3 hours
PSCI 3060 - Environmental Politics  Credits: 4 hours
PSCI 3100 - Political Parties and Elections  Credits: 3 hours
PSCI 3110 - American Politics and the Media  Credits: 3 hours
PSCI 3120 - Interest Groups and Citizen Politics  Credits: 3 hours
PSCI 3140 - The Presidency  Credits: 3 hours
PSCI 3150 - The Politics of Congress  Credits: 3 hours
PSCI 3200 - The American Judicial Process  Credits: 4 hours
PSCI 3250 - Criminal Justice Policy  Credits: 3 hours
PSCI 4050 - Public Policy and the Economy  Credits: 3 hours
PSCI 4100 - American Public Opinion  Credits: 3 hours
PSCI 4200 - Constitutional Law  Credits: 3 hours
PSCI 4210 - Gender and Law  Credits: 3 hours
PSCI 4220 - Civil Rights and Liberties  Credits: 3 hours
PSCI 4230 - The First Amendment  Credits: 3 hours
PSCI 4240 - Environmental Law  Credits: 3 hours
PSCI 5060 - Topics in American Politics  Credits: 3 to 4 hours

Public Administration
PSCI 5320 - Administration in Developing Countries  Credits: 3 hours

International And Comparative Politics
PSCI 2400 - Comparative Politics Credits: 3 hours
PSCI 2500 - International Relations Credits: 4 hours
PSCI 3400 - European Politics Credits: 4 hours
PSCI 3410 - The Politics of Sub-Saharan Africa Credits: 4 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
PSCI 3460 - Women in Developing Countries Credits: 4 hours
PSCI 3500 - American Foreign Policy Credits: 4 hours
PSCI 4400 - The European Union Credits: 3 hours
PSCI 4410 - Issues in International Politics Credits: 3 hours
PSCI 4420 - Studies in International Politics Credits: 3 hours
PSCI 4500 - Seminar in International and Comparative Politics Credits: 3 hours

Political Theory And Methodology
PSCI 3600 - Ancient Political Thought  Credits: 3 hours
PSCI 3610 - Modern Political Thought  Credits: 3 hours
PSCI 3620 - Contemporary Political Ideologies  Credits: 3 hours
PSCI 3630 - American Political Theory  Credits: 3 hours
PSCI 3950 - Data in Politics and Policy  Credits: 3 hours

Special Studies
PSCI 2700 - Political Topics  Credits: 1 to 3 hours
PSCI 3700 - Issues in Contemporary Politics  Credits: 3 to 4 hours
PSCI 3900 - Field Work in Political Science  Credits: 1 to 12 hours
PSCI 3910 - Internship Seminar  Credits: 3 hours
PSCI 4920 - Political Science Honors Research  Credits: 2 to 3 hours
PSCI 4940 - Seminar in Political Science  Credits: 3 hours
PSCI 5980 - Studies in Political Science  Credits: 1 to 4 hours
Psychology
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Students must consult the department advisor for major/minor requirements in Psychology, and for the evaluation of transfer credits, or for any other questions involving Psychology majors or minors.

Honors Program in Psychology
The honors program is designed to promote an academic community of undergraduate students, graduate students and faculty in psychology. The requirements for the departmental honors program include:

1. The completion of a major in Psychology.
2. A University grade point average of 3.5, and a department grade point average of 3.8.
3. Completion of the following: (6 hours)
   Preparation of an Honors Thesis and the following course:
   PSY 4990 - Honors Projects in Psychology Credits: 1 to 5 hours
4. The successful defense of the Honors Thesis before a departmental committee.
5. Participation in a professional apprenticeship program (2 credit hours).

Advanced Courses
All 5000-level courses in the Department of Psychology have a prerequisite of junior standing, PSY 3600 (Concepts and Principles of Behavior Analysis) and PSY 3300 (Advanced Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis.

Pre-Psychology Major

Admission Requirement
Any freshman or transfer student planning to pursue psychology as a major will be admitted as a pre-psychology student and will work with a psychology advisor to develop a planned program. Admission as a General Psychology major requires that
the student complete PSY 1000, PSY 1400, PSY 1401, PSY 1600, and PSY 3000 all with grades of "C" or better. Admission as a Behavioral Science major requires that the student complete PSY 1000, PSY 1400, PSY 1401, PSY 1600, and PSY 3000, all with grades of "B" or better.

Transfer students who present appropriate psychology courses will be evaluated and may be admitted on an individual basis directly into the program. Transfer students with no psychology courses will be required to take the relevant courses listed above.

Additional information can be obtained from the departmental office or from a psychology advisor. Students who do not meet admission requirements will be informed of steps they can take to earn admission.

**Psychology: Behavioral Science Major (41 credit hours)**

The Behavioral Science Major is strongly recommended to those planning on pursuing graduate study in psychology. The Behavioral Science Major prepares students for a variety of graduate programs in psychology by emphasizing a stronger foundation in research, professional skills, and applied experience, as well as requiring a higher degree of rigor in completed coursework. Admission to the Behavioral Science Major requires a minimum grade of "B" in all five Introductory Core courses (PSY 1000, PSY 1400, PSY 1401, PSY 1600, and PSY 3000). In addition, students must obtain a grade of "C" or better in any subsequent courses that count toward the Behavioral Science Major. A minimum of nine (9) hours must be taken from the WMU Psychology Department. All psychology majors are strongly encouraged to satisfy the College-Level Mathematics or Quantitative Reasoning Proficiency before taking upper-level classes.

**Introductory Core (14 hours)**
PSY 1000 - General Psychology Credits: 3 hours
PSY 1400 - Introduction to Behavior Analysis Credits: 4 hours
PSY 1401 - Introductory Operant Conditioning Laboratory Credits: 1 hour
PSY 1600 - Child Psychology Credits: 3 hours
PSY 3000 - Research Methods and Statistics Credits: 3 hours

**Professional Skills and Advanced Principles (12 hours)**
PSY 3300 - Advanced Research Methods Credits: 3 hours
PSY 3600 - Advanced Concepts and Principles of Behavior Analysis Credits: 3 hours
PSY 3844 - Professional and Career Development Credits: 3 hours
PSY 4600 - Survey of Behavior Analysis Research Credits: 3 hours

**Practicum or Laboratory (6 hours)**
One practicum course above the six credits required may count as an elective.
PSY 1403 - Autism Practicum Credits: 3 hours
PSY 3550 - Teaching Apprenticeship in Psychology Credits: 1 to 4 hours
PSY 3601 - Advanced Operant Conditioning Laboratory Credits: 3 hours
PSY 3780 - Behavioral Neuroscience Research Practicum Credits: 3 hours
PSY 3970 - Practicum in Psychology Credits: 1 to 5 hours
PSY 3990 - Research Apprenticeship: Psychology Credits: 1 to 4 hours
PSY 4990 - Honors Projects in Psychology Credits: 1 to 5 hours
PSY 5470 - Practicum: Organizational Performance Improvement Credits: 3 hours
PSY 5990 - Practicum in Psychology Credits: 2 to 4 hours

**Electives (at least 9 hours)**
PSY 2500 - Abnormal Psychology Credits: 3 hours
PSY 2517 - Applied Behavior Analysis in Autism and Developmental Disabilities Credits: 3 hours
PSY 3240 - Abnormal Child Psychology Credits: 3 hours
PSY 3260 - Forensic Psychology Credits: 3 hours
PSY 3440 - Organizational Psychology Credits: 3 hours
PSY 3456 - Behavioral Approaches to Sustainability Credits: 3 hours
PSY 3517 - Educational Psychology Credits: 3 hours
PSY 3655 - Behaviorism and Psychology  Credits: 3 hours
PSY 3720 - Behavioral Neuroscience  Credits: 3 hours
PSY 3960 - Topical Studies in Psychology  Credits: 1 to 3 hours
PSY 3980 - Independent Study  Credits: 1 to 5 hours
PSY 4280 - Psychology of Aging  Credits: 3 hours
PSY 4526 - Human Drug Use and Abuse  Credits: 3 hours
PSY 4574 - Cross Cultural Psychology  Credits: 3 hours
PSY 4595 - History of Psychology  Credits:
PSY 4630 - Health Psychology  Credits: 3 hours
PSY 5170 - Psychology in the Schools  Credits: 3 hours
PSY 5240 - Human Sexuality  Credits: 3 hours
PSY 5400 - Psychology of Safety  Credits: 3 hours
PSY 5610 - Introduction to Clinical Psychology  Credits: 3 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the Behavioral Science Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

PSY 3300 - Advanced Research Methods Credits: 3 hours
PSY 3780 - Behavioral Neuroscience Research Practicum  Credits: 3 hours
PSY 3844 - Professional and Career Development  Credits: 3 hours
PSY 4526 - Human Drug Use and Abuse  Credits: 3 hours
PSY 4574 - Cross Cultural Psychology  Credits: 3 hours
PSY 4595 - History of Psychology  Credits: 3 hours

Psychology: General Psychology (32 credit hours)

The General Psychology Major is recommended for students who are not pursuing graduate study in psychology. The flexibility offered by the General Psychology Major helps prepare students for a variety of career paths in which an understanding of psychology would be beneficial or for graduate study in disciplines outside of psychology. Admission to the General Psychology Major requires a minimum grade of "C" in all five Introductory Core courses (PSY 1000, PSY 1400, PSY 1401, PSY 1600, and PSY 3000). A minimum of nine (9) hours must be taken from the WMU Psychology Department, and the student must obtain a grade of "C" or better in any courses that count toward the General Psychology Major. All psychology majors are strongly encouraged to satisfy the College-Level Mathematics or Quantitative Reasoning Proficiency before taking upper-level classes.

Introductory Core (14 hours)
PSY 1000 - General Psychology  Credits: 3 hours
PSY 1400 - Introduction to Behavior Analysis  Credits: 4 hours
PSY 1401 - Introductory Operant Conditioning Laboratory  Credits: 1 hour
PSY 1600 - Child Psychology  Credits: 3 hours
PSY 3000 - Research Methods and Statistics  Credits: 3 hours

Practicum or Laboratory (3 hours)
One practicum course above the three credits required may count as an elective.
PSY 1403 - Autism Practicum  Credits: 3 hours
PSY 3550 - Teaching Apprenticeship in Psychology  Credits: 1 to 4 hours
PSY 3780 - Behavioral Neuroscience Research Practicum  Credits: 3 hours
PSY 3970 - Practicum in Psychology  Credits: 1 to 5 hours
PSY 5470 - Practicum: Organizational Performance Improvement  Credits: 3 hours
PSY 5990 - Practicum in Psychology  Credits: 2 to 4 hours

Electives (at least 15 hours)
PSY 2500 - Abnormal Psychology  Credits: 3 hours
PSY 2517 - Applied Behavior Analysis in Autism and Developmental Disabilities  Credits: 3 hours
PSY 3240 - Abnormal Child Psychology  Credits: 3 hours
PSY 3260 - Forensic Psychology  Credits: 3 hours
PSY 3300 - Advanced Research Methods  Credits: 3 hours
PSY 3440 - Organizational Psychology Credits: 3 hours
PSY 3456 - Behavioral Approaches to Sustainability  Credits: 3 hours
PSY 3517 - Educational Psychology  Credits: 3 hours
PSY 3655 - Behaviorism and Psychology  Credits: 3 hours
PSY 3720 - Behavioral Neuroscience  Credits: 3 hours
PSY 3844 - Professional and Career Development  Credits: 3 hours
PSY 3960 - Topical Studies in Psychology  Credits: 1 to 3 hours
PSY 3980 - Independent Study  Credits: 1 to 5 hours
PSY 4280 - Psychology of Aging  Credits: 3 hours
PSY 4526 - Human Drug Use and Abuse  Credits: 3 hours
PSY 4574 - Cross Cultural Psychology  Credits: 3 hours
PSY 4595 - History of Psychology  Credits:
PSY 4630 - Health Psychology  Credits: 3 hours
PSY 5170 - Psychology in the Schools  Credits: 3 hours
PSY 5240 - Human Sexuality  Credits: 3 hours
PSY 5400 - Psychology of Safety  Credits: 3 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the General Psychology Major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing one of the following courses:

PSY 3300 - Advanced Research Methods Credits: 3 hours
PSY 3780 - Behavioral Neuroscience Research Practicum  Credits: 3 hours
PSY 3844 - Professional and Career Development  Credits: 3 hours
PSY 4526 - Human Drug Use and Abuse  Credits: 3 hours
PSY 4574 - Cross Cultural Psychology  Credits: 3 hours
PSY 4595 - History of Psychology  Credits: 3 hours

Psychology Minor (16 hours minimum)

Of the minimum total of sixteen (16) hours for the minor, a minimum of six (6) hours must be taken from the WMU Psychology Department, and the student must receive a grade of "C" or better in any course that counts toward the minor.

Required Courses (7 hours)
PSY 1000 - General Psychology  Credits: 3 hours
PSY 1400 - Introduction to Behavior Analysis  Credits: 4 hours

Approved Electives (9 hours)
PSY 1600 - Child Psychology  Credits: 3 hours
PSY 2500 - Abnormal Psychology  Credits: 3 hours
PSY 3240 - Abnormal Child Psychology  Credits: 3 hours
PSY 3260 - Forensic Psychology  Credits: 3 hours
PSY 3440 - Organizational Psychology Credits: 3
PSY 3456 - Behavioral Approaches to Sustainability  Credits: 3 hours
PSY 3517 - Educational Psychology  Credits: 3 hours
PSY 3550 - Teaching Apprenticeship in Psychology  Credits: 1 to 4 hours
PSY 4240 - The Psychology of Human Sexuality  Credits: 3 hours
PSY 4280 - Psychology of Aging  Credits: 3 hours
PSY 4630 - Health Psychology  Credits: 3 hours

Note: Three (3) hours of practicum can substitute for 3 hours of elective.
PSY 3970 - Practicum in Psychology  Credits: 1 to 5 hours

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Undergraduates with junior or senior status and 12 hours of course work in appropriate major fields may enroll in 5000-level courses with prior approval of the student’s advisor or the program director.

Nonprofit Leadership Minor with Certification

The School of Public Affairs and Administration offers two undergraduate Minors in Nonprofit Leadership. Nonprofit Leadership Minor with Certification is geared towards students interested in pursuing careers in nonprofits dealing with youth and families and includes earning a National Certification called "Certified Nonprofit Professional" (CNP) from the Nonprofit Leadership Alliance (NLA). This minor requires 17 credit hours and certification. The minor prepares students for entry-level professional positions in nonprofit organizations.

With Certification Requirements
The minor in Nonprofit Leadership that includes the Nonprofit Leadership Alliance (NLA) certification requires the following: 14 credit hours, 3 hours of elective credit hours and service:

- PADM 2000 - Introduction to Nonprofit Leadership Credits: 3 hours
- PADM 3000 - Nonprofit Advancement Credits: 3 hours
- PADM 3210 - Nonprofit Leadership Student Association I Credits: 1 hour
- PADM 3220 - Nonprofit Leadership Student Association II Credits: 1 hour
- PADM 4000 - Seminar in Nonprofit Leadership Credits: 3 hours
- PADM 4100 - Internship in Nonprofit Leadership Credits: 1 to 8 hours
  (The minimum requirements for the internship is 3 credit hours.)

Elective Credits: 3 hours
All electives must be approved by the advisor. Some possibilities for these credit hours are the following: PADM 5830, 5840, 5870, 5980, 5990; ACTY 2100, 2110, 3130, 4140; ADA 5650; AAAS 3140; ANTH 5220; COM 3500, 4440, 5410; DANC 4890; ECON 2010, 2020, 3100, 3190, 3240, 3450, 3800, 4020, 5880, ENVS 4100; GWS 3200; PHIL 4100; PSCI 2000, 2020, 3000, 3040, 3110, 3950, 4050, 4200, 4210, 4220; PSY 3000, 3300, 5260; SOC 2820, 2830, 3730, 4120, 4560, 5680; STAT 2160; SWRK 3330, 4010, 4020 (Please note there may be prerequisites for these classes.)

Additional Requirements
Extracurricular requirements prescribed by the Nonprofit Leadership Alliance (NLA). These requirements include attendance at the national Alliance Management/Leadership Institute, and participation in other activities that fulfill the NLA competencies.

The student must complete a minimum internship of 300 hours (3 credit hours) in a nonprofit organization either by taking PADM 4100 or by taking an internship in the student's major. If the internship is in the student's major, the internship must be approved, in advance, by the appropriate faculty in the School of Public Affairs and Administration, involve work that fulfills the NLA competencies, and include the NLA reporting requirements.

Elective hours are determined by the student's career goals and defined in conjunction with the appropriate faculty in the School of Public Affairs and Administration. Since leadership encompasses a broad range of skills that are applied in several
sectors, it is not possible to provide a comprehensive list of the areas of the electives. Examples include the arts, communication, criminal justice, diversity, environmental studies, health services, nonprofit administration, public policy, public history, and urban and regional planning. Course options for these and additional areas are provided on the School of Public Affairs and Administration's website and developed in consultation with the appropriate faculty in the School of Public Affairs and Administration.

In order to obtain NLA certification/minor, the student must earn a minimum grade of "C" or better in any course counted towards the NLA certification/minor and have the appropriate faculty in the School of Public Affairs and Administration attest to the fulfillment of the competencies. The Nonprofit Leadership Alliance competency requirements include Communication, Marketing, and Public Relations; Cultural Competency and Diversity; Financial Resource Development and Management; Foundation and Management of the Nonprofit Sector; Governance, Leadership and Advocacy; Legal and Ethical Decision Making; Personal and Professional Development; Program Development; Volunteer and Human Resource Management; and the Future of the Nonprofit Sector.

Course options for these and additional areas are provided on the School of Public Affairs and Administration's website and developed in consultation with the appropriate faculty in the School of Public Affairs and Administration.

Additional Costs
There is currently a $25 fee to join the Nonprofit Leadership Alliance and a $35 fee for the processing of the CNP certificate. Fees are also charged for part of the cost (travel, lodging, registration) of attending the National Alliance Management/Leadership Institute. Students involved in PADM 3220 will also be responsible for raising funds for part of the cost of the conference. Conference costs vary depending on location of the conference and membership and certification fees are subject to change.

Nonprofit Leadership Minor
The School of Public Affairs and Administration offers two undergraduate minors in Nonprofit Leadership. The Nonprofit Leadership minor is geared for the student interested in administration of nonprofits in the arts, museums, the environment, healthcare, advocacy, and justice. In addition to traditional course work this minor requires service to the University and community. The minor requires 18 credit hours and prepares students for entry-level professional positions in nonprofit organizations.

No Certification Requirements
The minor in Nonprofit Leadership (No Certification) requires the following: 12 credit hours plus 6 - 9 hours of elective credit hours and service:

- PADM 2000 - Introduction to Nonprofit Leadership Credits: 3 hours
- PADM 3000 - Nonprofit Advancement Credits: 3 hours
- PADM 4000 - Seminar in Nonprofit Leadership Credits: 3 hours
- PADM 4100 - Internship in Nonprofit Leadership Credits: 3 hours

Electives Credits: 6 to 9 hours
All electives must be approved by the advisor. Some possibilities for these credit hours are the following: PADM 5830, 5840, 5870, 5980, 5990; ACTY 2100, 2110, 3130, 4140; ADA 5650; AAAS 3410; ANTH 5250; COM 3500, 5410; DANC 4890; ECON 2010, 2020, 3100; 3190, 3240, 3450, 3800, 4020, 5880, ENV 4100; GWS 3200; PHIL 4100; PSCI 2000, 2020, 3000, 3040, 3110, 3950, 4050, 4200, 4210, 4220; PSY 3000, 3300, 5260; SOC 2820, 2830, 3730, 4120, 4560, 5680; STAT 2160; SWRK 3330, 4010, 4020 (Please note there may be prerequisites for these classes.)

Additional Requirements
The student must complete a minimum internship of 300 hours (3 credit hours) in a nonprofit organization either by taking PADM 4100 or by taking an internship in the student's major. If the internship is in the student's major, the internship must
be approved, in advance, by the appropriate faculty in the School of Public Affairs and Administration and include the NLA reporting requirements.

Elective hours are determined by the student's career goals and defined in conjunction with the appropriate faculty in the School of Public Affairs and Administration. Since leadership encompasses a broad range of skills that are applied in several sectors, it is not possible to provide a comprehensive list of the areas of the electives. Examples include the arts, communication, criminal justice, diversity, environmental studies, health services, nonprofit administration, public policy, public history, and urban and regional planning. Course options for these and additional areas are provided on the School of Public Affairs and Administration's website and developed in consultation with the appropriate faculty in the School of Public Affairs and Administration.

In order to obtain Nonprofit Leadership minor, the student must earn a minimum grade of "C" or better in any course counted towards the minor.
Courses are designed to give students a better understanding of the significant factors and processes of modern life; to provide study useful for particular applied fields, such as social work, criminal justice, market research, opinion polling, city, state, and federal governmental service, and social research; to meet the needs of students preparing to teach in the social science field; and to prepare students for graduate work in sociology or criminal justice.

The Kercher Center for Social Research, as the research arm of the department, provides facilities and services available to students as well as faculty for instructional and research purposes. The center maintains computer and other research facilities that are used in research course instruction. Research conducted through the center has dealt with subjects such as: criminal justice, marital roles, race relations, voting behavior, alcoholism, mental health, demography, and education.

Department Advisor

3225 Sangren Hall, (269) 387-5286. Students must consult the department advisor for major/minor slips in Sociology, Criminal Justice, the Social Psychology concentration, and for the evaluation of transfer credits, or for any other questions involving majors or minors.

Undergraduate Assistantships

Students interested in becoming more involved in the department's activities and projects may wish to apply for undergraduate assistantships which are available fall and spring semesters. Department assistants receive a moderate stipend and are assigned to work for a faculty member or department project. Applicants for these awards are also considered for the Kercher Award.

Further information and application forms may be obtained at the Sociology Office, 3233 Sangren Hall.

Nonprofit Leadership Alliance Certificate Program
Sociology majors and minors may choose to participate in the Nonprofit Leadership Alliance Certificate Program. This program is designed to prepare students for employment, service, and leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major and minor that meet the Nonprofit Leadership Alliance competency requirements, by taking the required Nonprofit Leadership Alliance courses, and by meeting the Nonprofit Leadership Alliance extra-curricular requirements. For details, please see the Nonprofit Leadership Alliance description in the College of Arts and Sciences Interdisciplinary Program section of this catalog. Details are also available from the Nonprofit Leadership Alliance director.

**Honors Program**

Students in sociology and criminal justice may participate in the department honors program in three ways:

- Membership in Alpha Kappa Delta, the national sociology honor society. AKD is open to all sociology majors who have completed at least four courses in sociology with a grade point average of 3.0 or better, and whose overall average is at least 3.0. Further information and application forms available at the Sociology office, 3235 Sangren.

- Membership in Alpha Phi Sigma, the national criminal justice honor society. Alpha Phi Sigma is open to all criminal justice majors and minors who have completed at least four criminal justice courses at WMU with an overall grade point average of 3.0 or better, and whose criminal justice average is at least 3.2. Further information and application forms available at the Criminal Justice office, 3233 Sangren.

**Advanced Courses**

5000-level courses in the Department of Sociology are designed for graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior standing will be allowed to enroll. Prerequisites must include SOC 2000 or its equivalent in another related social science discipline; and two 3000- or 4000-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case-by-case basis.

**Criminal Justice Program**

Zoann K. Snyder, Director  
3229 Sangren Hall  
(269) 387-5278

Susan Standish, Advisor  
3225 Sangren Hall  
(269) 387-5286

Criminal Justice is an interdisciplinary curriculum designed to provide perspective on the entire criminal justice system. The program is designed to provide a well-rounded, theoretical, and practical education necessary for careers in criminal justice and/or graduate work in law, criminology, or other areas.

The Criminal Justice Major requires thirty-three hours of core and specialized classes including: Criminology, Criminal Justice Process, Sociology of Law Enforcement, Juvenile Delinquency, Correctional Process, Advanced Criminology, and Methods of Data Collection and Analysis. Specialized work in juvenile justice, courts, probation, and law enforcement is available as well as certifiability as a Michigan police officer. Curriculum and program details may be found under Sociology/Criminal Justice.

**Criminal Justice Major (33 hours)**

This program is designed to provide perspective on the entire criminal justice system: crime as a social problem and society's reactions to it, the organization and operation of the criminal justice system, and the correctional process, as well as causes of crime and delinquency and other current issues. While the goal of the program is to provide knowledge and skills necessary for students interested in careers in criminal justice, it will support a number of related areas. In addition, students will be well prepared to pursue professional or graduate work in law, criminology, or other areas.
Students should consider internships for the fall, spring and summer sessions. Not all students are guaranteed internships and some placements require the applicant to undergo security checks. Applications are required. Further information and applications forms may be obtained at the Criminal Justice office, 3229 Sangren; (269) 387-5271.

**Required Prerequisites**
The following courses are required before taking any of the core courses. These hours are not included in the 33-hour requirement for the major.

- SOC 2000 - Principles of Sociology  Credits: 3 hours
- OR
- SOC 2100 - Modern Social Problems  Credits: 3 hours
- SOC 2600 - Introduction to Criminal Justice  Credits: 3 hours

**Writing Expectation**
Students should have completed ENGL 1050 or equivalent and write at the college level before enrolling in the following advanced courses.

**Baccalaureate-Level Writing Requirements**
Students who have chosen the Criminal Justice major will satisfy the Baccalaureate-Level Writing requirement by successfully completing SOC 4660: Advanced Criminology.

**Required Core Courses (18 hours)**
All of the following courses are required. It is important to check with the advisor so courses are taken in proper sequence.

- SOC 3620 - Criminology  Credits: 3 hours
- SOC 3630 - Criminal Justice Process  Credits: 3 hours
- SOC 3640 - Sociology of Law Enforcement  Credits: 3 hours
- SOC 3650 - Correctional Process  Credits: 3 hours
- SOC 4540 - Juvenile Delinquency  Credits: 3 hours
- SOC 4660 - Advanced Criminology  Credits: 3 hours

**Required Research Methods**

- SOC 2820 - Methods of Data Collection  Credits: 3 hours
- OR
- STAT 2830 – Methods of Data Analysis  Credits: 3 hours

**Electives**
To complete the required total of 33 hours, students may take any of the following courses.

*Contemporary Issues in Sociology and Criminology*
- AAAS 3000 - African and African American History, Culture and Experience to 1865  Credits: 3 hours
- LAW 3840 - Criminal Law and Procedure  Credits: 4 hours
- SOC 3140 - Ethnic Relations  Credits: 3 hours
- SOC 3200 - Introduction to Social Psychology  Credits: 3 hours
- SOC 4120 - Child Abuse  Credits: 3 hours
- SOC 4560 - Social Stratification  Credits: 3 hours
- SOC 4950 - Special Topics in Sociology or Criminal Justice: Variable Topics  Credits: 1 to 3 hours
- SOC 5600 - Corporate and Governmental Crime  Credits: 3 hours
- SOC 5620 – Victimology  Credits: 3 hours
- SOC 5630 - Gender and Justice  Credits: 3 hours
- SOC 5680 - Race, Ethnicity, and Justice  Credits: 3 hours

*Courts*
- PHIL 3130 - Philosophy of Law  Credits: 3 hours
- PSCI 3200 - The American Judicial Process  Credits: 4 hours
- PSCI 3250 - Criminal Justice Policy  Credits: 3 hours
- PSCI 4220 - Civil Rights and Liberties  Credits: 3 hours
SOC 5780 - Sociology of Law  Credits: 3 hours

Juvenile Justice
SOC 4590 - Juvenile Justice  Credits: 3 hours

Internship and Directed Study
SOC 4960 - Criminal Justice Internship  Credits: 2 to 8 hours
SOC 5980 - Directed Individual Study  Credits: 2 to 6 hours

Law Enforcement Administration
SOC 4670 - The Police and Community Dynamics  Credits: 3 hours

**Criminal Justice Minor**

An 18-hour criminal justice minor is available, patterned after the major. Minor slips are required.

**Required Core (9 hours)**
SOC 2000 - Principles of Sociology  Credits: 3 hours
OR
SOC 2100 - Modern Social Problems  Credits: 3 hours
SOC 2600 - Introduction to Criminal Justice  Credits: 3 hours
SOC 3620 - Criminology  Credits: 3 hours

Three of the following are required:
SOC 3630 - Criminal Justice Process  Credits: 3 hours
SOC 3640 - Sociology of Law Enforcement  Credits: 3 hours
SOC 3650 - Correctional Process  Credits: 3 hours
SOC 4540 - Juvenile Delinquency  Credits: 3 hours

**Special Law Enforcement Certification Option**

Students have the option to enroll in the Law Enforcement Certification Program in cooperation with Kalamazoo Valley Community College (KVCC). Application and preliminary screening are required. Students are required to track in the program during the last two semesters at WMU (MLEOTC ruling). See the advisor for further information.

Required courses in the Tracking Program include:
Topics include: Criminal Investigation (4); Criminal Law and Procedure (4); Emergency Vehicle Operation (2); Firearms (3); Fundamentals of Marksmanship (2); Medical First Responder for Law Enforcement (3); Patrol Procedures (4); Police Physical Skills (4); Police Practical Problems (3); and Traffic (4).
SOC 2610 - Law Enforcement Certification - Variable Topics Credits: Variable hours

**Sociology Major**

A major in Sociology consists of a minimum of 30 hours of course work in Sociology.

**Required Courses (18 hours)**
SOC 2000 - Principles of Sociology  Credits: 3 hours
SOC 2820 - Methods of Data Collection  Credits: 3 hours
SOC 2830 - Methods of Data Analysis  Credits: 3 hours
OR
STAT 2830 - Methods of Data Analysis  Credits: 3 hours
SOC 3000 - Sociological Theory  Credits: 3 hours
SOC 3200 - Introduction to Social Psychology  Credits: 3 hours
SOC 4800 - Advanced Sociology  Credits: 3 hours

Electives (12 hours)
Students may choose their twelve hours of electives from the many offerings in the department. At least two of the elective courses must be at the 3000- to 5000-level.

Limitations to the requirements above include: (1) a maximum of 12 hours transferred from a two-year institution may be included; (2) at least 9 hours must be taken at Western Michigan University. Any variance of the above requirements must be approved by the Undergraduate Advisor, 3225 Sangren Hall.

Transfer Students
Transfer students should see the department advisor, since any transfer credit in sociology without a stated equivalent must be evaluated by the department if it is to apply toward a sociology major or minor.

Baccalaureate-Level Writing Requirement
Students who have chosen the Sociology major will satisfy the Baccalaureate-Level Writing requirement by successfully completing:
SOC 4800 - Advanced Sociology  Credits: 3 hours

Sociology Major - Social Psychology Concentration
Social Psychology is the study of the impact of group life on individual behavior, thought, and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in more applied fields such as social work, counseling, public administration and criminology. Since this is a concentration, students cannot major/minor in this concentration and have a sociology major/minor. Major is 30 hours of coursework.

Requirements
SOC 2000 - Principles of Sociology  Credits: 3 hours
SOC 2820 - Methods of Data Collection  Credits: 3 hours
SOC 2830 - Methods of Data Analysis  Credits: 3 hours
OR
STAT 2830 - Methods of Data Analysis  Credits: 3 hours
SOC 3000 - Sociological Theory  Credits: 3 hours
SOC 3200 - Introduction to Social Psychology  Credits: 3 hours
SOC 4800 - Advanced Sociology  Credits: 3 hours

Electives
At least three courses; one may be taken from supporting courses.
SOC 3050 - Sociology of Religion  Credits: 3 hours
SOC 3210 - Behavior and Meaning  Credits: 3 hours
SOC 4120 - Child Abuse  Credits: 3 hours
SOC 5150 - Sociology of Mental Illness  Credits: 3 hours
SOC 5200 - Studies in Social Psychology: Variable Topics  Credits: 3 hours
SOC 5210 - Social Psychology of Emotions  Credits: 3 hours
SOC 5235 - Self and Social Identities  Credits: 3 hours

Supporting Courses from outside of the Sociology Department:
ANTH 2600 - Sex, Gender, Culture  Credits: 3 hours
ANTH 2800 - Language in a Global World  Credits: 4 hours
ANTH 3560 - Food and Culture  Credits: 3 hours
COM 4300 - Persuasion and Social Influence  Credits: 3 hours
REL 3180 - Death, Dying, and Beyond  Credits: 4 hours
Baccalaureate-Level Writing Requirement
Students who have chosen the Sociology Major-Social Psychology Concentration will satisfy the Baccalaureate-Level Writing requirement by successfully completing:
SOC 4800 - Advanced Sociology  Credits: 3 hours

Sociology Minor

Requirements
A minor in sociology consists of 18 hours of course work in Sociology. SOC 2000 and 2100 are required. The balance of the hours required may be selected by the student, with the following limitations: (1) A maximum of 9 hours transferred from a two-year institution may be included; (2) at least 6 hours must be 3000-level or above. Minor slips are required. Minor is 18 hours of coursework.

Sociology Minor - Social Psychology Concentration

Social Psychology is the study of the impact of group life on individual behavior, thought, and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in more applied fields such as social work, counseling, public administration and criminology. Since this is a concentration, students cannot major/minor in this concentration and have a sociology major/minor.

Requirements
The student may include one other sociology course to complete the required eighteen (18) hours.
SOC 2000 - Principles of Sociology  Credits: 3 hours
SOC 2100 - Modern Social Problems  Credits: 3 hours
SOC 3200 - Introduction to Social Psychology  Credits: 3 hours

Electives
At least two courses; one may be taken from the supporting courses.
SOC 3050 - Sociology of Religion  Credits: 3 hours
SOC 3210 - Behavior and Meaning  Credits: 3 hours
SOC 4120 - Child Abuse  Credits: 3 hours
SOC 5150 - Sociology of Mental Illness  Credits: 3 hours
SOC 5200 - Studies in Social Psychology: Variable Topics  Credits: 3 hours
SOC 5210 - Social Psychology of Emotions  Credits: 3 hours
SOC 5235 - Self and Social Identities  Credits: 3 hours

Supporting Courses from outside of the Sociology Department:
ANTH 2600 - Sex, Gender, Culture  Credits: 3 hours
ANTH 2800 - Language in a Global World  Credits: 4 hours
ANTH 3560 - Food and Culture  Credits: 3 hours
COM 4300 - Persuasion and Social Influence  Credits: 3 hours
REL 3180 - Death, Dying, and Beyond  Credits: 4 hours
The Department of Spanish offers courses in Spanish language at all levels, as well as courses in culture, literature, and linguistics. Emphasis in language courses is placed on developing practical communication skills that will be of interest and value to students in a wide variety of disciplines and careers. Culture courses, through the use of authentic materials in the target language, provide knowledge and insights into the life of the Spanish-speaking people of Spain, Latin America, and the United States. Courses in literature and linguistics, at both the intermediate and advanced levels, facilitate a deeper comprehension of language usage and cultural understanding.

Placement

Students who have studied Spanish in high school or who have learned Spanish through travel or residence abroad must take a placement evaluation before enrolling in their first Spanish class at Western Michigan University. Students have two placement options available: (1) an Online Placement Exam and (2) a Monitored Test-Out Exam. Though it cannot be used to satisfy any foreign language requirements, the Online Placement Exam is designed to help students determine which WMU language course is appropriate for their level of preparedness. The Monitored Test-Out Exam, on the other hand, may be taken by students who wish to try to place out of the foreign language requirements that exist for majors or minors in certain programs at WMU or for all students in the College of Arts and Sciences. The Monitored Test-Out Exam may be taken only once and must be taken before students begin their first class in that language at WMU.

Students who place above the 2000-level in the Online Placement exam are eligible for retroactive credit if they complete Spanish classes at WMU. Students who place in SPAN 2010 are eligible for 4 credit hours (SPAN 2000) upon completion of SPAN 2010 with a grade of "C" or better. Students who place at the SPAN 3000-level are eligible for 8 credit hours (SPAN 2000 and 2010) upon completion of SPAN 3160 and 3170 with a grade of "C" or better. Any students that feel they are eligible for retroactive credits in Spanish are encouraged to meet with a Department advisor.

Transfer students who have successfully completed Spanish courses at community colleges or four-year colleges do not need to take the placement evaluation at Western Michigan University. They should ascertain the WMU equivalent for the courses taken at the other institution and then enroll in the next course in the sequence. Students who are unsure about equivalencies should check with a Department of Spanish advisor or the department chair before enrolling in a particular course.

Native speakers of Spanish are not required to take the placement evaluation. They must, however, consult with a Department of Spanish advisor or the department chair before registering for classes.

Advanced Courses
5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

Study Abroad

Students are strongly encouraged to study in a Spanish-speaking country as part of their undergraduate program. Western Michigan University offers excellent, affordable programs in Buenos Aires (Argentina), Burgos (Spain), Quito (Ecuador) and Santander (Spain). Study Abroad Scholarships are available to all students who meet the minimum requirements for application through the Department of Spanish, The Office of Study Abroad and several other sources. Study Abroad credits from non-WMU programs are often accepted for credit toward the major and minor in Spanish; students interested in receiving Spanish credit for study abroad with a non-WMU program must consult with one of the Spanish study abroad advisors well in advance of such study in order to plan properly and to obtain approval.

Majors and Minors

Given the increasing importance of Spanish as an international language and within the United States, many students wish to take courses beyond the intermediate level. We encourage them to do so, whether or not they intend to major or minor in the language. It is quite common for students who major or minor in Spanish to have an additional major or minor in a related or entirely different field. All students having questions about a Spanish major or minor are welcome to speak with an advisor during walk-in hours (for specific hours, check www.wmich.edu/spanish/advising).

Students interested in seeking to major or minor in Spanish should meet with a Department of Spanish advisor. Major and minor declarations will be posted to Degree Works so that students can track their academic progress to degree. Only courses in which a grade of "C" or better is obtained can be counted toward a major or minor.

Teaching certification is approved for majors in Spanish in secondary, middle school and elementary education. A course in the methods of teaching Spanish is required for all teaching majors. Education majors are required to spend one semester of study abroad in a Spanish speaking country. Students should consult with Spanish Education Coordinator about Oral Proficiency Interview (OPI) before senior internship.

Baccalaureate-Level Writing Requirement for Majors

Students who have chosen to major in Spanish will satisfy the Baccalaureate-Level Writing Requirement by successfully completing LANG 3750: World Literature in English Translation: Views of Humanity. For those having more than one major, this requirement may be satisfied in their other major.

Residency Requirement for Majors and Minors in Spanish

Majors in Spanish must take at least five courses (of the total required for the major) on campus at Western Michigan University. These five courses must be at the 3000-level or above. At least two of the five must be 4000- or 5000-level classes. Minors in Spanish must take at least four courses (of the total required for the minor) on campus at Western Michigan University. These four courses must be at the 2000-level or above. At least one of the four must be above SPAN 3170.

Foreign Credits

The Department of Spanish at WMU will recognize and accept courses taken abroad through any University accredited program as long as they are pre-approved by the Department of Spanish Study Abroad Advisor and the WMU Office of Study Abroad.

Spanish Major: Non-teaching (33 hours)

Program Requirements
SPAN 5570 and SPAN 5580 cannot be included in this major.

Thirty-three hours beyond 2000-level to include:
SPAN 3160 – Spanish Composition Credits: 3 hours
SPAN 3170 – Spanish Conversation Credits: 3 hours
SPAN 3240 - Introduction to the Study of Spanish Linguistics Credits: 3 hours
SPAN 3250 – Introduction to the Study of Spanish Literature Credits: 3 hours

At least one course from:
SPAN 3210 – Life and Culture of Hispanics in U.S. Credits: 3 hours
SPAN 3220 – Life and Culture of Spain Credits: 3 hours
SPAN 3230 – Life and Culture of Spanish America Credits: 3 hours

At least one course from:
SPAN 5260 – Survey of Spanish Literature to the 18th Century Credits: 3 hours
SPAN 5270 – Survey of Spanish Literature from the 18th Century to the Present Credits: 3 hours
SPAN 5280 – Survey of Spanish American Literature to Modernismo Credits: 3 hours
SPAN 5290 – Survey of Spanish American Literature from Modernismo to the Present Credits: 3 hours
SPAN 5400 – Studies in Spanish Linguistics Credits: 3 hours
SPAN 5600 – Studies in Spanish Literatures Credits: 3 hours

Additional Spanish courses:
Five additional Spanish courses at the 3000 level or above, at least three of which must be at the 4000 or 5000 level.

**Spanish Major: Education Curriculum (SPSJ) (36 hours)**

**Program Requirements**
Thirty-six hours beyond 2000-level to include:
SPAN 3160 – Spanish Composition Credits: 3 hours
SPAN 3170 – Spanish Conversation Credits: 3 hours
SPAN 3240 – Introduction to Spanish Linguistics Credits: 3 hours
SPAN 3250 – Introduction to the Study of Spanish Literature Credits: 3 hours
SPAN 4520 - Advanced Spanish Grammar and Composition Credits: 3 hours
SPAN 4530 - Advanced Spanish Conversation Credits: 3 hours
or
SPAN 4550 - Conversation for the Professions Credits: 3 hours
SPAN 5570 - Modern Language Instruction I Credits: 3 hours
SPAN 5580 – Modern Language Instruction Credits: 3 hours

Two of the following courses:
SPAN 3210 – Life and Culture of Hispanics in the U.S. Credits: 3 hours
SPAN 3220 – Life and Culture of Spain Credits: 3 hours
SPAN 3230 – Life and Culture of Spanish America Credits: 3 hours

One of the following courses:
SPAN 5260 – Survey of Spanish Literature to the 18th Century Credits: 3 hours
SPAN 5270 – Survey of Spanish Literature from the 18th Century to the Present Credits: 3 hours
SPAN 5280 – Survey of Spanish American Literature to Modernismo Credits: 3 hours
SPAN 5290 – Survey of Spanish American Literature from Modernismo to the Present Credits: 3 hours
SPAN 5400 – Studies in Spanish Linguistics Credits: 3 hours
SPAN 5600 – Studies in Spanish Literatures Credits: 3 hours

One additional Spanish course at the 3000 level or above:
Note: SPAN 4540 - Spanish Phonetics is highly recommended.
One semester of at least 14 weeks of study abroad in a Spanish-speaking country.

A minimum score of Advanced Low on the OPI exam before or during SPAN 5570.

**Spanish Minor (26 hours)**

**Program Requirements**
SPAN 5570 and SPAN 5580 cannot be included in this minor.

Twenty-six hours beyond the 1000-level to include:
SPAN 2000 – Intermediate Spanish I  Credits: 4 hours
SPAN 2010 – Intermediate Spanish II  Credits: 4 hours
SPAN 3160 – Spanish Composition Credits: 3 hours
SPAN 3170 – Spanish Conversation Credits: 3 hours

Two of the following courses:
SPAN 3210 – Life and Culture of Hispanics in U.S.  Credits: 3 hours
SPAN 3220 – Life and Culture of Spain  Credits: 3 hours
SPAN 3230 – Life and Culture of Spanish America  Credits: 3 hours
SPAN 3240 – Introduction to the Study of Spanish Linguistics  Credits: 3 hours
SPAN 3250 – Introduction to the Study of Spanish Literature  Credits: 3 hours

Two additional Spanish courses at the 3000-level or above.
Statistics
Magdalena Niewiadomska-Bugaj, Chair
Main Office: 3304 Everett Tower
Telephone: (269) 387-1420
Fax: (269) 387-1419

Loren Heun
Kevin Lee
Joseph McKean
Joshua Naranjo
Georgiana Onicescu
Rajib Paul
Jeffrey Terpstra

Statistics is the science of data analysis and inference. The Department of Statistics offers a variety of courses in applied and theoretical statistics. Course work is designed to enable students to function professionally as statisticians in industry or government and to prepare them for graduate study in statistics. Shortages of qualified statisticians are anticipated through the next decade.

The department offers a major in statistics and two minors, one in data analysis and one in general statistics. The majority of courses make use of the computer and statistical software packages. Course work for the major requires calculus and linear algebra. These are usually taken in the first two years of course work. The data analysis minor does not require a strong mathematics background.

During their first year, students should contact an advisor in the Department of Statistics located at 3306 Everett Tower.

At most one course with a grade below "C" can be applied toward a major or minor in Statistics.

Honors in Statistics

Note: Qualified students may plan a program to graduate with honors in statistics. The following are the requirements for graduation with Honors in Statistics:

- Grade point average of at least 3.7 in statistics and mathematics courses
- Overall grade point average of at least 3.25
- Completion of the following:
  an upper-level theoretical course
  an approved independent study project leading to a paper or presentation

Interested students should see their advisor in their junior year or early in their senior year to plan an "honors program."

The department offers an opportunity that allows students to graduate with BS then MS degree in Statistics in five years. The details about the Accelerated Master's degree can be found on the department website www.stat.wmich.edu/ugrad/adp.html

Statistics Major

Advisors:
Ms. Michelle Hastings
Dr. Joseph McKean
Dr. Jeffrey Terpstra

Statisticians design experiments, analyze data, and interpret results. The National Science Foundation estimates that the demand for Statisticians will exceed the number of graduates for at least the next ten years. Western’s statistics major integrates mathematics and statistics coursework while emphasizing computer applications. A computer science minor is recommended.
Mathematics and Statistics Requirements:
MATH 1220 - Calculus I   Credits: 4 hours
MATH 1230 - Calculus II   Credits: 4 hours
MATH 2300 - Elementary Linear Algebra   Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra   Credits: 4 hours
STAT 2600 - Data Analysis Using R   Credits: 4 hours
STAT 3620 - Probability   Credits: 4 hours
STAT 3640 - Foundations of Data Analysis   Credits: 4 hours
STAT 4620 - Introduction to Mathematical Statistics   Credits: 3 hours
STAT 4640 - Introduction to Statistical Computing   Credits: 3 hours
OR
STAT 6800 - SAS Programming   Credits: 3 hours*
STAT 4810 - Communicating Statistical Results   Credits: 3 hours
STAT 5670 - Statistical Design and Analysis of Experiments   Credits: 4 hours
OR
STAT 6640 - Design of Experiments I   Credits: 4 hours*
STAT 5680 - Regression Analysis   Credits: 3 hours
OR
STAT 6620 - Applied Linear Models   Credits: 3 hours*

Choose one of:
STAT 5610 - Applied Multivariate Statistical Methods   Credits: 3 hours
STAT 5630 - Sample Survey Methods   Credits: 3 hours
STAT 5660 - Nonparametric Statistical Methods   Credits: 3 hours
STAT 5820 - Time Series Analysis   Credits: 3 hours

*6000-level courses
These courses are only for students admitted to the ADP program.

Data Science Major (45 credit hours)

Advisors:
Dr. Kevin Lee
Dr. Joseph McKean

Background Support (8 credit hours)
MATH 1220 - Calculus I   Credits: 4 hours
MATH 2300 - Elementary Linear Algebra   Credits: 4 hours

Computer Science Core (15 credit hours)
CS 2610 - R Programming for Data Science   Credits: 4 hours
CS 3100 - Storage, Retrieval, and Processing of Big Data   Credits: 3 hours
CS 5821 - Machine Learning   Credits: 3 hours
CS 4900 - Software Systems Development I: Requirements and Design   Credits: 3 hours
CS 4910 - Software Systems Development II: Implementation and Testing   Credits: 2 hours

Statistics Core (16 credit hours)
STAT 2600 - Data Analysis Using R   Credits: 4 hours
STAT 4640 - Introduction to Statistical Computing   Credits: 3 hours
STAT 5680 - Regression Analysis   Credits: 3 hours
STAT 5850 - Applied Data Mining   Credits: 3 hours
STAT 5860 - Computer Based Data Analysis   Credits: 3 hours

Electives (6 credit hours)
Two courses from Statistics and/or Computer Science:
STAT (from 5000-level including STAT 5610, STAT 5660, STAT 5820, STAT 5670)
CS (CS 3400, CS 3500, CS 4430/CS 5430, CS 5260, CS 5300, CS 5400, CS 5550, CS 5700, CS 5820, etc.)

Other Requirements
Writing Course: CS 4900/4910
Both Statistics and Computer Science faculty may advise here. CS projects are external. STAT projects may either be external or internal through the Statistics Consulting Center.

All students are required to have a laptop.

Statistics Minor

Advisors:
Ms. Michelle Hastings
Dr. Joseph McKean
Dr. Jeffrey Terpstra

Program Requirements
STAT 3620 - Probability Credits: 4 hours
STAT 3640 - Foundations of Data Analysis Credits: 4 hours
STAT 4640 - Introduction to Statistical Computing Credits: 3 hours

Electives
Two electives to be selected from the following list of courses:
STAT 5610 - Applied Multivariate Statistical Methods Credits: 3 hours
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours
STAT 5680 - Regression Analysis Credits: 3 hours

Additional Elective
An approved calculus-based introductory course in statistics may be substituted for the following course with the approval of the department.
STAT 3640 - Foundations of Data Analysis Credits: 4 hours

Data Analysis Minor

Advisors:
Ms. Michelle Hastings
Dr. Joseph McKean
Dr. Jeffrey Terpstra

Program Requirements
STAT 4640 - Introduction to Statistical Computing Credits: 3 hours

One of the following five courses:
STAT 2160 - Business Statistics Credits: 3 hours
STAT 2600 - Data Analysis Using R Credits: 4 hours
STAT 2830 - Methods of Data Analysis Credits: 3 hours
STAT 3640 - Foundations of Data Analysis Credits: 4 hours
STAT 3660 - Data Analysis for Biosciences Credits: 4 hours

One of the following two courses:
STAT 5670 - Statistical Design and Analysis of Experiments Credits: 4 hours
STAT 5680 - Regression Analysis  Credits: 3 hours

Two of the following seven courses:
DEPT 0000 - An approved quantitative research course from student's home department.  
STAT 5610 - Applied Multivariate Statistical Methods  Credits: 3 hours 
STAT 5630 - Sample Survey Methods  Credits: 3 hours 
STAT 5660 - Nonparametric Statistical Methods  Credits: 3 hours 
STAT 5670 - Statistical Design and Analysis of Experiments  Credits: 4 hours 
STAT 5680 - Regression Analysis  Credits: 3 hours 
STAT 5820 - Time Series Analysis  Credits: 3 hours

Data Science Minor

Advisors:
Dr. Kevin Lee 
Dr. Joseph McKean

Program Requirements
STAT 2600 - Data Analysis Using R  Credits: 4 hours 
STAT 4640 - Introduction to Statistical Computing Credits: 3 hours

Three of the following four courses:
DEPT 0000 - An approved quantitative research course from student's home department. Credits: 3 hours 
STAT 5680 - Regression Analysis Credits: 3 hours 
STAT 5850 - Applied Data Mining Credits: 3 hours 
STAT 5860 - Computer Based Data Analysis Credits: 3 hours
World Languages and Literatures
Molly Lynde-Recchia, Chair
Main Office: 410 Sprau Tower
Telephone: (269) 387-3010
Fax: (269) 387-6333

Jeffrey Angles
Peter Blickle
Vincent Desroches
Olivia Gabor-Peirce
Rand H. Johnson
David Kutzko
Mustafa Mughazy
Carlos Pimentel
Viviane Ruellot
Cynthia Running-Johnson
Rika Saito
Vivan Steemers
Xiaojun Wang
Shu Wang

The Department of World Languages and Literatures offers undergraduate instruction in Arabic, Chinese, French, German, ancient Greek, Japanese, Latin, and Russian, including course work in culture, literature, linguistics, and pedagogy. Italian instruction is offered on an occasional basis.

Students (either entering or advanced) who wish to continue in a language they have studied in high school or learned through travel or residence abroad must take the online placement exam if they have studied French, German or Japanese. For placement in other languages, students should contact the departmental advisor of the language in question or the department chair.

Native speakers of a given language must consult with a departmental advisor before registering for courses.

Students may be eligible for retroactive credit based on the level at which they began their coursework. Questions about this matter should be referred to the advisor for the language.

Students who will graduate from the College of Arts and Sciences must fulfill that college's language requirement. Other colleges or specific departments may also have a language requirement. Students who have questions about this matter should consult the appropriate college or departmental advisor.

Many language students study abroad as part of their undergraduate program. Western has a number of excellent study abroad programs. Students interested in receiving credit for study abroad must consult with the advisor in the appropriate language well in advance of such study in order to plan properly and to obtain approval.

All students interested in pursuing a language major or minor should consult with an advisor as early as possible.

5000-level courses may be taken only by advanced undergraduate students. Advanced undergraduate students are defined as those who have satisfactorily completed a minimum of four courses, or equivalent, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

Majors and Minors

As soon as students decide to major or minor in a language, they should confer with the advisor for that language in order to plan their program. Major slips are required for all majors. Minor slips are required for all minors.

Only courses in which a grade of "C" or better is obtained can be counted toward a major or minor.
For students majoring or minoring in a modern language, a course in modern European, Asian, or Middle Eastern history is desirable. For Latin majors and minors, a course in Roman history is recommended. Students majoring in Latin in either the Liberal Education or the Secondary Education curriculum may apply eight (8) credits toward a Latin major by taking both GREK 1000 and GREK 1010.

Teaching certification is available for majors and/or minors for the following languages: Arabic (minor only), Chinese (minor only), French, German, Japanese (minor only), and Latin. A language methods course is required for all teaching majors and minors. Exceptions may be granted only by departmental permission. In order to receive state teacher certification, all candidates must pass the MTTC. Teacher candidates in the modern languages must also pass the Oral Proficiency Interview at the appropriate level. Students should consult advisors in both the College of Education and the department for more information.

**Baccalaureate-Level Writing Requirement for Majors**

Students who have chosen to major in French, German, Japanese or Latin will satisfy the Baccalaureate-Level Writing requirement by successfully completing LANG 3750: World Literature in English Translation: Views of Humanity or LANG 4040: East-West Literary Relations.

**Residency Requirement for Majors and Minors in French or German**

Majors in French must take at least four courses (of the total required for the major) at Western Michigan University. One of these must be a 5000-level class. Minors in French must take at least three courses (of the total required for the minor) at the 2000-level or above at Western Michigan University.

Majors or minors in German must take at least the last two courses in their German program at Western Michigan University (LANG 5580 may not be used to fulfill this requirement). Students who have completed their work at other institutions and who wish to be certified for teaching German must complete at least three courses in German at Western Michigan University (LANG 5580 may not be one of these).

**Study Abroad**

Credits for language study abroad may be granted on official proof that the student has completed the course work successfully, provided that the student's program of study was approved before departure.

**Arabic Minor**

The minor in Arabic requires the completion of 23 hours including:
- ARAB 1000 – Basic Arabic I  Credits: 4 hours
- ARAB 1010 – Basic Arabic II  Credits: 4 hours
- ARAB 2000 – Intermediate Arabic I  Credits: 4 hours
- ARAB 2010 – Intermediate Arabic II  Credits: 4 hours
- ARAB 2750 – Life and Culture of the Arabs  Credits: 3 hours
- ARAB 3000 – Advanced Standard Arabic I  Credits: 4 hours
- ARAB 3010 – Advanced Standard Arabic II  Credits: 4 hours
- ARAB 4770 – Arabic Foreign Study (in Arabic language)  Credits: 1 to 16 hours
- ARAB 5200 – Topics in Arabic Linguistics and Language Science  Credits: 3 hours
- ARAB 5500 – Independent Study in Arabic (in Arabic language)  Credits: 1 to 3 hours
- LANG 3750 – World Literature in English Translation: Views of Humanity (Arabic Literature)  Credits: 3 hours

And additional courses approved by the advisor.
Arabic Minor: Education Curriculum

Twenty-four hours to include
ARAB 2000 - Intermediate Arabic I Credits: 4 hours
ARAB 2010 - Intermediate Arabic II Credits: 4 hours
ARAB 2750 - Life and Culture of the Arabs Credits: 3 hours
ARAB 3000 - Advanced Standard Arabic I Credits: 4 hours
ARAB 3010 - Advanced Standard Arabic II Credits: 4 hours
LANG 5580 - Second Language Acquisition and Teaching Credits: 3 hours

Remaining hours
Remaining two hours from Arabic 2000-5000 level, which may include LANG 3750 - World Literature in English Translation: Views of Humanity (Arabic).

Study abroad is strongly encouraged. Pre-approved study abroad credits can be taken as part of the required or elective hours.

Canadian Studies Minor

Minimum of 18 credits. At least half must be at the 3000-level or above. All course work for the minor must carry a grade of “C” or better.

Required (9 credits)
HIST 3300 - Canadian History and Culture Credits: 3 hours
GEOG 3800 - United States and Canada Credits: 3 hours
GIST 2000 - Introduction to Global and International Studies Credits: 3 hours

Electives (9 credits)
ANTH 4900 - Archaeological Field School Credits: 6 hours
FREN 2750 - Francophone Culture Credits: 3 hours
FREN 4770 - Foreign Study Credits: 1 to 16 hours, Topic: Study Abroad in Quebec Credits: 7 hours
HIST 4010 - Environment and History (BW) Credits: 3 hours
HIST 3101 - Colonial America (WI) Credits: 3 hours

Other courses
And other courses as approved by Canadian Studies advisors.

For Quebec Studies Emphasis within the Proposed Canadian Studies Minor:
French language competence required at level of FREN 2010 - Intermediate French II or equivalent, and at least one of the following:
FREN 2750 - Francophone Culture Credits: 3 hours
FREN 3230 - Life and Culture in the Francophone World Credits: 3 hours
FREN 4770 - Foreign Study Credits: 1 to 16 hours

Other courses
And other courses as approved by Canadian Studies advisors, with Study Abroad in Quebec strongly recommended.

Chinese Minor

This minor requires the completion of 23 hours.

Required Courses (8 hours)
CHIN 1000 - Basic Chinese I Credits: 4 hours
CHIN 1010 - Basic Chinese II   Credits: 4 hours

Remaining Hours (15 hours)
The remaining hours are to be taken from the following:
CHIN 2000 - Intermediate Chinese I   Credits: 4 hours
CHIN 2010 - Intermediate Chinese II   Credits: 4 hours
CHIN 2100 - Business Chinese   Credits: 3 hours
CHIN 2750 - Chinese Life and Culture   Credits: 3 hours
CHIN 2800 - Chinese Calligraphy   Credits: 3 hours
CHIN 3160 - Chinese Composition   Credits: 3 hours
CHIN 3170 - Chinese Conversation   Credits: 4 hours
CHIN 4760 - Foreign Study - non WMU   Credits: 1 to 16 hours
CHIN 4770 - Foreign Study   Credits: 1 to 16 hours
CHIN 5200 - Topics in Chinese Linguistics and Language Science   Credits: 3 hours
CHIN 5500 - Independent Study in Chinese   Credits: 1 to 3 hours
LANG 3750 - World Literature in English Translation: Views of Humanity   Credits: 3 hours

Chinese Minor: Education Curriculum

Twenty-four hours to include
CHIN 2000 - Intermediate Chinese I   Credits: 4 hours
CHIN 2010 - Intermediate Chinese II   Credits: 4 hours
CHIN 2750 - Chinese Life and Culture   Credits: 3 hours
CHIN 3160 - Chinese Composition   Credits: 3 hours
CHIN 3170 - Chinese Conversation   Credits: 4 hours
LANG 5580 - Second Language Acquisition and Teaching   Credits: 3 hours

Remaining hours
Remaining three hours from Chinese 2000-5000 level, which may include LANG 3750 - World Literature in English Translation: Views of Humanity (Chinese).

Study abroad is strongly encouraged. Pre-approved study abroad credits can be taken as part of the required or elective hours.

French Major: Non-teaching

A minimum of 32 hours, including the following:
FREN 2010 - Intermediate French II Credits: 4 hours
FREN 3160 - Introduction to Advanced French Studies Credits: 4 hours
FREN 3250 - Close Reading in French Credits: 3 hours

One of the following courses:
FREN 3220 - Life and Culture in France Credits: 3 hours
OR
FREN 3230 - Life and Culture in the Francophone World Credits: 3 hours

One 4000-level course.

Two 5000-level courses taught in French.

Nine credit hours of electives at the 3000-5000 level.
These hours may be taken from any combination of the following:

- One or more electives taken in a pre-approved study abroad program;
and/or
- LANG 3750 with French focus;
and/or
- FREN courses not taken to fulfill requirements listed above (i.e. FREN 3150, 3170, 3200, 3220 or 3230, 3260, 4160, 4540, 5030, 5100, 5200, 5400). LANG 5250 can also count toward the French major.

Course work to include:
Six hours of pre-approved courses taken abroad. These six credits can be taken as part of the required or elective hours. Exceptions to study abroad requirement may be granted where circumstances do not permit it.

The following courses cannot be counted toward the minor: FREN 2750, FREN 5000, FREN 5010, LANG 5580.

**French Major: Education Curriculum**

Thirty-five hours beyond 2000-level to include:
FREN 3160 - Introduction to Advanced French Studies  Credits: 4 hours
FREN 3170 - French Conversation  Credits: 4 hours
FREN 3250 - Close Reading in French  Credits: 3 hours
FREN 3260 - Introduction to the Study of French Linguistics  Credits: 3 hours
LANG 5580 - Second Language Acquisition and Teaching  Credits: 3 hours

And either:
FREN 3220 - Life and Culture in France  Credits: 3 hours
OR
FREN 3230 - Life and Culture in the Francophone World  Credits: 3 hours

Elective courses:
One elective at the 3000-5000 level  Credits: 3 hours
Another course at the 4000 level  Credits: 3 hours
Two courses at the 5000 level  Credits: 6 hours

Study Abroad:
Coursework to include six hours of pre-approved courses taken abroad. These six credits can be taken as part of the required or elective hours. Exceptions to study abroad requirement may be granted when circumstances do not permit it.

The following courses cannot be counted toward the major: FREN 2750, FREN 5000, FREN 5010, LANG 3750.

**French Minor: Non-teaching**

This minor requires the completion of 24 hours.

Required Courses (12 hours)
FREN 2000 - Intermediate French I  Credits: 4 hours
FREN 2010 - Intermediate French II  Credits: 4 hours
FREN 3160 - Introduction to Advanced French Studies  Credits: 4 hours

Remaining Hours (12 hours)
The remaining hours are to be taken from the following:
FREN 3150 - French for the Professions  Credits: 3 hours
FREN 3170 - French Conversation  Credits: 4 hours
FREN 3200 - French Phonetics  Credits: 3 hours
FREN 3220 - Life and Culture in France  Credits: 3 hours
FREN 3230 - Life and Culture in the Francophone World  Credits: 3 hours
FREN 3250 - Close Reading in French   Credits: 3 hours
FREN 3260 - Introduction to the Study of French Linguistics   Credits: 3 hours
FREN 4160 - Advanced Communication in French   Credits: 3 hours
FREN 4540 - Business French   Credits: 3 hours
FREN 5030 - French - English Translation Practicum   Credits: 1 to 4 hours
FREN 5100 - Topics in French and Francophone Studies   Credits: 3 hours
FREN 5200 - Topics in French Linguistics and Language Science   Credits: 3 hours
LANG 3750 - World Literature in English Translation: Views of Humanity   Credits: 3 hours

The following courses cannot be counted toward the minor:
FREN 2750, FREN 5000, FREN 5010, LANG 5580.

**French Minor: Education Curriculum**

Twenty-five hours beyond 2000 level to include:
FREN 3160 - Introduction to Advanced French Studies   Credits: 4 hours
FREN 3250 - Close Reading in French   Credits: 3 hours
FREN 3260 - Introduction to the Study of French Linguistics   Credits: 3 hours
LANG 5580 - Second Language Acquisition and Teaching   Credits: 3 hours

And either:
FREN 3170 - French Conversation   Credits: 4 hours
OR
FREN 3200 - French Phonetics   Credits: 3 hours

And either:
FREN 3220 - Life and Culture in France   Credits: 3 hours
OR
FREN 3230 - Life and Culture in the Francophone World   Credits: 3 hours

Elective courses:
One course at the 4000 level   Credits: 3 hours
One course at the 5000 level   Credits: 3 hours

Study Abroad:
Coursework to include six hours of pre-approved courses taken abroad. These six credits can be taken as part of the required or elective hours. Exceptions to study abroad requirement may be granted when circumstances do not permit it.

The following courses cannot be counted toward the minor: FREN 2750, FREN 5000, FREN 5010, LANG 3750.

**German Major: Non-teaching**

A minimum of 32 hours, including the following:
GER 2010 - Intermediate German II   Credits: 4 hours
GER 3160 - German Composition and Conversation   Credits: 4 hours
GER 3220 - German Life and Culture   Credits: 3 hours
GER 3250 - Introduction to the Study of German Literature   Credits: 3 hours
GER 4520 - Advanced German Composition   Credits: 3 hours

One of the following courses:
GER 3170 - German Conversation   Credits: 3 hours
OR
GER 2750 - Topics in German Studies   Credits: 3 hours
One of the following courses:
GER 4530 - Advanced German Conversation Credits: 3 hours
OR
LANG 3750 - World Literature in English Translation: Views of Humanity Credits: 3 hours
(German focus)

One additional elective (three credit hour minimum) from the following:
- An elective taken in a pre-approved study abroad program;
  OR
- GER 2750, GER 3170, GER 4530, or LANG 3750 (i.e. a course option listed above that the student has not already taken to fulfill requirements);
  OR
- A pre-approved cognate course offered in another department with a connection to German studies, for example in History or Political Science.

Six hours of 5000-level German courses.

Study Abroad strongly recommended. Pre-approved courses taken abroad may be used to fulfill some of the major requirements.

The following courses cannot be counted toward the major: GER 5000, GER 5010, LANG 5580.

**German Major: Education Curriculum**

Thirty-three hours beyond 2000-level to include:
GER 3160 - German Composition and Conversation Credits: 4 hours
GER 3170 - German Conversation Credits: 3 hours
GER 3220 - German Life and Culture Credits: 3 hours
GER 3250 - Introduction to the Study of German Literature Credits: 3 hours
GER 4520 - Advanced German Composition Credits: 3 hours
GER 4530 - Advanced German Conversation Credits: 3 hours
LANG 5580 - Second Language Acquisition and Teaching Credits: 3 hours

Elective courses:
Four courses at the 5000 level Credits: 12 hours

Study Abroad:
Coursework to include six hours of pre-approved courses taken abroad. These six credits can be taken as part of the required or elective hours. Exceptions to study abroad requirement may be granted when circumstances do not permit it.

The following courses cannot be counted toward the major: GER 5000, GER 5010, LANG 3750

**German Minor: Non-teaching**

This minor requires the completion of 24 hours:

Required Courses (12 hours)
GER 2000 - Intermediate German I Credits: 4 hours
GER 2010 - Intermediate German II Credits: 4 hours
GER 3160 - German Composition and Conversation Credits: 4 hours

Remaining Hours (12 hours)
The remaining hours are to be taken from the following:

GER 2750 - Topics in German Studies Credits: 3 hours
GER 3170 - German Conversation Credits: 3 hours
GER 3220 - German Life and Culture Credits: 3 hours
GER 3250 - Introduction to the Study of German Literature Credits: 3 hours
GER 4520 - Advanced German Composition Credits: 3 hours
GER 4530 - Advanced German Conversation Credits: 3 hours
GER 4760 - Foreign Study - non WMU Credits: 1 - 16 hours
GER 4770 - Foreign Study Credits: 1 to 16 hours
GER 5280 - Survey of German Literature Credits: 3 hours
GER 5290 - Survey of German Literature Credits: 3 hours
GER 5600 - Studies in German Literature Credits: 3 hours
LANG 3750 - World Literature in English Translation: Views of Humanity Credits: 3 hours

The following courses cannot be counted toward the minor:
GER 5000, GER 5010, LANG 5580.

**German Minor: Education Curriculum**

Twenty-four hours beyond the 2000-level to include:
GER 3160 - German Composition and Conversation Credits: 4 hours
GER 3170 - German Conversation Credits: 3 hours
GER 3220 - German Life and Culture Credits: 3 hours
GER 3250 - Introduction to the Study of German Literature Credits: 3 hours
LANG 5580 – Second Language Acquisition and Teaching Credits: 3 hours

And either:
GER 4520 - Advanced German Composition Credits: 3 hours
OR
GER 4530 - Advanced German Conversation Credits: 3 hours

Elective courses:
Two courses at the 5000 level Credits: 6 hours

Study Abroad:
Coursework to include six hours of pre-approved courses taken abroad. These six credits can be taken as part of the required or elective hours. Exceptions to study abroad requirement may be granted when circumstances do not permit it.

The following courses cannot be counted toward the minor: GER 5000, GER 5010, LANG 3750.

**German Study Abroad Minor**

This minor is specifically designed for students beginning their German studies at WMU and participating in WMU's study abroad program in Bonn, Germany, which is offered every semester. Advisor permission is needed for credits earned in other study abroad programs to apply toward the minor.

This minor requires the completion of 24 credit hours as follows:
Pre-approved study abroad program Credits: 16 hours
GER 1000 - Basic German I Credits: 4 hours
GER 1010 - Basic German II Credits: 4 hours

Additional program requirement:
Students must take at least one German language course at WMU prior to their study abroad. One of the courses must be in the semester immediately prior to study abroad and students must earn at least a "B" in that course.

**Japanese Major**

Students should take 36 credits hours beyond the 1000-level. (JPNS 1000 and 1010 are prerequisites for the higher level of the language, but do not count directly toward the major.)

Only grades of “C” or better can be counted toward a Japanese major.

Required Courses (28 credit hours):
- JPNS 2000 - Intermediate Japanese I Credits: 4 hours
- JPNS 2010 - Intermediate Japanese II Credits: 4 hours
- JPNS 2750 - Japanese Life and Culture Credits: 3 hours
- JPNS 3000 - Advanced Japanese I Credits: 4 hours
- JPNS 3010 - Advanced Japanese II Credits: 4 hours
- JPNS 3250 - Close Reading in Contemporary Japanese Credits: 3 hours
- JPNS 3260 - Close Reading in Modern and Classical Japanese Credits: 3 hours

And either:
- JPNS 4510 - Advanced Japanese Language Credits: 3 hours
- OR
- JPNS 5600 - Advanced Literary Readings in Japanese Credits: 3 hours

Elective courses:
To fulfill the remaining hours, students should take at least eight additional credit hours of electives. The following courses may be counted as electives:
- JPNS courses at the 3000 level or above
- Courses that focus specifically on Japanese studies in other departments, such as the Departments of Comparative Religion, History, or Political Science. All electives taken outside the Department of World Languages and Literatures must be approved by a Japanese major/minor advisor.
- LANG 3750 - World Literature in English Translation: Views of Humanity Credits: 3 hours

Note:
At least one elective must be taken as a class at WMU and not as a course during study abroad.

**Study Abroad:**
Students in the Japanese major are strongly encouraged to take advantage of study abroad through WMU’s exchange institutions in Japan. Students must consult with the Japanese advisor well in advance of such study in order to plan properly and obtain approval for credits to be taken as part of the required or elective hours for the major.

**Transfer credits:**
Students may transfer up to 16 credits earned in other institutions, including equivalents for JPNS 2000, JPNS 2010, JPNS 3000 and JPNS 3010, and up to 8 credits for elective courses.

**Japanese Minor**

The minor in Japanese requires the completion of 23 hours, including 1000-level (basic) courses or equivalent.

**Japanese Minor: Education Curriculum**

Twenty-four hours to include:
- JPNS 2000 - Intermediate Japanese I Credits: 4 hours
JPNS 2010 - Intermediate Japanese II  Credits: 4 hours
JPNS 2750 - Japanese Life and Culture  Credits: 3 hours
JPNS 3000 - Advanced Japanese I  Credits: 4 hours
JPNS 3010 - Advanced Japanese II  Credits: 4 hours
LANG 5580 - Second Language Acquisition and Teaching  Credits: 3 hours

Remaining hours
Remaining two hours from Japanese 2000-5000 level, which may include LANG 3750 - World Literature in English Translation: Views of Humanity (Japanese).

Study abroad is strongly encouraged. Pre-approved study abroad credits can be taken as part of the required or elective hours.

**Classical Studies Minor**

Seventeen hours including the following:
LAT 1000 - Basic Latin I  Credits: 4 hours
LAT 1010 - Basic Latin II  Credits: 4 hours
OR
GREK 1000 - Basic Greek I  Credits: 4 hours
GREK 1010 - Basic Greek II  Credits: 4 hours
AND
GREK 5200 - Topics in Greek Linguistics and Language Science  Credits: 3 hours
(Taught in English)

Remaining hours from 2010 to 5600
and may include:
LANG 3500 - Classical Greek and Roman Mythology  Credits: 3 hours
LANG 3510 - The City of Gods: Power and Morality in the Roman World  Credits: 3 hours
LANG 3750 - World Literature in English Translation: Views of Humanity  Credits: 3 hours

and, with approval of section faculty, may include one course from other departments, such as the following:
HIST 3490 - Ancient Near East  Credits: 3 hours
HIST 3500 - Ancient Greece and the Hellenistic World (WI)  Credits: 3 hours
HIST 3510 - Ancient Rome (WI)  Credits: 3 hours

**Latin Major**

Thirty hours including the following:
LAT 1000 - Basic Latin I  Credits: 4 hours
LAT 1010 - Basic Latin II  Credits: 4 hours
LAT 2000 - An Introduction to the Study of Latin Literature  Credits: 4 hours or equivalent

Remaining hours from 2010 to 5600, and may include:
LANG 3500 - Classical Greek and Roman Mythology  Credits: 3 hours
or
LANG 3750 - World Literature in English Translation: Views of Humanity  Credits: 3 hours (Classical Literature in English Translation)

May also be included:
GREK 1000 - Basic Greek I  Credits: 4 hours
and
GREK 1010 - Basic Greek II  Credits: 4 hours
Teaching majors must include the following:
LAT 3240 - Latin Literature   Credits: 4 hours
and
LAT 5570 - Teaching of Latin   Credits: 3 hours
(LAT 5570 does not yield credit hours toward the major)

**Latin Minor**

Twenty hours including the following:
LAT 1000 - Basic Latin I   Credits: 4 hours and
LAT 1010 - Basic Latin II   Credits: 4 hours
LAT 2000 - An Introduction to the Study of Latin Literature   Credits: 4 hours or equivalent

Remaining hours from 2010 to 5600 and may include:
LANG 3500 - Classical Greek and Roman Mythology   Credits: 3 hours or
LANG 3750 - World Literature in English Translation: Views of Humanity   Credits: 3 hours (Classical Literature in English Translation)

Teaching minors must include:
LAT 5570 - Teaching of Latin   Credits: 3 hours
(LAT 5570 does not yield credit hours toward the minor)

**Russian Minor**

*Please note that no new students are being admitted into the Russian minor program.*

Twenty-three hours including 1000-level (basic) courses or equivalent;

Remaining hours from RUSS 2000-5000 series.
Interdisciplinary Programs - College of Arts and Sciences
African American and African Studies
Climate Change Studies
Global and International Studies
Legal Studies
Medical Humanities
Medieval Studies
Race and Ethnic Relations
Science Education, Mallinson Institute for
Social Studies Major - Secondary Education
Special Law Enforcement Certification Option
Sustainable Brewing
World Literature

Africana Studies
2065 Moore Hall
Telephone: (269) 387-2558
Fax: (269) 387-2535

Linwood Cousins, Director
2318 Friedmann Hall
(269) 387-4366

Africana Studies is dedicated to the interdisciplinary study of the past and present culture and experiences of peoples of African descent. We engage in the critical study of the black Diasporic cultural traditions, conditions, race and ethnic relations in Africa, the Caribbean basin, and especially North America, taking seriously the essential, organic role black peoples and their cultures have played in shaping the societies in which they live.

Africana Studies emphasizes both an interdisciplinary approach and a global perspective in the study of history and culture of peoples of African descent. We ask students to draw on a wide range of disciplines to fulfill their concentration requirements, including literature, history, sociology, economics, anthropology, music, drama, film, and the visual arts.

African American and African Studies Major (36 hours)
The Africana Studies Program offers an interdisciplinary major with two options: (1) African American Studies and (2) African Studies. The major is a concentration of 36 credit hours in work from required core courses and a combination of electives. Both major options integrate a language requirement that emphasizes the importance of world language study. However, the African Americans Studies option provides for studying a world language in the United States or abroad. Students in the African Studies option are strongly encouraged to explore and pursue study abroad opportunities available through the African American and African Studies Program and the Haenicke Institute for Global Education. Students selecting the African American and African Studies major will satisfy the baccalaureate writing requirement by successfully completing AAAS 3800: Special Topics in Africana Literature and Culture.

African American Studies Option (36 hours)
1. Core Requirements
   AAAS 2000 - Introduction to African American and African Studies  Credits: 3 hours
   AAAS 3000 - African American History, Culture and Experience to 1865  Credits: 3 hours
   AAAS 3010 - African American History, Culture and Experience from 1866 to the Present  Credits: 3 hours
   AAAS 4650 - Internship in African American and African Studies  Credits: 3 to 6 hours

2. World Language/Study Abroad Requirement
   This requirement can be met in one of two ways: By earning world language credit through study abroad (A-S 3300-3310) or by taking at least one course beyond the 1010-level in any world language (French, German, Spanish, or Arabic recommended).
Students are encouraged to pursue study abroad opportunities that expose them to the culture and lifestyles of peoples of African descent, preferably in Africa or the Caribbean.

3. Electives
Students must complete at least 15 credit hours (6 hours at 2000-level or below, 9 hours at 3000-level or above) from a combination of approved electives in AAAS or in other departments. An AAAS advisor must approve elective courses. See advisor for list of electives.

**African Studies Option (36 hours)**

1. Core Requirements
   - AAAS 2000 - Introduction to African American and African Studies Credits: 3 hours
   - AAAS 3000 - African American History, Culture and Experience to 1865 Credits: 3 hours
   - AAAS 3010 - African American History, Culture and Experience from 1866 to the Present Credits: 3 hours

2. World Language/Study Abroad Requirement
This requirement can be met in one of two ways: By earning world language credit through study abroad (A-S 3300-3310) or by taking at one course beyond the 1010-level in any world language (French, German, Spanish, or Arabic recommended).

Students are encouraged to pursue study abroad opportunities that expose them to the culture and lifestyles of peoples of African descent, preferably in Africa or the Caribbean.

3. Electives
Students must complete at least 15 credit hours (6 hours at 2000-level or below, 9 hours at 3000-level or above) from a combination of electives in AAAS or in other departments. An AAAS advisor must approve electives. See advisor for list of electives.

**African American and African Studies Minor (18 hours)**

1. Required Courses (12 hours)
   - AAAS 2000 - Introduction to African American and African Studies Credits: 3 hours
   - AAAS 3000 - African American History, Culture and Experience to 1865 Credits: 3 hours
   - AAAS 3010 - African American History, Culture and Experience from 1866 to the Present Credits: 3 hours
   - HIST 3880 - Introduction to African Civilization Credits: 3 hours

3. Elective Courses (6 hours)
With direction from an AAAS advisor, students will select electives based on an emphasis in (1) African American Studies or (2) African Studies. Accordingly, electives may be selected from among AAAS courses or from other departments at WMU. See advisor for list of electives.

**College of Arts and Sciences Interdisciplinary Minors**

**Climate Change Studies Minor (19-22 hours)**

The Climate Change Studies minor is an interdisciplinary and integrative program of study involving expert faculty and key courses from intersecting disciplines. It provides students with the necessary science-based background and a broad understanding of the human relationship to climate change including the social and environmental causes, challenges, and opportunities for mitigation and adaption. As climate change is recognized as one of the critical challenges to the sustainability of human society and the environment, the goal of the program is to develop informed and engaged citizens who can use information from multiple disciplines to draw appropriate conclusions and constructively contribute to societal adaptation to global environmental change. It is intended for any undergraduate and will prepare students to address the complex roots and implications of climate change in any number of professional settings as well as be directly relevant and significant to their lives.
Program Objectives

- Understand the science of past, present and future climate change.
- Identify and understand the range of individual and collective human actions contributing to climate change.
- Identify and understand the consequences of contemporary climate change with particular attention to vulnerable populations.
- Critically examine and effectively communicate a range of response strategies for the mitigation of and adaptation to climate change.
- Critically examine how humans experience climate change through politics, social organization and/or the arts.

Program Coordination

Climate change studies in an interdisciplinary minor housed in the College of Arts and Sciences, coordinated by an advisory board consisting of representative faculty from the departments and programs with courses included in the program and, as an ex-officio member, the Associate Dean for Curriculum in Arts and Sciences. Advising responsibilities will be rotated by the Departments of Geography and Geosciences and by the program in Environmental and Sustainable Studies. The advisory board is responsible for ensuring the continuity and consistency of course offerings and academic advising, approving any changes to the program curriculum, and coordinating the capstone experience.

Introductory Courses (6-7 hours)

Choose one of the following courses:
- ENVS 1000 - Climate Challenged Society Credits: 3 hours
- GEOS 1200 - Climate Change Geologic Perspective Credits: 3 hours

AND one of the following courses:
- ENVS 2150 - Environmental Systems and Cycles Credits: 3 hours
- GEOG 1050 - Physical Geography Credits: 4 hours
- GEOS 1000 - Dynamic Earth Credits: 4 hours
- GEOS 1300 - Physical Geology Credits: 4 hours
- GEOS 1440 - Environmental Earth Science Credits: 3 hours
- GEOS 2320 - Integrated Earth System Studies Credits: 3 hours

Climate Change Science (6-7 hours)

Choose two of the following courses:
- BIOS 3200 - Climate Change Biology Credits: 3 hours
- BIOS 5440 - Global Change Ecology Credits: 3 hours
- CHEM 1900 - Chemistry of Climate Change Credits: 3 hours
- GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
- GEOG 3060 - Climate Change: Atmospheric Perspectives Credits: 3 hours
- GEOG 3260 - Atmospheric Energy and Motion Credits: 3 hours
- GEOG 4240 - Biogeography Credits: 3 hours
- GEOG 4250 - Climatology Credits: 3 hours
- GEOG 4280 - Data Analysis in Climate Science Credits: 3 hours
- GEOG 4300 - Climate Change and Geography Credits: 3 hours

Climate Change and Society (6-7 hours)

Choose two of the following courses:
- ENVS 3300 - Climate Change and the Literary Arts Credits: 3 hours
- ENVS 3700 - Race, Climate, and the Environment Credits: 3 hours
- ENVS 4110 - Climate Change and Society Credits: 3 hours
- ENVS 4120 - Climate Change and Cultural Studies Credits: 3 hours
- GEOG 1000 - World Ecological Problems and Man Credits: 4 hours
- GEOG 3070 - Extreme Weather Under Changing Climate Credits: 3 hours
- GEOG 4260 - Natural Disasters and Risk Management Credits: 3 hours

Climate Change Studies Capstone (1 hour)
- A-S 4100 - Climate Change Studies Capstone Credits: 1 hour
Note
Appropriate substitutions for related coursework or experiences focused on climate change may be approved by program advisors.

Advising
Given the interdisciplinary nature of this program, it is very important that students work regularly with program advisors. Advising responsibilities will be rotated by the Departments of Geography and Geosciences and by the program in Environmental and Sustainable Studies. Students should consult the program website for current advising information and appointments. Transfer students should consult the relevant transfer guides and meet with a program advisor to discuss specific course equivalencies.

Academic Standards
Students in this program must earn a grade of "C" or better in all courses counted toward the minor. A minimum of 9 hours counted toward the minor must be completed at WMU.

Legal Studies Minor (18-19 hours)

The Legal Studies minor is an interdisciplinary program housed in the College of Arts and Sciences. It is designed for students with varied interests, including those considering attending law school, a career in criminal justice, or in business or government, where a working knowledge of legal issues and the legal system would be useful. The Legal Studies minor will provide undergraduate students with a foundation in the law from several diverse disciplines, enhancing critical thinking skills along with a sound background in legal issues.

Program Objectives
Successful students in this program will be able to:

- Demonstrate an understanding of the foundations of the United States legal system and how it has changed over time.
- Articulate how diverse populations have interacted with the American criminal justice system.
- Critically examine legal issues from multiple disciplinary perspectives.

Program Coordination
The Legal Studies minor will be housed in the College of Arts and Sciences and coordinated by an advisory board consisting of representative faculty from the primary departments and programs with courses included in the program, including the Departments of History, Political Science, and Sociology, and, as an ex-officio member, the Associate Dean of Curriculum in Arts and Sciences. The advisory board is responsible for ensuring the continuity and consistency of course offerings and academic advising, approving any changes to the program curriculum, and addressing other curricula issues as they may arise from time to time. The College of Arts and Sciences Office of Undergraduate Advising, which currently coordinates the pre-law advising programs, will be responsible for advising this new minor.

Foundational Courses (3 hours)
Choose ONE of the following courses (must be from a department outside of your major):
- HIST 2110 - American History since 1877 Credits: 3 hours
- PSCI 2000 - National Government Credits: 3 hours
- SOC 2600 - Introduction to Criminal Justice Credits: 3 hours

Intermediate Courses (6-7 hours)
Choose two of the following courses, at least one of which is from a department different from the foundational course:
- COM 3070 - Freedom of Expression Credits: 3 hours
- HIST 3135 - American Legal History Credits: 3 hours
- HIST 3160 - Women in United States History Credits: 3 hours
- LAW 3500 - Computer Law Credits: 3 hours
- LAW 3800 - Legal Environment Credits: 3 hours
- LAW 3840 - Criminal Law and Procedure Credits: 3 hours
- PHIL 3130 - Philosophy of Law Credits: 3 hours
- PSCI 3200 - The American Judicial Process Credits: 4 hours
Upper-Level Courses (9 hours)
Choose three of the following courses, from at least two different departments:
- HIST 4245 - Topics in U.S. History and Culture (BW) Credits: 3 hours
- HIST 4495 - Topics in European History and Culture (BW) Credits: 3 hours
- LAW 4840 - International Business Law Credits: 3 hours
- LAW 4860 - Marketing and Sales Law Credits: 3 hours
- PSCI 4200 - Constitutional Law Credits: 3 hours
- PSCI 4210 - Gender and Law Credits: 3 hours
- PSCI 4220 - Civil Rights and Liberties Credits: 3 hours
- PSCI 4230 - The First Amendment Credits: 3 hours
- PSCI 4240 - Environmental Law Credits: 3 hours
- SOC 5600 - Corporate and Governmental Crime Credits: 3 hours
- SOC 5780 - Sociology of Law Credits: 3 hours

Note
Appropriate substitutions for related coursework or experiences focused on legal studies may be approved by program advisors in consultation with the advisory board.

Advising
Given the interdisciplinary nature of this program, it is very important that students work regularly with program advisors in the College of Arts and Sciences Office of Undergraduate Advising. Transfer students should consult the relevant transfer guides and meet with a program advisor to discuss specific course equivalencies.

Academic Standards
Students in this program must earn a grade of “C” or better in all courses counted toward the minor. Courses used to fulfill requirements in your major may not be counted towards this minor. A minimum of 9 hours counted towards the minor must be completed at WMU.

Medical Humanities Minor

The medical humanities minor is beneficial for two kinds of students who wish to understand the humanistic elements of health and health care, including the psychosocial, ethical, religious, literary, artistic, and so forth. Those choosing a career in the health sciences will find medical humanities to be a positive influence on how they approach patient care, helping them to view patients with greater empathy and awareness of what it is to be a patient. Meanwhile, students of traditional disciplines within the humanities will encounter and explore the human condition as it relates to health-related adversity and triumph.

The medical humanities minor requires the following:
1. 18 total credit hours, to be satisfied as follows:
   a. Phil 3350: Medical Humanities
   b. One course from Group A
   c. One course from Group B
   d. Remaining hours must come from courses in either Group B or Group C
2. No more than two courses from any particular prefix will count for credit toward the minor.
3. Other courses may count toward minor with approval from the medical humanities advisor.
Flexibility is built into the medical humanities minor. Students are encouraged to speak with the medical humanities advisor about which combination of courses would best suit their individual interests. With the advisor’s approval, the student may substitute relevant courses for those that may be unavailable (e.g., if a course is not scheduled to be offered before the student graduates).

Students should be aware that courses may not count for credit twice for different programs. That is, the same course may not be used both to meet the requirements of the student’s major and the medical humanities minor.

**Required (18 hours)**

**PHIL 3350 - Medical Humanities**  Credits: 3 hours

**Group A**

**BIOS 5620 - Bioethics**  Credits: 3 hours
**NUR 3220 - Health Care Ethics**  Credits: 3 hours
**PHIL 3340 - Biomedical Ethics**  Credits: 4 hours

**Group B**

**ANTH 2600 - Sex, Gender, Culture**  Credits: 3 hours
**ANTH 5250 - Spirits and Medicine**  Credits: 3 hours
**HOL 5340 - Holistic Health and Spirituality**  Credits: 3 hours
**PHIL 3150 - Race and Gender Issues**  Credits: 3 hours
**REL 3180 - Death, Dying, and Beyond**  Credits: 4 hours

**Group C**

**ANTH 3480 - Gender and Plastic Bodies** Credits: 3 hours
**COM 4840 - Health Communication**  Credits: 3 hours
**ECON 3180 - The Economics of Medical Care**  Credits: 3 hours
**FCS 2100 - Human Sexuality**  Credits: 3 hours
**GRN 1000 - Introduction to Aging Studies**  Credits: 3 hours
**GRN 4000 - Public Policy and Aging**  Credits: 3 hours
**GWS 2000 - Introduction to Gender and Women's Studies**  Credits: 4 hours
**GWS 3400 - Race, Gender and Science**  Credits: 3 hours
**GWS 3500 - Psychological Perspectives on Gender**  Credits: 3 hours
**HOL 5300 - Special Topics in Holistic Health**  Credits: 1 to 4 hours
  Topic: Healing Through Writing and Story
**HOL 5500 - Introduction to Holism and Expressive Arts**  Credits: 3 hours
**HOL 5510 - Holistic Approaches to Healing Through Visual Art**  Credits: 3 hours
**HOL 5530 - Holistic Strategies for Illness and End of Life**  Credits: 3 hours
**HPHE 1550 - Foundations of Health Education**  Credits: 3 hours
**HSV 4100 - Legal Issues in Health and Human Services**  Credits: 3 hours
**HSV 4140 - Basic Principles and Organization of Health Planning**  Credits: 3 hours
**MUS 2810 - Introduction to Music Therapy**  Credits: 1 hour
**MUS 2890 - Music Therapy Activities for Children**  Credits: 2 hours
**MUS 2900 - Music Therapy Activities for Adults**  Credits: 2 hours
**SWRK 4230 - Ethics in Substance Abuse Treatment**  Credits: 3 hours

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**Global and International Studies Program**

Susan Pozo, Director
Main Office, 2047 Moore Hall
(269) 387-5653
[www.wmich.edu/globalstudies](http://www.wmich.edu/globalstudies)

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One of the three pillars of our university's vision seeks to "globally engaged". Global and international studies offers a broad, integrative approach to the study of global and international issues. The program is supported by the methods and theories of different disciplines, by language study, and through regional area expertise. It houses a family of interdisciplinary focus fields devoted to the study of global and international issues and major regions and cultures of the world, offering one undergraduate major and four minors. Course offerings for these programs are primarily in the College of Arts and Sciences, although other colleges may provide appropriate courses.

The global and international studies major is also designed to maximize opportunities for international study abroad and academic experiences outside of the United States. Extensive world language study is required in the major; and, although the minors can be completed without world language courses, most students include some in their programs, as appropriate. With advisor approval, courses taken at colleges and universities through study abroad, either in English or in other languages, may be integrated into the program requirements.

Students completing this major often seek employment in international business, government service or work with international organizations. Many students seek a second major with a world language.

Our minor programs include:
- Asian studies
- Global and international studies
- Latin American studies
- Modern European studies

Students interested in area studies minors may also be interested in the Canadian studies minor offered through the Department of World Languages and Literatures.

Advising
Given the interdisciplinary nature of the program, it is very important that students work regularly with program advisors. Information about career choices, internships, graduate programs and second majors is also available from our office.

Academic Standards
Students must earn at least a grade of "C" in all courses counted for their major/minor.

Baccalaureate Writing Requirement
Students who have chosen a global and international studies major will satisfy the Baccalaureate Writing Requirement by successfully completing GIST 4900 - Senior Capstone Seminar in Global and International Studies.

Global and International Studies Major (39 hours)
Program requirements
1. Minimum 39 hours, of which at least 23 hours must be in course work at the 3000-level or above
2. Three courses from a set of eight core courses (15-18 hours)
3. Selection of a focus field and a minimum of four courses in that focus field (12-16 hours)
4. Completion of two courses in a world language beyond the 2010 level (6-8 hours)
   Note: Courses taught in English cannot be used to satisfy this requirement
5. At least one area studies course on a region in which the selected world language is spoken (3 hours)
6. A study abroad, service learning or internship cognate (3-4 hours)
7. Must include course selections from at least four different departments or course prefixes
8. No more than 16 credit hours of transfer credit may be applied toward the major

No minor is required for students choosing the major, although a language or area studies minor is strongly recommended. Credits for the world language cognate requirement can also be applied toward a declared minor or major in a language.

Required core courses (15-18 hours)
GIST 2000 - Introduction to Global and International Studies Credits: 3 hours
GIST 4900 - Senior Capstone Seminar in Global and International Studies Credits: 3 hours
Note: The Senior Capstone Seminar in Global and International Studies (GIST 4900) will also be used to satisfy the University's baccalaureate-level writing requirement.

**Three courses chosen from:**
- ANTH 2400 - Principles of Cultural Anthropology Credits: 3 hours
- ECON 2020 - Principles of Macroeconomics Credits: 3 hours
- ENVS 3000 - Introduction to Sustainability: A Local to Global Survey Credits: 3 hours
- GEOG 2050 - Human Geography Credits: 3 hours
- HIST 3030 - World History since 1500 Credits: 3 hours
- PSCI 2400 - Comparative Politics Credits: 3 hours
- REL 2000 - Thinking About Religion Credits: 4 hours
- SOC 3040 - Nonwestern World Credits: 4 hours

**Focus field (12-16 hours)**
Students will take four courses in a single focus field. Course listed in each focus field represent only a sample of courses available. Courses other than those listed for the focus fields must be used with advisor approval.

- GIST 3500 - Topics in Global Studies Credits: 3 hours
This course varies and may serve as one required course within the chosen focus field.

**Identities and cultures in a globalized world**
Explores issues of race, religion, nationality, ethnicity and gender. Considers the role identities play in shaping national and international ideas, actions, conflicts and policies. The following courses should be considered as options for discussion with an advisor.
- ANTH 3480 - Gender and Plastic Bodies Credits: 3 hours
- COM 4740 - Intercultural Communication Credits: 3 hours
- ENGL 2110 - Folklore and Mythology Credits: 4 hours
- ENVS 3600 - Environment and Culture Credits: 3 hours
- FCS 3150 - Global Ecology of the Family Credits: 3 hours
- HIST 3640 - Modern Europe: Culture and Society Credits: 3 hours
- MUS 3120 - Explorations in World Music Credits: 3 hours
- PHIL 3500 - Foundations of the Modern Worldview Credits: 4 hours
- PSCI 3460 - Women in Developing Countries Credits: 4 hours
- REL 3145 - New Religious Movements Credits: 4 hours
- SOC 3140 - Ethnic Relations Credits: 3 hours

**States, security, and transnational governance**
Explores the ways that the international states system, international non-governmental organizations, and other transnational organizations address the intersection between local and global issues. The following courses should be considered as options for discussion with an advisor.
- ECON 3800 - International Economics Credits: 3 hours
- ENVS 3400 - Environmental Policy Credits: 4 hours
- GEOG 2440 - Economic Geography Credits: 3 hours
- HIST 3790 - World War II in American and Japanese History Credits: 3 hours
- PADM 2000 - Introduction to Nonprofit Leadership Credits: 3 hours
- PSCI 2500 - International Relations Credits: 4 hours
- REL 3155 - Religion and Conflict Credits: 4 hours

**Inequality and social responsibility**
Explores the origins and impact of economic and social disparities and the influences of race, gender and socioeconomic class on resource distributions. It seeks to understand the legal and ethical responses to these social differences, and the challenges it presents for peoples and governments. The following courses should be considered as options for discussion with an advisor.
- ANTH 2600 - Sex, Gender, Culture Credits: 3 hours
- ECON 3840 - Economic Development Credits: 3 hours
- ENVS 4150 - Environmental Law Credits: 3 hours
GWS 3200 - Women, Globalization and Social Change  Credits: 3 hours
PHIL 3150 - Race and Gender Issues  Credits: 3 hours
PSCI 3460 - Women in Developing Countries  Credits: 4 hours
SOC 3140 - Ethnic Relations  Credits: 3 hours

Global health and environment
Focuses on the linkages between health and the environment and studies the challenges, opportunities and responsibility of sustaining healthy bodies, communities and environments. The following courses should be considered as options for discussion with an advisor.
ANTH 3560 - Food and Culture  Credits: 3 hours
ANTH 4800 - Garbage: Humans and their Refuge  Credits: 3 hours
BIOS 1050 - Environmental Biology  Credits: 3 hours
ECON 3180 - The Economics of Medical Care  Credits: 3 hours
ECON 3190 - Environmental Economics  Credits: 3 hours
ENVS 1100 - Nature and Society  Credits: 4 hours
GEOG 1000 - World Ecological Problems and Man  Credits: 4 hours
GEOS 3220 - Ocean Systems  Credits: 3 hours
HOL 2000 - Choices in Global Living  Credits: 3 hours
PHIL 3340 - Biomedical Ethics  Credits: 4 hours
PSCI 3060 - Environmental Politics  Credits: 4 hours
REL 3190 - Religion and Health  Credits: 4 hours

Migration and population dynamics
Examines the movements of people and explores the economic, social, cultural, ethical, security, and policy ramifications of this mobility. The following courses should be considered as options for discussion with an advisor.
ANTH 3470 - Ethnicity/Multiculturalism  Credits: 3 hours
ECON 3190 - Environmental Economics  Credits: 3 hours
HIST 3611 - The Crusades: West Meets East (WI)  Credits: 3 hours
LWIR 3000 - Immigration, Race and Ethnicity in the U.S.  Credits: 3 hours
PHIL 3150 - Race and Gender Issues  Credits: 3 hours
SOC 3140 - Ethnic Relations  Credits: 3 hours
SPAN 2650 - Hispanic Culture in the U.S.  Credits: 3 hours

Global communication, expression and information systems
Studies the forms of expression and production and circulation of ideas, images and information from comparative and global perspectives. It explores the role of technology, communication modes and the arts in defining global issues. The following courses should be considered as options for discussion with an advisor.
ANTH 2800 - Language in a Global World  Credits: 4 hours
ART 2220 - Art of Africa, Oceania, and the Americas  Credits: 3 hours
ENGL 3160 - Storytellers  Credits: 3 hours
GEOG 1020 - World Geography through Media and Maps  Credits: 3 hours
GWS 1000 - Media and the Sexes  Credits: 3 hours
HIST 3060 - Technology and Culture  Credits: 3 hours
LANG 3750 - World Literature in English Translation: Views of Humanity  Credits: 3 hours
MUS 3520 - World Music in Theory and Practice  Credits: 4 hours

Self-Designed Focus Field

Offers students the option of arranging a set of courses to develop a thematic focus field. Students must petition the global and international studies program for approval of a self-designated focus field.

Study Abroad, Service Learning or Internship Cognate (3-4 hours)
Students must select an approved experiential learning opportunity, which may include an internship with a global focus or a study abroad program. The following courses may also be used to satisfy this requirement. The advisor may approve an appropriate substitute.
ANTH 4900 - Archaeological Field School  Credits: 6 hours
GIST 4980 - Directed Research and Field Projects  Credits: 1 to 6 hours  
HIST 4950 - Internship  Credits: 3 to 9 hours  
PSCI 3900 - Field Work in Political Science  Credits: 1 to 12 hours  
SPAN 4400 - Internship or Service with Spanish  Credits: 2 to 3 hours  

For study abroad programs visit:  
http://broncosabroad.international.wmich.edu/  

World Language Cognate and Area Studies Requirement (9-12 hours)  
The program requires at least two courses beyond the 2010-level in a single language other than the student's native language and appropriate to the chosen focus field. Courses taught in English cannot satisfy this requirement. Students whose native language is not English should consult the program advisor on fulfillment of the language requirement. The program also requires one area studies course in the region in which the students language choice is spoken. A study abroad program in a region corresponding to the student's language choice can be used to satisfy this requirement. Students who complete a minor or major in a world language will satisfy this language and area studies cognate.

The following courses should be considered as options for discussion with an advisor.  

Africa  
ANTH 3410 - Global Africa Past and Present  Credits: 3 hours  
ECON 3880 - African Economies  Credits: 3 hours  
ENGL 3140 - African Literature  Credits: 3 hours  
GEOG 3860 - Geography of Africa  Credits: 3 hours  
HIST 3880 - Introduction to African Civilization  Credits: 3 hours  
HIST 3882 - History of Africa and the Atlantic Slave Trade (WI)  Credits: 3 hours  
PSCI 3410 - The Politics of Sub-Saharan Africa  Credits: 4 hours  

Or other course offerings

Asia  
ANTH 3400 - Cultures of Asia  Credits: 3 hours  
ART 2230 - Introduction to Asian Art History  Credits: 3 hours  
ECON 3870 - Studies in Asian Economies  Credits: 3 hours  
ENGL 3130 - Asian Literature  Credits: 3 hours  
GEOG 3900 - China, Japan, and Korea: Lands and Cultures  Credits: 3 hours  
HIST 3760 - Modern East Asia  Credits: 3 hours  
REL 2040 - Religion in India  Credits: 4 hours  

Or other course offerings

Canada  
FREN 2750 - Francophone Culture  Credits: 3 hours  
GEOG 3800 - United States and Canada  Credits: 3 hours  
HIST 3300 - Canadian History and Culture  Credits: 3 hours  
HIST 4010 - Environment and History (BW)  Credits: 3 hours  
HIST 3101 - Colonial America (WI)  Credits: 3 hours  

Or other course offerings

Europe  
GEOG 3830 - Geography of Europe  Credits: 3 hours  
HIST 3360 - Women in European History  Credits: 3 hours  
HIST 3618 - The Cold War to Unification Europe 1945-Present (WI)  Credits: 3 hours  
HIST 3640 - Modern Europe: Culture and Society  Credits: 3 hours  
PSCI 3400 - European Politics  Credits: 4 hours  
PSCI 4400 - The European Union  Credits: 3 hours  
REL 2080 - Religion in Europe  Credits: 4 hours  

Or other course offerings
Latin America
ANTH 3390 - Cultures of Latin America Credits: 3 hours
ECON 3890 - Latin American Economies Credits: 3 hours
GEOG 3810 - South America Credits: 3 hours
PSCI 3450 - Latin American Politics Credits: 4 hours
SOC 3350 - Modern Latin American Societies Credits: 3 hours
SPAN 2750 - Latino Writing/Latino Culture Credits: 3 hours
Or other course offerings

Middle East
ARAB 2750 - Life and Culture of the Arabs Credits: 3 hours
ANTH 3400 - Cultures of Asia Credits: 3 hours
ART 2230 - Introduction to Asian Art History Credits: 3 hours
ECON 3870 - Studies in Asian Economies Credits: 3 hours
HIST 3850 - Modern Middle East Credits: 3 hours
REL 2060 - Islam Credits: 4 hours
REL 2070 - Judaism Credits: 4 hours
Or other course offerings

Russia and Central Asia
HIST 3490 - Ancient Near East Credits: 3 hours
HIST 3662 - Russia to 1855 (WI) Credits: 3 hours
HIST 3664 - Russia from 1855 (WI) Credits: 3 hours
PSCI 3440 - Russian and Central Asian Politics Credits: 4 hours
Or other course offerings

Global and International Studies Minor (20 hours)

Program Requirements
This minor encourages a broad study of global conditions and change across multiple disciplines and on a comparative basis.

Minimum of 20 hours with at least half at the 3000-level or above.

Required course
GIST 2000 - Introduction to Global and International Studies Credits: 3 hours

Asian Studies Minor (18 hours)

Program Requirements
Minimum of 18 hours with a minimum grade of "C" in all courses in the minor and with at least nine credits at the 3000-level or above. The minor may be organized around a general study of Asia, one of its regions, or specific countries, through completion of appropriate courses selected from more than one department. Up to eight hours of study in a single Asian language (such as Arabic, Chinese, Japanese etc.) is included in the minor requirements. Appropriate study abroad course credits are welcome.

Latin American Studies Minor (18 hours)

Program Requirements
Minimum of 18 hours with a minimum grade of "C" in all courses in the minor and with at least nine credits at the 3000-level or above. The minor may be organized around a general study of Latin America with courses selected from more than one department. Up to eight hours of study in Spanish or French is included in the minor requirements. Appropriate study abroad course credits are welcome.
Modern European Studies Minor (18 hours)

Program Requirements
Minimum of 18 hours with a minimum grade of “C” in all courses in the minor and with at least nine credits at the 3000-level or above. The minor may be organized around a general study of Europe and Eurasia with courses selected from more than one department. Up to eight hours of study in a language spoken in the region is included in the minor requirements. Appropriate study abroad course credits are welcome.

Medieval Studies

The Medieval Institute
Jana K. Schulman, Director
200E Walwood Hall
Telephone: (269) 387-8745
Fax: (269) 387-8750

Knowledge of medieval and Renaissance culture is essential to an understanding of modern culture. The Medieval Institute was established by the University to develop and coordinate interdisciplinary programs in medieval and Renaissance Studies. In addition to an undergraduate minor, the Institute offers a graduate program leading to an M.A. in medieval studies.

Medieval Studies Minor (24 hours)

Program Requirements
Students with an undergraduate minor must complete twenty-four hours, to include the following:
HIST 3600 - The Medieval World: Society and Culture Credits: 3 hours
MDVL 1450 - Heroes and Villains of the Middle Ages Credits: 3 hours

Additional Hours
Eighteen additional hours of coursework from eligible courses that include any with substantial resources or subject matter from before 1800, with the approval of the director. The student should take care that the courses selected represent the interdisciplinary nature of medieval studies.

Race and Ethnic Relations Minor (18 hours)

This minor allows for the study of race and ethnic relations from several perspectives:
- Global, cross-cultural analyses
- Intercultural communication and race/ethnicity
- The implications of racial and ethnic diversity in service delivery (e.g., health care, education, business)
- Race, ethnicity and public policy
- Theoretical perspectives in the study of race and ethnic relations

Requirements
Students must complete 18 credit hours from an approved list of courses with a grade of “C” or better in each class. There are two required courses:
LWIR 3000 - Immigration, Race and Ethnicity in the U.S. Credits: 3 hours
LWIR 4000 - Research in Race and Ethnic Relations Credits: 3 hours

Remaining hours
Students may complete the remaining 12 credits needed for the minor from an approved list, or select a different course with the consent of the director. Courses must be chosen from at least two different departments. In addition to LWIR 4000, at least one other course must be at the 4000-level.

Science Education, Mallinson Institute For

, Director

Todd Ellis, Geography
Marcia Fetters, Teaching, Learning, and Educational Studies
Megan Grunert Kowalske, Chemistry
Charles Henderson, Physics
Heather Petcovic, Geosciences
David W. Rudge, Biological Sciences
David Schuster, Physics
Brandy Ann Skjold, The Mallinson Institute for Science Education
Joseph Stoltman, Geography

The Mallinson Institute for Science Education is devoted to the study and improvement of how people learn science at the K-12, undergraduate, and graduate levels. The Mallinson Institute has four components:

1. Graduate programs leading to a Master of Arts and a Doctor of Philosophy in Science Education. See the graduate catalog for more information.
2. Coordination of undergraduate programs as part of the elementary education science and mathematics teaching minor. See the College of Education and Human Development section of this catalog for more information.
3. Professional development courses and related opportunities for K-12 science teachers and school districts coordinated and offered by The Mallinson Institute for Science Education. In addition, The Mallinson Institute provides curriculum development expertise and services for science curriculum projects from the national to the school district level.
4. Science and Mathematics Program Improvement (SAMPI) which provides technical assistance, conducts research and evaluation services, program development projects to K-12 schools, higher education, and other educational institutions.

As an academic discipline, science education lies at the intersection of the sciences, educational pedagogy, cognitive psychology, and the history, philosophy, and sociology of science. It ranges from concerns about practical teaching strategies to fundamental questions about the nature of science and how people learn, and the systems that support teaching and learning. The courses taken by pre-and post-service teachers are designed to prepare them to think critically about why people should become scientifically literate, what science is most important to know, and how students learn. This includes attention to the content of science, the process of science, and the cognition of learning. In particular, the Institute encourages participants in its programs to become self-reflective about their own learning, in the hope it will empower them to become more independent, intentional, and life-long learners.

Social Studies Major – Secondary Education

Major Requirements

1. Minimum of 41/39 hours selected from disciplines listed below.
2. Minimum of “C” in all course work required for the major and minor.
3. Students in the Social Studies – Secondary Education major are required to select a Social Studies specific minor in Geography, History, or Political Science.
4. All course work at the 3000/4000-level must be completed within ten years of intern teaching.

Social Studies Core Courses (30-32 hours)

ECON 2020 – Principles of Macroeconomics  Credits: 3 hours
GEOG 1020 – World Geography: Media and Maps  Credits: 3 hours
HIST 2100 – American History to 1877  Credits: 3 hours
Sustainable Brewing (96-99 credit hours)

The Sustainable Brewing program is an interdisciplinary four year curriculum that will help position students to enter the craft beer field in a variety of roles. The goal of this program is to educate students who are intimately familiar with the technical features of brewing, have an appreciation for the rich landscape of an industry that has been part of human civilization for thousands of years, and can comprehend and address the environmental challenges faced by the industry in the 21st century. Required Science, Technology, Engineering and Mathematics (STEM) courses for the program will complement a slate of brewing-focused courses, while additional courses in sustainability and other elective fields will provide the breadth of knowledge sought in the industry. The program is supported and advised by an external advisory board with members from the top breweries in the state. Because of the interdisciplinary nature of the program and the large number of credit hours required, students in this program are not required to have a minor.

Program Objectives

- Understand the historical and social forces that were cause and effect of brewing in human civilization.
- Gain first-hand experience going through the process of brewing, "grain to glass".
- Develop a sensitivity for the ethic of sustainability that will inform decisions about energy demand, efficiency, water use, waste minimization, and local sourcing of materials.
- Demonstrate an understanding of the biochemistry and microbiology involved in fermentation and aging.

Program Coordination

This interdisciplinary major housed in the College of Arts and Sciences (CAS) is overseen by an interdisciplinary Program Coordinating Team consisting of representatives from departments and programs with courses included in the program, the CAS Office of Undergraduate Advising, and the CAS Dean's Office. The Program Coordinating Team will be responsible for supervising and modifying curricula and for student advising.

Sustainable Brewing Curriculum
Required Brewing Courses (28 hours)
CAS for Kalamazoo Valley Community College (KVCC) Certificate in Craft Brewing**  Credits: 28 total hours
(will transfer to WMU as A-S 3400 - Sustainable Craft Brewing)

Required Introductory STEM Courses
CHEM 1100 - General Chemistry I  Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
CHEM 1120 - General Chemistry II  Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
PHYS 1130 - General Physics I  Credits: 4 hours
PHYS 1140 - General Physics I Laboratory  Credits: 1 hour
PHYS 1150 - General Physics II  Credits: 4 hours
PHYS 1160 - General Physics II Laboratory  Credits: 1 hour
MATH 1180 - Precalculus Mathematics  Credits: 4 hours
BIOS 1600 - Biological Form and Function  Credits: 3 hours
BIOS 1610 - Molecular and Cellular Biology  Credits: 4 hours
BIOS 1620 - Ecology and Evolution  Credits: 4 hours

Required Advanced STEM Courses
CHEM 2250 - Quantitative Analysis  Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory  Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry  Credits: 3 hours
CHEM 3710 - Introduction to Organic Chemistry Lab  Credits: 1 hour
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours
CHEM 3560 - Introductory Biochemistry Laboratory  Credits: 1 hour
BIOS 2500 - Genetics  Credits: 4 hours
BIOS 3120 - Microbiology  Credits: 5 hours
BIOS 5235 - Fermentation  Credits: 3 hours

Required Sustainability Courses
ENVS 2150 - Environmental Systems and Cycles  Credits: 3 hours
ENVS 3000 - Introduction to Sustainability: A Local to Global Survey  Credits: 3 hours

Required Capstone
A-S 3499 - Sustainable Brewing Capstone  Credits: 3 hours

Electives (6 hours)
ACTY 3990 - Sustainability Accounting  Credits: 3 hours
ANTH 3560 - Food and Culture  Credits: 3 hours
BUS 1750 - Business Enterprise  Credits: 3 hours
ECON 3190 - Environmental Economics  Credits: 3 hours
FCS 2600 - Nutrition  Credits: 3 hours
FCS 3700 - Introduction to Food Systems and Sustainability  Credits: 3 hours
FCS 4720 - Farm to Table and Sustainability  Credits: 3 hours
FCS 4700 - Food and Beverage Systems  Credits: 3 hours
GEOG 3200 - Culinary Tourism  Credits: 3 hours
EDMM 4870 - Manufacturing Productivity Techniques  Credits: 3 hours
MKTG 2900 - Introduction to Food and CPG Industries  Credits: 3 hours
MKTG 3330 - Sustainability Marketing  Credits: 3 hours
MKTG 3770 - Sales Promotion  Credits: 3 hours
MGMT 3120 - Sustainability Operations  Credits: 3 hours
REL 4000 - Topics in Religion  Credits: 4 hours
(Topic: Holy Waters: Spirits and Spirituality)

**Note
**Appropriate substitutions for related coursework or experiences focused on sustainable brewing may be approved by program advisors in consultation with the Program Coordinating Team.

Advising
Given the interdisciplinary nature of this program, it is very important that students work regularly with program advisors. Advising responsibilities will be shared by the Program Coordinating Team. Students should work closely with a program advisor to identify appropriate electives and to find an appropriate course to fulfill the baccalaureate writing requirement. Students should consult the program website for current advising information and appointments. Transfer students should consult the relevant transfer guides and meet with a program advisor to discuss specific course equivalencies.

Academic Standards
Students in this program must earn a grade of "C" or better in all courses counted toward the major, including those transferred to WMU. A minimum of 30 hours counted towards the major must be completed at WMU.

**World Literature Minor (20 hours)**

Robert Felkel, Advisor
Department of Spanish

This is an interdepartmental program administered jointly by the Departments of English, World Languages and Literatures, and Spanish.

Studying the literature of other peoples of the world is one of the best ways to begin to know them. A great body of the world's literature is available for study in English translation in a variety of courses and departments at Western Michigan University. The world literature minor grows out of and is based on these courses.

This minor should be of value to students who have a general interest in literature and are curious about the world, especially that major part which does not have English as its literary language.

Any student, including those majoring or minoring in English or Spanish or other Foreign Language, may elect the world literature minor. The minor should be of obvious value to students preparing to teach humanities or literature (at any of several levels), but education curricula students should understand that this minor is not a teaching minor.

The world literature minor can provide useful backgrounds to students interested in foreign affairs, law, politics, journalism, mass communication, and theatre. It should also be of interest to students in business, scientific, and engineering curricula who wish to do a minor outside their main field.

The minor should interest students who, whatever their career plans or major, wish the varied view and mixture of experiences of an interdepartmental program. Also, the wide range of electives possible should make the minor attractive to students who would like the opportunity to help shape their own programs.

Prerequisites listed for any of the courses in this minor will be waived. However, students with questions about the advisability of taking courses for which there are prerequisites should consult one of the minor advisors.

Transfer students should consult the minor advisor to determine the applicability of courses taken at other colleges.

Minor slips are required. Both the English and the Spanish Departments have world literature minor advisors with regular office hours, either one of whom may issue minor slips. For information, stop at or call the English Department office (269)387-2572 or the Department of Spanish, 410 Sprau (269)387-3001.

Requirements
1. Twenty hours, with the following distribution:
   ENGL 3120 - Western World Literature Credits: 3 hours or
   ENGL 3130 - Asian Literature Credits: 3 hours or
ENGL 3140 - African Literature Credits: 3 hours

2. Two or three courses (at least eight semester hours) selected from the following list:
ENGL 1100 - Literary Interpretation Credits: 4 hours
ENGL 2100 - Film Interpretation Credits: 4 hours
ENGL 2520 - Shakespeare Credits: 4 hours
ENGL 3120 - Western World Literature Credits: 3 hours, if not used under Requirement (1)
ENGL 3130 - Asian Literature Credits: 3 hours, if not used under Requirement (1)
ENGL 3140 - African Literature Credits: 3 hours, if not used under Requirement (1)
ENGL 3150 - The English Bible as Literature Credits: 3 hours
ENGL 4100 - Special Topics in Literature Credits: 4 hours (if the topic is appropriate it may be approved by the minor advisor.)
ENGL 4420 - Studies in Drama Credits: 4 hours
ENGL 5300 - Medieval Literature in English Translation Credits: 3 hours
ENGL 5380 - Modern Literature Credits: 3 hours
ENGL 5550 - Studies in Major Writers Credits: 3 hours (if the authors studied are appropriate, this course may be approved by the minor advisor)
ENGL 5980 - Readings in English: Independent Study Credits: 1 to 4 hours (with the approval of the minor advisor)

3. Three courses selected from the following list:
LANG 3500 - Classical Greek and Roman Mythology Credits: 3 hours
LANG 3750 - World Literature in English Translation: Views of Humanity Credits: 3 hours
(Repeatable under a different topic)

Permissible Substitutions For Required Courses
With the approval of a minor advisor, students may:

1. Substitute one of the following courses for one course listed above in either Requirement 2 or Requirement 3:
THEA 3700 - Theatre History I Credits: 3 hours
THEA 3710 - Theatre History II Credits: 3 hours
THEA 4700 - Development of Theatre Art Credits: 3 hours OR

2. Substitute an advanced literature course in a foreign language for one of the courses listed above in either Requirement 2 or Requirement 3.
OR

3. Substitute a course or courses (maximum of 4 hours) not presently listed in the catalog, which may be offered as a special or temporary course and which is deemed by the advisors appropriate to the World Literature Minor.
Academic Advising

Students should contact an advisor as early as possible. Advisors are available to assist in the individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and special transfer credit must be approved by the advisor, the curriculum committee, or the Faculty Chair. Academic advising is available; phone (269) 387-0347. Because of the prerequisites and the limited offering times, students must consult an academic advisor if there are questions about proper course sequence.

Advising:
Kalamazoo (all programs) – 2230 Kohrman Hall
Telephone: (269) 387-0347

Career Advising

Full career advising services are offered on main campus and students should contact Career and Student Employment Services (http://wmich.edu/career/students) for these services. There are a number of internships available. For opportunities, students should contact the Manager of Recruitment and Outreach at (269) 964-6473. Internships are very competitive and students are encouraged to apply well before the appropriate deadline.

Academic Performance

Candidates for the Bachelor of Science degree must satisfy the following requirements and University requirements stated elsewhere in this catalog:

1. Students in the College of Aviation must achieve a minimum grade of "C" in all AVS courses required for graduation.
2. No more than two grades of "D" or "DC" in courses, other than AVS courses, presented for graduation may be counted for graduation.

Approved Electives
Electives must be approved by a department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual's program. Non-related courses will not normally be approved.

Transfer Credit

Transfer credit for FAA certification may be accepted providing the courses were taken at another accredited collegiate institution. Although these transfer courses may be approved for AVS credit, the use of these courses for AVS course substitution may not necessarily be approved. However, please note carefully the following paragraph.

New FAA First Officer Qualification rules now require an Air Transport Pilot License (ATPL) for pilot employment in Part 121 operations. However, the FAA will allow students completing an aviation degree to qualify for a reduced hours FAA ATPL; 500 hours credit are granted toward the 1500 flight hours normally required for the ATPL. In order to qualify for this reduction, students must complete all of their flying aside from the Private Pilot Certificate with the College of Aviation and complete at least 60 credit hours of the FAA approved AVS courses. Students who only complete 30 to 59 credit hours of FAA approved courses at WMU will only be granted 250 hours of credit. Students completing less than 30 hours of FAA approved courses at WMU or not completing all of their flying aside from the Private Pilot Certification at WMU will be granted no credit.

Additional Costs

Special lab fees are in effect for all flight courses to cover the cost of flight instruction and aircraft operations. The fee is subject to change without notice due to fluctuations in operating costs. Flight fees are based on the average flight time required to complete the course. Students may require additional or less instruction. Refund of flight fees is subject to departmental refund policy, depending on whether a student completes a course of instruction or withdraws. Flight fees are due at the beginning of the semester. Students using Post 9/11 VA benefits for flight course fees will have a portion of the lab fee submitted to the VA for payment consideration. Additional information concerning the amount of the lab fee submitted to the VA can be found at [http://www.wmich.edu/aviation/GIBillFlightFees.pdf](http://www.wmich.edu/aviation/GIBillFlightFees.pdf).

Students are required to have their own hand tools for courses required for the Aviation Maintenance Technology program (AMT). Contact the Aviation Maintenance Technology advisor for a list of required tools.

Class-related charges are assigned for laboratory courses.

Class-related charges are also assigned to classes requiring special licensing purchases for simulation software, external testing fees or class related field trip expenses.

All aviation students will also be assessed an $8.00 per semester fee for the hourly transportation shuttle between main campus and the college facility at the Battle Creek airport.
Aviation Sciences
Gil Sinclair, Chair
Main Office: 1219 Aviation Education Center
Telephone: (269) 964-6993
Fax: (269) 964-6473
Main campus: 2232 Kohrman Hall
Telephone: (269) 387-0676

Academic Faculty:
Blair Balden
Lori Brown
Mervyn Elliott
Jeremy Hierholzer
Kevin High
Willem Homan
Terrance Michmerhuizen
William Rantz
Vladimir Risukhin
Gail Y. Rouscher
Raymond Thompson
Geoff Whitehurst
Lisa Whittaker

Flight Faculty:
Tim Broadwater
Stephen Hasenick
G. Patrick Langworthy
Dennis McFall
Dominic Nicolai
Ryan Seiler
Jim Whittles

Curricula

The College of Aviation offers the following curricula:
Aviation Flight Science - Bachelor of Science
Aviation Management and Operations - Bachelor of Science
Aviation Maintenance Technology - Bachelor of Science

Admission to Aviation Curricula

Students who meet the WMU admission criteria will be placed in their major by the College of Aviation. To begin pilot training a Chief Flight Instructor approved application is required. Also a FAA 2nd class medical certificate is required (1st class is recommended). Enrollment in flight and flight theory courses is subject to a minimum cumulative grade point average of 2.5 or better earned at Western Michigan University. Entering freshmen without a WMU grade point average will be considered if they have earned a high school GPA of 3.0 and an SAT score of 1070 or 21 on the ACT. Transfer students without a WMU GPA will be considered if they have earned a GPA of 2.5 or better from their prior institution (3.0 from a community college). Once the student meets these requirements, the student will be placed in the flight training courses by the flight operations staff.

Air Force Reserve Officers' Training Corps (AFROTC) Program

Western Michigan University, Michigan State University and the United States Air Force have an agreement that enables WMU students to attend AFROTC classes at MSU while earning their degree at WMU.
The AFROTC program provides pre-professional preparation for future USAF officers. The program is designed to develop men and women who can apply their education to their initial assignments as commissioned officers. In order to receive a commission, ROTC cadets must complete all requirements for a degree in accordance with University requirements, as well as complete certain courses specified by the MSU Department of Aerospace Studies. Depending on the student's program of study, such courses may supplement or serve as electives with the approval of the appropriate academic unit. For an undetermined amount of time, all AFROTC classes will only be offered on the campus of Michigan State University, and students may register through Michigan State University's Lifelong Education program, or alternatively students may register through WMU's normal registration process.

For more information about the AFROTC program and or scholarship opportunities, call (517) 355-2168 or visit www.afrotc.com or www.afrotc.msu.edu.

For more information about how these courses may be applied to your aviation degree at WMU, contact a College of Aviation academic advisor at (269) 387-0347.

For students enrolled in other colleges at WMU, contact your academic advisor to find out how these courses might be applied to your specific degree requirements.

**Aviation Flight Science (AFSJ)(123 hours)**

The Aviation Flight Science major is available both in Michigan and the Punta Gorda, Florida location. Some courses may have an online component or may be delivered entirely online.

The Aviation Flight Science curriculum prepares students for a career in aviation as a professional pilot. It emphasizes intellectual as well as technical competencies and is geared toward educating captains, not just training pilots. Flight training and prerequisite course work ensures that students learn essentials that are required by the commercial airline industry. Concepts emphasized include Crew Resource Management (CRM), Line Oriented Flight Training (LOFT), international flight, airline regulations, profitability, management and administration. Equipment includes a modern fleet of single- and multi-engine aircraft and state-of-the-art Flight Training Devices (FTD) which provide exposure to current Electronic Flight Instrumentation Systems (EFIS) and Flight Management Systems (FMS). Graduates of this curriculum earn their Federal Aviation Administration (FAA) Commercial Pilot Certificate with Instrument and Multi-engine Land ratings.

**FAA Medical Certificate**

Students considering this curriculum are highly encouraged to obtain a FAA First Class Medical Certificate before committing to this program. An FAA Second Class Medical Certificate is a prerequisite for the first flight course (AVS 1520).

**Drug Testing**

All students are required to submit to drug testing procedure approved by the College before being allowed to participate in any flight activity in University aircraft.

**Program Requirements**

Enrollment in flight courses may be subject to a waiting list. Admission is determined by the candidate's number of credits earned and GPA, and availability of aircraft and instructors. Registration is administered by the College of Aviation. Students enrolled in flight training must maintain a GPA of 2.0. Failure to do so will result in removal from flight status.

**Baccalaureate-Level Writing Requirement**

Students who have chosen the Aviation Flight Science curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

AVS 4270 – Airline Administration Credits: 4 hours

**Required Courses (123 hours)**

AREA I: Fine Arts Elective Credits: 3 hours
AREA II: Humanities Elective Credits: 3 hours
AREA III: The United States: Cultures and Issues Elective Credits: 3 hours
AREA IV: Other Cultures and Civilizations Elective Credits: 3 hours
AREA VIII: Health and Well-Being Elective Credits: 2 hours
Note: at least six General Education hours must be upper division (3000-4000-level) courses.

AVS 1200 - Introduction to Aviation Credits: 3 hours
AVS 1210 - Aerodynamics and Performance Credits: 2 hours
AVS 1220 - Introduction to Airframes and Systems Credits: 2 hours
AVS 1225 - Introduction to Aircraft Powerplants Credits: 2 hours
AVS 1230 - Aircraft Systems Laboratory Credits: 1 hour
AVS 1235 - Aircraft Powerplants Laboratory Credits: 1 hour
AVS 1510 - Professional Flight I Theory Credits: 3 hours
AVS 1520 - Professional Flight I Lab A Credits: 1 hour
AVS 1525 - Professional Flight I Lab B Credits: 1 hour
AVS 2050 - Aviation Safety Credits: 3 hours
AVS 2060 - Flight Physiology Credits: 3 hours
AVS 2070 - Crew Resource Management Credits: 3 hours
AVS 2120 - Aviation Meteorology Credits: 3 hours
AVS 2510 - Professional Flight II Theory Credits: 3 hours
AVS 2520 - Professional Flight II Lab Credits: 3 hours
AVS 3060 - Advanced Aerodynamics and Performance Credits: 3 hours
AVS 3070 - Advanced Aircraft Systems Credits: 3 hours
AVS 3080 - Advanced Aircraft Systems Laboratory Credits: 3 hours
AVS 3190 - Aviation Law Credits: 3 hours
AVS 3220 - Global Navigation and International Flight Planning Credits: 3 hours
AVS 3530 - Professional Flight III Theory Credits: 2 hours
AVS 3540 - Professional Flight III Lab Credits: 2 hours
AVS 3550 - Professional Flight IV Theory Credits: 2 hours
AVS 3560 - Professional Flight IV Lab Credits: 2 hours
AVS 4110 - Airline Flight Operations Credits: 3 hours
AVS 4120 - Line Oriented Flight Crew Simulation Credits: 4 hours
AVS 4240 - Corporate Aviation Management Credits: 3 hours
AVS 4270 - Airline Administration Credits: 4 hours
COM 1700 - Interpersonal Communication Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
GEOG 1050 - Physical Geography Credits: 4 hours
GEOG 2250 - Introduction to Meteorology and Climatology Credits: 4 hours
IEE 1020 - Technical Communication Credits: 3 hours
MATH 2000 - Calculus with Applications Credits: 4 hours
PHYS 1070 - Elementary Physics Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour
PSY 1000 - General Psychology Credits: 3 hours
STAT 2160 - Business Statistics Credits: 3 hours

Approved Elective Credits: 6 hours
See a College of Aviation advisor to discuss approved elective courses.

Aviation Management and Operations (AMOJ)(123 hours)

The Aviation Management and Operations curriculum provides preparation for a variety of positions in operations management or technical support areas of the aviation industry. The program leads to careers in areas such as technical sales or service, aerospace administration, and aerospace management.

Baccalaureate-Level Writing Requirement
Students who have chosen the Aviation Management and Operations curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing:

AVS 4270 - Airline Administration  Credits: 4 hours

Required Courses

AREA I: Fine Arts Elective  Credits: 3 hours
AREA II: Humanities Elective  Credits: 3 hours
AREA III: The United States: Cultures and Issues Elective  Credits: 3 hours
AREA IV: Other Cultures and Civilizations Elective  Credits: 3 hours
AREA VIII: Health and Well-Being Elective  Credits: 2 hours

Note: at least six General Education hours must be upper division (3000-4000-level) courses.

AVS 1200 - Introduction to Aviation  Credits: 3 hours
AVS 1210 - Aerodynamics and Performance  Credits: 2 hours
AVS 1220 – Introduction to Airframes and Systems  Credits: 2 hours
AVS 1225 - Introduction to Aircraft Powerplants  Credits: 2 hours
AVS 1230 - Aircraft Systems Laboratory  Credits: 1 hour
AVS 1235 - Aircraft Powerplants Laboratory  Credits: 1 hour
AVS 2050 - Aviation Safety  Credits: 3 hours
AVS 2070 - Crew Resource Management  Credits: 3 hours
AVS 2100 - Introduction to Airports  Credits: 2 hours
AVS 2120 - Aviation Meteorology  Credits: 3 hours
AVS 2800 - Transportation Technology: Policy, Perils, and Promise  Credits: 3 hours
AVS 3070 - Advanced Aircraft Systems  Credits: 3 hours
AVS 3190 - Aviation Law  Credits: 3 hours
AVS 4240 - Corporate Aviation Management  Credits: 3 hours
AVS 4270 - Airline Administration  Credits: 4 hours
AVS 4280 - International Aviation  Credits: 3 hours
AVS 4980 - Administration Senior Project  Credits: 3 hours
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
ACTY 2110 - Principles of Accounting II  Credits: 3 hours
BUS 1750 - Business Enterprise  Credits: 3 hours
CIS 1020 - Introduction to Business Computing  Credits: 3 hours
COM 1700 - Interpersonal Communication  Credits: 3 hours
ECON 2040 - The Organization of Industries  Credits: 3 hours
ECON 3040 - Labor Economics  Credits: 3 hours
ECON 3100 - Money and Banking  Credits: 3 hours
ECON 3240 - Public Finance  Credits: 3 hours
ECON 3450 - Business, Government, and Society  Credits: 3 hours

Advanced ECON Requirement:
Select one of the following ECON courses:
ECON 3040 - The Organization of Industries  Credits: 3 hours
ECON 3100 - Labor Economics  Credits: 3 hours
ECON 3240 - Money and Banking  Credits: 3 hours
ECON 3240 - Public Finance  Credits: 3 hours

Approved Electives Credits: 6 hours (Non-required AVS courses, declared minor courses, other approved supportive courses)
AVS 3040 - Airport Safety and Security  Credits: 3 hours
AVS 3140 - Airport Operations  Credits: 3 hours
AVS 4140 - Airport Management  Credits: 3 hours
MGMT 2500 - Organizational Behavior  Credits: 3 hours
MGMT 4100 - Multinational Management  Credits: 3 hours
MGMT 4140 - Building the Business  Credits: 3 hours

Note: In addition, AVS 3040, AVS 3140 and AVS 4140 provide an emphasis in airport operations and management. Students wishing to take all three courses may use them as electives or may be able to substitute a required course for one of these with permission from an advisor. Contact your academic advisor for information.

Aviation Maintenance Technology (MTCJ) (126 hours)

The Aviation Maintenance Technology curriculum provides preparation for a variety of positions in the demanding field of aircraft maintenance and support. Options include such areas as: aircraft maintenance and repair, performance testing, engineering/maintenance liaison, maintenance logistics, flight test engineering, product technical support, aircraft maintenance engineering, aircraft systems reliability and maintainability, licensing requirements, and repair facility management. Satisfactory completion of all requirements prepares one to take the Federal Aviation Administration (FAA) Airframe and Powerplant written, oral and practical examinations.

Baccalaureate-Level Writing Requirement

Students who have chosen the Aviation Maintenance Technology curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing:
AVS 4630 - Professional Maintenance Operations  Credits: 3 hours

Required Courses

AREA I: Fine Arts Elective  Credits: 3 hours
AREA II: Humanities Elective  Credits: 3 hours
AREA III: The United States: Cultures and Issues Elective  Credits: 3 hours
AREA IV: Other Cultures and Civilizations Elective  Credits: 3 hours
AREA VIII: Health and Well-Being Elective  Credits: 2 hours

Note: At least six General Education hours must be upper division (3000-4000-level) courses.

AVS 1200 - Introduction to Aviation  Credits: 3 hours
AVS 1210 - Aerodynamics and Performance  Credits: 2 hours
AVS 1220 - Introduction to Airframes and Systems  Credits: 2 hours
AVS 1225 - Introduction to Aircraft Powerplants  Credits: 2 hours
AVS 2050 - Aviation Safety  Credits: 3 hours
AVS 2600 - Aircraft Maintenance Practices  Credits: 3 hours
AVS 2610 - Maintenance Regulations  Credits: 2 hours
AVS 2620 - Aircraft Structures I  Credits: 3 hours
AVS 2630 - Basic Aircraft Engines  Credits: 3 hours
AVS 2640 - Aircraft Electrical I  Credits: 3 hours
AVS 2650 - Aircraft Propellers  Credits: 2 hours
AVS 3190 - Aviation Law  Credits: 3 hours
AVS 3600 - Reciprocating Engine Overhaul  Credits: 4 hours
AVS 3620 - Aircraft Structures II  Credits: 4 hours
AVS 3630 - Reciprocating Engine Systems  Credits: 3 hours
AVS 3640 - Aircraft Electrical II  Credits: 4 hours
AVS 3650 - Non-Destructive Testing  Credits: 3 hours
AVS 3660 – Avionics  Credits: 3 hours
AVS 3670 - Airframe Systems  Credits: 4 hours
AVS 3690 - Testing Evaluation and Instrumentation  Credits: 3 hours
AVS 4600 - Aircraft Inspection and Airworthiness Certification  Credits: 6 hours
AVS 4620 - Reliability, Maintainability and Supportability  Credits: 3 hours
AVS 4630 - Airline Maintenance Operations  Credits: 3 hours
AVS 4640 - Aircraft Turbine Engines and Systems  Credits: 4 hours
AVS 4720 - Advanced Structures and Materials  Credits: 3 hours
AVS 4730 - Advanced Airframe Systems  Credits: 3 hours
AVS 4960 - AMT Certification Preparation  Credits: 1 hours
AVS 4965 - Advanced Maintenance Practices and Troubleshooting  Credits: 5 hours
BUS 1750 - Business Enterprise  Credits: 3 hours
CHEM 1100 - General Chemistry I  Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
COM 1700 - Interpersonal Communication  Credits: 3 hours
IEE 1020 - Technical Communication  Credits: 3 hours
MATH 2000 - Calculus with Applications  Credits: 4 hours
PHYS 1070 - Elementary Physics  Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory  Credits: 1 hour
STAT 2160 - Business Statistics  Credits: 3 hours

**Aviation Science Minor**

The Aviation Science minor provides basic and advanced topics for non-aviation students seeking to enhance their undergraduate degree through studies in aviation, which may expand their career opportunities. The minor can be tailored to emphasize areas such as flight operations, airport and airline administration, and aircraft systems.

Minimum 18 credit hours. Students must take AVS 1200 and AVS 2050 and at least one 3000 or 4000 level class. Availability subject to class capacities, priority given to Aviation students.

**Required courses**
AVS 1200 - Introduction to Aviation  Credits: 3 hours
AVS 2050 - Aviation Safety  Credits: 3 hours

**Elective courses**
Select 12 credit hours from the following courses.
AVS 1210 - Aerodynamics and Performance  Credits: 2 hours
AVS 1220 - Introduction to Airframes and Systems  Credits: 2 hours
AVS 1225 - Introduction to Aircraft Powerplants  Credits: 2 hours
AVS 1230 - Aircraft Systems Laboratory  Credits: 1 hour
AVS 1235 - Aircraft Powerplants Laboratory  Credits: 1 hour
AVS 1510 - Professional Flight I Theory  Credits: 3 hours
AVS 1520 - Professional Flight I Lab A  Credits: 1 hour
AVS 1525 - Professional Flight I Lab B  Credits: 1 hour
AVS 2060 - Flight Physiology  Credits: 3 hours
AVS 2070 - Crew Resource Management  Credits: 3 hours
AVS 2120 - Aviation Meteorology  Credits: 3 hours
AVS 2800 - Transportation Technology: Policy, Perils, and Promise  Credits: 3 hours
AVS 3060 - Advanced Aerodynamics and Performance  Credits: 3 hours
AVS 3070 - Advanced Aircraft Systems  Credits: 3 hours
AVS 3080 - Advanced Aircraft Systems Laboratory  Credits: 3 hours
AVS 3190 - Aviation Law  Credits: 3 hours
AVS 4100 - Airport Planning, Operations, and Administration  Credits: 4 hours
AVS 4240 - Corporate Aviation Management  Credits: 3 hours
AVS 4270 - Airline Administration  Credits: 4 hours
AVS 4280 - International Aviation  Credits: 3 hours
Military Leadership & Aviation Studies Minor

AFROTC Program Required Courses (MLRN)

Freshman year
AVS 1110 - Foundation of the United States Air Force Credits: 1 hour
AVS 1130 - Foundation of the United States Air Force Lab Credits: 1 hour
AVS 1120 - Foundation of the United States Air Force II Credits: 1 hour
AVS 1140 - Foundation of the United States Air Force II Lab Credits: 1 hour

Sophomore year
AVS 2110 - The Evolution of USAF Air and Space Power I Credits: 1 hour
AVS 2140 - The Evolution of USAF Air and Space Power Lab Credits: 1 hour
AVS 2130 - The Evolution of USAF Air and Space Power II Credits: 1 hour
AVS 2150 - The Evolution of USAF Air and Space Power II Lab Credits: 1 hour

Junior year
AVS 3210 - Air Force Leadership Studies I Credits: 3 hours
AVS 3240 - Air Force Leadership Studies I Lab Credits: 1 hour
AVS 3230 - Air Force Leadership Studies II Credits: 3 hours
AVS 3260 - Air Force Leadership Studies II Lab Credits: 1 hour

Senior year
AVS 4210 - National Security Affairs I Credits: 3 hours
AVS 4230 - National Security Affairs I Lab Credits: 1 hour
AVS 4220 - National Security Affairs II and Preparation for Active Duty Credits: 3 hours
AVS 4250 - National Security Affairs II Lab Credits: 1 hour

Electives
Choose one from each group below:

History
HIST 3200 - American Military History Credits: 3 hours

Psychology/Sociology
PSY 1000 - General Psychology Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours

Non-AFROTC Program Required Courses (MLAN)

Freshman year
AVS 1110 - Foundation of the United States Air Force Credits: 1 hour
AVS 1120 - Foundation of the United States Air Force II Credits: 1 hour

Sophomore year
AVS 2110 - The Evolution of USAF Air and Space Power I Credits: 1 hour
AVS 2130 - The Evolution of USAF Air and Space Power II Credits: 1 hour

Junior year
AVS 3210 - Air Force Leadership Studies I Credits: 3 hours
AVS 3230 - Air Force Leadership Studies II Credits: 3 hours

Senior year
AVS 4210 - National Security Affairs I Credits: 3 hours
AVS 4220 - National Security Affairs II and Preparation for Active Duty Credits: 3 hours

Electives
Choose one from each group below:
History
HIST 3200 - American Military History  Credits: 3 hours

Mathematics/Statistics
MATH 1160 - Finite Mathematics with Applications  Credits: 3 hours
MATH 1180 - Precalculus Mathematics  Credits: 4 hours
MATH 1220 - Calculus I  Credits: 4 hours
MATH 2000 - Calculus with Applications  Credits: 4 hours

Political Science/Leadership Labs
PSCI 2500 - International Relations  Credits: 4 hours
PSCI 3500 - American Foreign Policy  Credits: 4 hours
OR ALL OF:
AVS 1130 - Foundation of the United States Air Force Lab  Credits: 1 hour
AVS 1140 - Foundation of the United States Air Force II Lab  Credits: 1 hour
AVS 2140 - The Evolution of USAF Air and Space Power Lab  Credits: 1 hour
AVS 2150 - The Evolution of USAF Air and Space Power II Lab  Credits: 1 hour

Psychology/Sociology
PSY 1000 - General Psychology  Credits: 3 hours
SOC 2000 - Principles of Sociology  Credits: 3 hours

Professional Aviation Preparation (PAVN) 15 Credits (minimum)

Required Courses
AVS 4030 - Flight Instructor Fundamentals  Credits: 2 hours
AVS 4040 - Instrument Flight Instructing  Credits: 1 hour
AVS 4060 - Flight Instructor Certification  Credits: 2 hours
AVS 4090 - Multi-Engine Flight Instructor  Credits: 1 hour

Elective courses
Choose a minimum of 9 credit hours.
AVS 2800 - Transportation Technology: Policy, Perils, and Promise  Credits: 3 hours
AVS 3320 - Single Engine Seaplane  Credits: 1 hour
AVS 4300 - Jet Equivalent Training  Credits: 6 hours
AVS 4280 - International Aviation  Credits: 3 hours
AVS 4980 - Administration Senior Project  Credits: 3 hours
AVS 4990 - Studies in Aviation Sciences  Credits: 1 to 8 hours
GEOG 3060 - Climate Change: Atmospheric Perspectives  Credits: 3 hours
GEOS 1200 - Climate Change Geologic Perspective  Credits: 3 hours
GIST 2000 - Introduction to Global and International Studies  Credits: 3 hours
PAPR 1600 - Introduction to Environmental Technology  Credits: 3 hours
Haworth College of Business

Satish Deshpande, Interim Dean

Stephen Newell
Interim Associate Dean

Devrim Yaman
Associate Dean

Doralee N. DeRyke
Director of Budget, Operations and Service Support

Betsy Drummer
Director of Academic Advising and Admissions

Geralyn Heystek
Director of HCoB Career Center

Scott Van Avery
Director of Recruiting and Retention

Danielle Field
SPuRS Program Director

Mission

The Haworth College of Business provides high-quality student-centered business education through teaching, research and service activities that deliver exceptional intellectual and economic value to regional and international communities.

Creed

Partners for Business Knowledge and Leadership

Vision

To be recognized as a leader in high quality business education, applied research, and community partnerships in the greater Michigan region.

Core Values

Respect for people - Our interactions with others reflect civility, collegiality, and tolerance of diverse perspectives. We strive to promote an inclusive, ethical and trusting learning environment.

Respect for knowledge - Our intellectual curiosity drives us to create and disseminate theoretical, practical and intuitive understanding. We strive to foster a learning environment where inquiry, ethics and critical thinking are valued and encouraged.

Respect for wisdom - We strive to create a learning environment that maximizes our capacity to make effective and ethical decisions in multiple contexts.

Strategic Goals

1. The Haworth College of Business will have an environment supportive of student learning and achievement.
2. The Haworth College of Business will have an environment supportive of faculty scholarship, development and achievement.
3. The Haworth College of Business will be a strong partner with communities and business.
4. The Haworth College of Business will continue to advance diversity.
5. The Haworth College of Business will have a positive work climate for students, staff and faculty.
6. The Haworth College of Business will be a model for economically sustainable business practices within the higher education community.

The Haworth College of Business offers three degree programs:
- Bachelor of Business Administration (B.B.A.)
- Master of Business Administration for graduate students with Liberal Arts, Engineering, Business, or other undergraduate preparation (M.B.A.)
- Master of Science in Accountancy for students desiring preparation for a professional accounting career (M.S.A.)

Academic Units:
Accountancy
Business Information Systems
Finance and Commercial Law
Management
Marketing
Military Science and Leadership

Bachelors of Business Administration Program (B.B.A. Degree)

B.B.A. Learning Goals and Objectives:
1. Students will be effective communicators
2. Students will have effective team skills
3. Students will acquire global business understanding
4. Students will understand information technology systems
5. Students will understand ethical business practices
6. Students will be critical thinkers
7. Students will have common business knowledge

Pre-Business Program
Students are expected to work with an academic advisor to develop a planned program of study. Any entering or transfer student planning to pursue a B.B.A. degree must apply to the professional B.B.A. program. Typically, this application occurs during the student's second-semester sophomore year, or upon entrance to WMU if transferring the equivalent of the entrance requirements. During the first two years of the student's program, students are expected to complete several WMU general education requirements as well as the following pre-B.B.A. requirements for application to the professional B.B.A. program:

1. Completion of 48 total credit hours
2. A minimum grade point average of 2.50
3. A minimum grade of “C” in each of the pre-B.B.A. courses or approved alternatives shown below
4. Meet the requirements of the foundational segment of the Haworth College of Business Student Professional Readiness Series program (details about requirements may be obtained by contacting the HCoB Program Manager).

Freshman Year
ENGL 1050 - Thought and Writing Credits: 4 hours
BUS 1000 - Business Preparation Credits: 1 hour
or
FYE 2100 - First-Year Experience Credits: 2 hours
or
ACTY 2000 - Careers in Accounting Credits: 1 hour
or
BUS 3000 - Business Preparation for Transfer Students  Credits: 1 hour  
BUS 1750 - Business Enterprise  Credits: 3 hours  
CIS 1020 - Introduction to Business Computing  Credits: 3 hours  
or  
CIS 1100 - Business Computing  Credits: 1 hour  
MATH 1160 - Finite Mathematics with Applications  Credits: 3 hours  
or  
MATH 1180 - Precalculus Mathematics  Credits: 4 hours  
or  
MATH 1220 - Calculus I  Credits: 4 hours  
or  
MATH 2000 - Calculus with Applications  Credits: 4 hours  

Note: Transfer students MUST take BUS 3000 in their first semester at WMU instead of taking BUS 1000, ACTY 2000, or FYE 2100.

Sophomore Year  
ACTY 2100 - Principles of Accounting I  Credits: 3 hours*  
ACTY 2110 - Principles of Accounting II  Credits: 3 hours*  
ECON 2010 - Principles of Microeconomics  Credits: 3 hours  
ECON 2020 - Principles of Macroeconomics  Credits: 3 hours  
STAT 2160 - Business Statistics  Credits: 3 hours

*Students must earn a “CB” in ACTY 2100 and ACTY 2110 or equivalent courses transferred to WMU prior to enrolling in ACTY 3100, 3220 and 3240.

Additional hours should be taken in the following areas to complete minimum pre-business administration requirements:  
General Education Distribution Program Areas 1, 2, 3, 4, 6, 7, and 8  

Admission  
After successful completion of the pre-B.B.A. program requirements listed above, students will be accepted into the professional B.B.A. program. A formal application is required for acceptance.

Students must visit the Haworth College of Business Office of Academic Advising and Admissions located in 2350 Schneider Hall and meet with an advisor to submit an application. Applications should be submitted in September if the student plans to start taking B.B.A. courses in the following spring semester, or January if the student plans on taking B.B.A. courses in the following fall semester.

Admission decisions are made as the grades of the Pre-B.B.A. courses become available. Students will be notified of the status of their application via their WMU email account.

Admission of transfer students from accredited two- and four-year institutions will be made on a similar basis. The same criteria for admission listed above will apply.

Students not meeting admission requirements are able to work with an academic advisor to develop a plan to earn future admission.

The Haworth College of Business Advising Office of Academic Advising and Admissions will provide advising services for business students throughout their academic careers. Students will complete their major forms and apply to the professional B.B.A. program through this office, after meeting with an academic advisor. Faculty advisors can provide expertise in the area of the chosen major; however, the academic advising office provides guidance about meeting all graduation requirements of the professional B.B.A. curriculum.

Professional B.B.A. Curriculum  
In order to graduate from the professional B.B.A. program, a student must complete a minimum of 122 non-repeated semester hours, and meet the requirements of the Haworth College of Business Student Professional Readiness Series.
In addition to the University requirements of general education and the specific requirements noted above, students must complete the following:

1. B.B.A. Core Requirements:

   **Note:** A "C" (2.0) grade or better is required in each of the higher-level BBA core courses listed below:

   - BUS 2200 - Introduction to Global Business Credits: 3 hours
   - CIS 2700 – Business-Driven Information Technology Credits: 3 hours
   - MGMT 2500 - Organizational Behavior Credits: 3 hours
   - MKTG 2500 - Marketing Principles Credits: 3 hours
   - FIN 3200 - Business Finance Credits: 3 hours
   - BUS 3750 - Business Process Productivity Credits: 3 hours
     For ISM majors: The BUS 3750 requirement can also be satisfied by taking a nine hour sequence including MGMT 4640, MKTG 3720 and either (MKTG 4630 or MKTG 4840).
   - LAW 3800 - Legal Environment Credits: 3 hours
   - BUS 4000 - Business Professionalism Credits: 1 hour
   - BUS 4500 - Business Ethics and Sustainability Credits: 3 hours
     For ACTY majors: This requirement can also be satisfied by taking LAW 4870.
   - BCM 3700 - Integrated Communication in Business Credits: 3 hours

   **B.B.A. Capstone Requirement**

   Note: ALL courses listed above except BUS 2200, LAW 3800, BUS 4000, and BUS 4500 MUST be completed prior to taking the capstone course, BUS 4750.

   - BUS 4750 - Strategic Business Solutions Credits: 3 hours

2. A business major consisting of at least 24 hours

   **Baccalaureate-Level Writing Requirement**

   Students who have chosen to major in any area of business will satisfy the Baccalaureate-Level Writing Requirement through successful completion of the following course:

   - BCM 3700 - Integrated Communication in Business Credits: 3 hours

   **Transfer Courses**

   With departmental approval, transfer courses from four-year schools (and appropriate lower division courses from junior or community colleges) may be included in majors and minors. However, at least 50 percent of any Haworth College of Business major and at least 50 percent of any business minor, with the exception of the general business minor which requires 50 percent, must be completed through Western Michigan University. Note that courses taken through approved WMU study abroad partners count as courses completed at Western Michigan University. Transfer work toward B.B.A. Core Requirements must meet the following criteria:

   - Approval by the Haworth College of Business Office of Advising and Admissions and the major department
   - Minimum grade of “C”
   - Minimum grade of “CB” in ACTY 2100 and ACTY 2110 or equivalents before enrolling in ACTY 3100, 3220, or 3240.

   **Business Minors**

   To declare a minor in any business area, the student must meet with an advisor in the Haworth College of Business Office of Academic Advising and Admissions. The requirements and restrictions for declaration of a minor are:

   - Completion of a minimum of 56 credit hours
   - A 2.5 overall grade point average
   - Non-business majors are limited to a maximum of 30 credit hours of business courses at the time of graduation

   **Advising**

   For questions regarding B.B.A. curriculum requirements and transfer credit equivalencies, contact the Haworth College of Business Office of Academic Advising and Admissions (269) 387-5075.
Special Notes

1. All students who complete the B.B.A. requirements, excluding General Business majors, will automatically graduate with a minor in General Business.

2. Enrollment in Haworth College of Business courses requires that students meet the following program restrictions:

A. Courses open to All Undergraduate Students:
   - ACTY 2100 - Principles of Accounting I Credits: 3 hours
   - ACTY 2110 - Principles of Accounting II Credits: 3 hours
   - BUS 1750 - Business Enterprise Credits: 3 hours
   - BUS 2200 - Introduction to Global Business Credits: 3 hours
   - CIS 1020 - Introduction to Business Computing Credits: 3 hours

B. Courses open only to Pre-B.B.A. and B.B.A. students, declared business minors (see above), and students enrolled in non-business programs that require these courses:
   - All other 1000- and 2000-level business courses which are required for a major or minor.

C. Courses open only to B.B.A. students accepted into the B.B.A. curriculum:
   - All 3000- and 4000-level business courses except:
     - Declared business minors (see above) will be eligible for those 3000- or 4000-level business courses that are required in their minors once they have achieved Junior status (completion of 56 credit hours).
     - Students enrolled in non-business programs which require 3000- or 4000-level business courses will be eligible to enroll in these courses once they have achieved Junior status (completion of 56 credit hours).
Accountancy
Ola Smith, Chair
Main Office: 3190 Schneider Hall
Telephone: (269) 387-5210

Caroline Burke
Kellie Carr
Mingming Feng
Donald W. Gribbin
Jerry G. Kreuze
Sheldon A. Langsam
James Penner
Jack M. Ruhl
Jagjit S. Saini
Thomas Schultz
Inna Voytsekhivska

The Department of Accountancy offers both a major and minor in accountancy. A major in accountancy prepares students for careers in business, industry, government, nonprofit organizations, and public accounting as auditors, tax accountants, corporate accountants, internal auditors, and consultants.

General advising takes place in the Haworth College of Business Office of Academic Advising and Admissions. Accountancy faculty provide advising for accountancy majors, minors and elective choices.

Accountancy Major (ACTJ)(34 hours)

Qualifications for Accounting Certification Exams
A graduate of the Haworth College of Business with a major in Accountancy will qualify to take many of the professional certification exams. Since the qualifying rules differ by state, and are subject to change, the student is responsible for determining if additional criteria need to be met for a specific exam or state.

Transfer Credits
The Department of Accountancy must approve transfer credits. All accountancy majors must take a minimum of 12 hours of accounting courses at WMU.

Required Courses
ACTY 2000 - Careers in Accounting Credits: 1 hour
ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours
ACTY 3100 - Financial Accounting I Credits: 3 hours
ACTY 3110 - Financial Accounting II Credits: 3 hours
ACTY 3130 - Accounting Information Systems Credits: 3 hours
ACTY 3220 - Managerial Accounting - Concepts and Practices Credits: 3 hours
ACTY 3240 - Introductory Tax Accounting Credits: 3 hours
ACTY 4160 - Auditing Credits: 3 hours

Accountancy majors must complete one of the following courses:
ECON 3200 - Money and Banking Credits: 3 hours
ECON 3240 - Public Finance Credits: 3 hours
ECON 3450 - Business, Government, and Society Credits: 3 hours
ECON 4000 - Managerial Economics Credits: 3 hours
ECON 4030 - Intermediate Microeconomics Credits: 3 hours
ECON 4060 - Intermediate Macroeconomics Credits: 3 hours

Elective Courses
Select two additional courses (6 credit hours) from the following:
ACTY 4110 – Advanced Accounting  Credits: 3 hours
ACTY 4130 - Advanced Accounting Systems  Credits: 3 hours
ACTY 4140 - Governmental and Nonprofit Accounting  Credits: 3 hours
ACTY 4220 - Cost Accounting - Theory and Practice  Credits: 3 hours
ACTY 4240 - Advanced Tax Accounting  Credits: 3 hours

Interdisciplinary Requirements:
Accountancy majors must complete at least 90 hours in courses outside the accounting discipline.

Accountancy Minor (ACTN)(21 hours)

Required Courses
ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours

Elective Courses
Select three additional courses (9 credit hours) from the following:
ACTY 3100 – Financial Accounting I Credits: 3 hours
ACTY 3110 – Financial Accounting II Credits: 3 hours
ACTY 3130 – Accounting Information Systems Credits: 3 hours
ACTY 3220 – Managerial Accounting: Concepts and Practices Credits: 3 hours
ACTY 3240 – Introductory Tax Accounting Credits: 3 hours
ACTY 4110 – Advanced Accounting Credits: 3 hours
ACTY 4130 – Advanced Accounting Systems Credits: 3 hours
ACTY 4140 – Governmental and Nonprofit Accounting Credits: 3 hours
ACTY 4160 – Auditing Credits: 3 hours
ACTY 4220 – Cost Accounting: Theory and Practice Credits: 3 hours
ACTY 4240 – Advanced Tax Accounting Credits: 3 hours

Select two additional courses (6 credit hours) from the following:
FIN 3200 - Business Finance Credits: 3 hours
LAW 3800 - Legal Environment Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
The Department of Business Information Systems offers a major in computer information systems, and supports interdisciplinary majors in electronic business marketing with the Department of Marketing, telecommunications and information management with the School of Communications, and health informatics and information management with the College of Health and Human Services (please see the interdisciplinary major section of the catalog). In addition, the department offers minors in business communications, business analytics, business mobile development, computer information systems, electronic business design, and health informatics and information management.

Program Requirements
Course requirements for each of the majors and minors can be found under each program. Course prerequisites are listed after the course descriptions. Any deviations from these course requirements must have the written approval of the department chairperson.

Advising for majors and minors takes place in the Haworth College of Business Office of Academic Advising and Admissions. Students are also encouraged to discuss majors, minors and elective choices with faculty members in their areas of interest.

Business Analytics Major (BUAJ) (27 hours)

The Business Analytics Major provides students with a strong foundation in analytical methods, techniques and tools that allows them to play a key role in making data-driven business decisions. To gain real insights from analytics, one needs to master ways to decipher a sea of data coming from a variety of sources, in different formats, flowing at increasingly accelerating rates, and stored in volumes within or beyond the capabilities of traditional tools.

Required Courses
CIS 2640 - Business Analytics I Credits: 3 hours
CIS 2650 - Programming for Data Analytics Credits: 3 hours
CIS 3640 - Business Analytics II Credits: 3 hours
CIS 4610 - Database for Business Analytics Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours
IS 5650 - Big Data Analytics Credits: 3 hours

Electives
Select three additional courses (9 credit hours) from the following:
Computer Information Systems Major (CMIJ) (24 hours)

Information technology specialists assist with efficiency and effectiveness of operations through the implementation and maintenance of technology. They may design programs, websites, or web application; manage databases, hardware, software, and develop internet sites; or maintain network systems and equipment. Students will gain expertise in areas including business application development, systems analysis and design, database management, telecommunications, and network administration.

Pre-Major Required Courses
Select one course (3 credit hours) from the following:
- CIS 2600 - Business Application Programming Credits: 3 hours
- CIS 2610 - Business Mobile Programming Credits: 3 hours
- CIS 2800 - Internet Programming Credits: 3 hours

Required Courses
- CIS 3600 - Systems Analysis and Design Credits: 3 hours
- CIS 4600 - Business Database Applications Credits: 3 hours
- CIS 4640 - Business Data Mining Credits: 3 hours
- CIS 4990 - Enterprise Project Credits: 3 hours

Elective Courses
Select three courses (9 credit hours) from the following:
- CIS 2600 - Business Application Programming Credits: 3 hours
  Cannot be used towards the fulfillment of both the pre-major requirement and the elective requirement.
- CIS 2610 - Business Mobile Programming Credits: 3 hours
  Cannot be used towards the fulfillment of both the pre-major requirement and the elective requirement.
- CIS 2640 - Business Analytics I Credits: 3 hours
- CIS 2650 - Programming for Data Analytics Credits: 3 hours
- CIS 2660 - Networking and Data Communications Credits: 3 hours
- CIS 2800 - Internet Programming Credits: 3 hours
  Cannot be used towards the fulfillment of both the pre-major requirement and the elective requirement.
- CIS 2900 - Web Applications for Business Credits: 3 hours
- CIS 3620 - Practical Project Management Credits: 3 hours
- CIS 3640 - Business Analytics II Credits: 3 hours
- CIS 3660 - Information Assurance and Compliance Credits: 3 hours
- CIS 3900 - Business Web Architecture Credits: 3 hours
- CIS 4100 - Internship Credits: 3 hours
- CIS 4500 - Customer Relationship Management Credits: 3 hours
- CIS 4610 - Database for Business Analytics Credits: 3 hours
- CIS 4700 - Mobile Commerce Development Credits: 3 hours
- CIS 4900 - Electronic Commerce Development Credits: 3 hours
- CIS 4950 - eBusiness Technologies Credits: 3 hours
- CIS 4960 - Independent Study in CIS Credits: 1 to 4 hours
- CIS 4980 - Independent Readings in CIS Credits: 1 to 4 hours
- CIS 5550 - Topics in Computer Information Systems Credits: 3 hours
- CIS 5650 - Big Data Analytics Credits: 3 hours
Telecommunications and Information Management Major (TMBJ) (36 hours)

Telecommunications and Information Management (TIM) major is an interdisciplinary and inter-collegial program offered through the School of Communication, College of Arts and Sciences and the Computer Information Systems program, Department of Business Information Systems, Haworth College of Business.

The TIM major is designed to train students in a variety of telecommunications and data communication sub-disciplines, including network operations, cable television, Internet and electronic commerce, telephony, satellite and wireless communication, and information assurance and compliance. The program's mission is to give students a well-balanced education in a variety of business and technical management issues. Additionally, the TIM major prepares students for one of the fastest growing occupations projected by the U.S. Department of Labor.

The TIM major was the first of its kind in the state of Michigan. The major offers a 21st century approach to the study of telecommunications and information technology by combining people and resources across the greater WMU campus. Students graduating as a TIM major from the School of Communication (TMLJ) will receive a Bachelor of Arts (BA) degree from the College of Arts and Sciences. Those students graduating as a TIM major from the Department of Business Information Systems (TMBJ) will receive a Bachelor of Business Administration (BBA) degree from the Haworth College of Business.

Admission requirements:

Students applying to the TIM major from both the School of Communication and the Department of Business Information Systems should have a minimum grade point average of 2.50 and meet with the appropriate program advisor in either the School of Communication or the Department of Business Information Systems.

For Communication Students:
Communication students who have completed the following requirements may apply to the TIM major.

- the pre-communication curriculum requirements
- the pre-TIM major required courses for Communication students (please see the following Program Requirements)

For Business Students:
Business students who have completed the following requirements may apply to the TIM major.

- the pre-business administration curriculum requirements
- the pre-TIM major required courses for Business students (please see the following Program Requirements)

Program Requirements (36 hours)
Pre-TIM Major Required Courses (6 hours)
For Communication Students:
- COM 1000 - Communication and Community Engagement Credits: 3 hours
- COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours
For Business Students:
   CIS 2700 - Business-Driven Information Technology Credits: 3 hours
   COM 2400 - Introduction to Media and Telecommunications Credits: 3 hours

Required Core Courses (21 hours)
CIS 2660 - Networking and Data Communications Credits: 3 hours
CIS 3600 - Systems Analysis and Design Credits: 3 hours
CIS 3660 - Information Assurance and Compliance Credits: 3 hours
CIS 4600 - Business Database Applications Credits: 3 hours
COM 4460 - Telecommunications Law and Policy Credits: 3 hours
COM 4480 - Media Management and Telecommunications Credits: 3 hours
COM 4490 - Communication Technology and Innovation Credits: 3 hours

Electives (9 hours)
After consulting with the TIM major advisor, students will be advised to choose three courses from the following courses based on their individual interest, specific need, or career planning.

CIS 2600 - Business Application Programming Credits: 3 hours
CIS 2610 - Business Mobile Programming Credits: 3 hours
CIS 2640 - Business Analytics I Credits: 3 hours
CIS 2800 - Internet Programming Credits: 3 hours
CIS 2900 - Web Applications for Business Credits: 3 hours
CIS 3620 - Practical Project Management Credits: 3 hours
CIS 3640 - Business Analytics II Credits: 3 hours
CIS 3900 - Business Web Architecture Credits: 3 hours
CIS 4100 - Internship Credits: 3 hours
CIS 4500 - Customer Relationship Management Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours
CIS 4700 - e-Portals Development Credits: 3 hours
CIS 4900 - Electronic Commerce Development Credits: 3 hours
CIS 4950 - eBusiness Technologies Credits: 3 hours
CIS 4990 - Enterprise Project Credits: 3 hours
COM 5550 - Topics in Computer Information Systems Credits: 3 hours
COM 3540 - Web Design Basics Credits: 3 hours
COM 4990 - Communication Internship Credits: 3 hours
COM 5640 - Telecommunications Networks Credits: 3 hours
GEOG 3010 - Fundamentals of Geographic Information Systems Credits: 4 hours
   (A laptop computer is required for this course.)
GEOG 5690 - Geodatabase Design and GIS Workflows Credits: 4 hours
   (A laptop computer is required for this course.)

Business Analytics Minor (BUAN)(15 hours)

Any undergraduate student at Western Michigan University can complete a Business Analytics minor. The minor requires a minimum of fifteen credit hours consisting of five required courses. CIS majors are required to substitute CIS 4640 with a course from the approved list. Interested students should consult with a designated Business Analytics advisor prior to enrolling in courses for the minor.

Required Courses (5 courses - 15 credits)
STAT 2160 - Business Statistics Credits: 3 hours
CIS 2640 - Business Analytics I Credits: 3 hours
CIS 2650 - Programming for Data Analytics Credits: 3 hours
CIS 3640 - Business Analytics II Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours
Note:
1. Courses taken to fulfill the Business Analytics minor cannot be double counted as required courses for the student's major.

2. CIS majors must substitute one of the following courses for CIS 4640, which is required for the CIS major:
   - CIS 3620 - Practical Project Management Credits: 3 hours
   - CIS 4100 - Internship Credits: 1 to 4 hours
   - CIS 4500 - Customer Relationship Management Credits: 3 hours
   - CIS 4610 - Database for Business Analytics Credits: 3 hours
   - CIS 4960 - Independent Study Credits: 1 to 4 hours
   - CIS 5550 - Topics in Computer Information Systems Credits: 3 hours

Business Mobile Development Minor (BDMN)(15 hours)

Requirements
- CIS 2610 - Business Mobile Programming Credits: 3 hours
- CIS 3600 - Systems Analysis and Design Credits: 3 hours
- CIS 3900 - Business Web Architecture Credits: 3 hours
- CIS 4700 - Mobile Commerce Development Credits: 3 hours

And Either:
- CIS 3620 - Practical Project Management Credits: 3 hours
- CIS 4600 - Business Database Applications Credits: 3 hours

Note:
The minor can be pursued by all students other than those with a major in Computer Information Systems (CMIJ), Telecommunications & Information Management (TMBJ), eBusiness Marketing (EBMJ) or Health Informatics and Information Management (HIBJ or HIHJ).

Computer Information Systems Minor (CMIN)(15 hours)

Required Courses
- CIS 2700 - Business-Driven Information Technology Credits: 3 hours
- CIS 3600 - Systems Analysis and Design Credits: 3 hours
- CIS 4600 - Business Database Applications Credits: 3 hours

Elective Courses
Select two courses (6 credit hours) from the following:
- CIS 2600 - Business Application Programming Credits: 3 hours
- CIS 2610 - Business Mobile Programming Credits: 3 hours
- CIS 2640 - Business Analytics I Credits: 3 hours
- CIS 2660 - Networking and Data Communications Credits: 3 hours
- CIS 2800 - Internet Programming Credits: 3 hours
- CIS 2900 - Web Applications for Business Credits: 3 hours
- CIS 3620 - Practical Project Management Credits: 3 hours
- CIS 3640 - Business Analytics II Credits: 3 hours
- CIS 3660 - Information Assurance and Compliance Credits: 3 hours
- CIS 3900 - Business Web Architecture Credits: 3 hours
- CIS 4500 - Customer Relationship Management Credits: 3 hours
- CIS 4640 - Business Data Mining Credits: 3 hours
- CIS 4700 - Mobile Commerce Development Credits: 3 hours
- CIS 4900 - Electronic Commerce Development Credits: 3 hours
- CIS 4950 - eBusiness Technologies Credits: 3 hours
CIS 4960 - Independent Study Credits: 1 to 4 hours
CIS 4980 - Readings Credits: 1 to 4 hours
CIS 4990 - Enterprise Project Credits: 3 hours
CIS 5550 - Topics in Computer Information Systems Credits: 3 hours
Finance and Commercial Law
Jim DeMello, Chair
Main Office: 3290 Schneider Hall
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Onur Arugaslan
David Burnie
Thomas Edmonds
Bolortuya Enkhtaivan
Norman Hawker
C. R. Krishna-Swamy
Wenling Lu
Ali Metwalli
H. Justin Pace
Craig Peterson
Matthew Ross
Tim F. Scheu
Judy Swisher
Jamie Weathers
Devrim Yaman

The Finance and Commercial Law Department offers majors in business law, finance and personal financial planning and minors in finance, law, and real estate.

Program Requirements
Course requirements for each of the two majors and four minors can be found under each program. Course prerequisites are listed after the course descriptions. Any deviations from these course requirements must have the written approval of the department chairperson.

Advising for majors and minors takes place in the Haworth College of Business Office of Academic Advising and Admissions. Students are also encouraged to discuss majors, minors and elective choices with faculty members in their areas of interest.

Business Law Major (LAWJ) (30 hours)

The Business Law Major is an interdisciplinary program housed in the Finance and Commercial Law Department of the Haworth College of Business. It is designed for students with varied interests, including those considering attending law school, a career in criminal justice, or in business or government, where a working knowledge of legal issues and the legal system would be useful. The Business Law Major will provide undergraduate students with a foundation in the law from several diverse disciplines, enhancing critical thinking skills along with a sound background in legal issues.

In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, Business Law Majors must complete 30 credit hours in the following:

Foundational Courses (12 hours)
Choose FOUR of the following:
- LAW 3500 - Computer Law Credits: 3 hours
- LAW 3820 - Business Law Credits: 3 hours
- LAW 3840 - Criminal Law and Procedure Credits: 3 hours
- LAW 4840 - International Business Law Credits: 3 hours
- LAW 4860 - Marketing and Sales Law Credits: 3 hours
- LAW 4870 - Accounting Ethics and Legal Liability Credits: 3 hours
- LAW 4880 - Legal Aspects of Entrepreneurship Credits: 3 hours
- FIN 3720 - Estate Planning Credits: 3 hours
Perspectives Courses (6-8 hours)
Choose TWO of the following:
COM 3070 - Freedom of Expression Credits: 3 hours
HIST 3135 - American Legal History Credits: 3 hours
HIST 4245 - Topics in U.S. History and Culture (BW) Credits: 3 hours
HIST 4495 - Topics in European History and Culture (BW) Credits: 3 hours
PHIL 3130 - Philosophy of Law Credits: 3 hours
PSCI 3200 - The American Judicial Process Credits: 4 hours
PSCI 3700 - Issues in Contemporary Politics Credits: 3 to 4 hours
PSCI 3250 - Criminal Justice Policy Credits: 3 hours
PSCI 4200 - Constitutional Law Credits: 3 hours
PSCI 4210 - Gender and Law Credits: 3 hours
PSCI 4220 - Civil Rights and Liberties Credits: 3 hours
PSCI 4230 - The First Amendment Credits: 3 hours
PSCI 4240 - Environmental Law Credits: 3 hours
SOC 3630 - Criminal Justice Process Credits: 3 hours

WMU Cooley Law School First Year Courses (12 hours)
(Cross-listed as A-S 5100 - Topics in Legal Studies)
Choose FOUR of the following:
CIVP105LECT - Civil Procedure I
CIVP209LECT - Civil Procedure II
CONT108LECT - Contracts I
CONT213LECT - Contracts II
CRLP107LECT - Criminal Law
CRLP305LECT - Criminal Procedure
PRSE109LECT - Property I
PRSE207LECT - Property II
TOEQ106LECT - Torts I
TOEQ304LECT - Torts II

Baccalaureate-Level Writing Requirement
All BBA students are required to take BCM 3700. Business Law students are required to take the designated Law Section of BCM 3700.

Finance Major (FINJ) (24 hours)

Major Requirements
Advanced economics course at the 3000-level or above Credits: 3 hours
FIN 3100 - Introduction to Financial Markets Credits: 3 hours
FIN 3450 - Computer Applications in Finance Credits: 3 hours
FIN 3510 - Investment Analysis Credits: 3 hours

Electives (12 hours)
The remaining twelve hours shall be selected from the list below, in consultation with an advisor from the Finance faculty:
FIN 3300 - Real Estate Fundamentals Credits: 3 hours
FIN 3310 - Real Estate Finance Credits: 3 hours
FIN 3350 - Small Business Finance Credits: 3 hours
FIN 3360 - Funding New and Growing Ventures Credits: 3 hours
FIN 3410 - e-Finance Credits: 3 hours
FIN 3600 - Risk and Insurance Credits: 3 hours
FIN 3710 - Personal Financial Planning Credits: 3 hours
FIN 3720 - Estate Planning  Credits: 3 hours
FIN 3730 - Retirement Planning and Employee Benefits  Credits: 3 hours
FIN 4120 - Global Financial Markets  Credits: 3 hours
FIN 4140 - Management of Financial Institutions  Credits: 3 hours
FIN 4250 - Short Term Financial Management  Credits: 3 hours
FIN 4260 - Corporate Finance: Theory and Practice  Credits: 3 hours
FIN 4320 - Real Estate Investments  Credits: 3 hours
FIN 4330 - Real Estate Appraisal  Credits: 3 hours
FIN 4370 - Real Estate Management  Credits: 3 hours
FIN 4420 - International Finance  Credits: 3 hours
FIN 4480 - Internships in Finance  Credits: 1 to 5 hours
FIN 4530 - Securities Analysis  Credits: 3 hours
FIN 4710 - Applications in Personal Financial Planning  Credits: 3 hours
FIN 5530 - Student Managed Investment Fund  Credits: 3 hours

Proper sequencing of major electives will allow a student in finance to study:

**Corporate Finance**
FIN 3410 - e-Finance  Credits: 3 hours
FIN 4250 - Short Term Financial Management  Credits: 3 hours
FIN 4260 - Corporate Finance: Theory and Practice  Credits: 3 hours
FIN 4420 - International Finance  Credits: 3 hours

**Investments**
FIN 4320 - Real Estate Investments  Credits: 3 hours
FIN 4420 - International Finance  Credits: 3 hours
FIN 4530 - Securities Analysis  Credits: 3 hours
FIN 5530 - Student Managed Investment Fund  Credits: 3 hours

**Financial Markets**
FIN 4120 - Global Financial Markets  Credits: 3 hours
FIN 4140 - Management of Financial Institutions  Credits: 3 hours
FIN 4420 - International Finance  Credits: 3 hours

**Real Estate**
FIN 3300 - Real Estate Fundamentals  Credits: 3 hours
FIN 3310 - Real Estate Finance  Credits: 3 hours
FIN 4320 - Real Estate Investments  Credits: 3 hours
FIN 4330 - Real Estate Appraisal  Credits: 3 hours
FIN 4370 - Real Estate Management  Credits: 3 hours

**Personal Financial Planning (FNPJ)(24 hours)**

Personal financial planners guide people in planning for their financial future by assisting them with investments, tax planning, and insurance decisions. Students will gain knowledge of valuation of securities, insurance, estate planning, retirement planning, and employee benefits. Career opportunities in this growing field exist for personal financial planning majors in commercial banking, personal financial planning, insurance and money management. This major is certified by the CFP Board. Students who take the indicated elective courses meet the formal education requirement to sit for the CFP® Certification examination.

**Required Courses**
Advanced economics course at the 3000-level or above  Credits: 3 hours
FIN 3100 - Introduction to Financial Markets  Credits: 3 hours
FIN 3510 - Investment Analysis  Credits: 3 hours
Elective Courses
Select five additional courses (15 credit hours) from the following:
ACTY 3240 - Introductory Tax Accounting Credits: 3 hours
   Required course for students planning to sit for the CFP® Certification examination.
FIN 3300 - Real Estate Fundamentals Credits: 3 hours
FIN 3310 - Real Estate Finance Credits: 3 hours
FIN 3450 - Computer Applications in Finance Credits: 3 hours
FIN 3600 - Risk and Insurance Credits: 3 hours
   Required course for students planning to sit for the CFP® Certification examination.
FIN 3710 - Personal Financial Planning Credits: 3 hours
FIN 3720 - Estate Planning Credits: 3 hours
   Required course for students planning to sit for the CFP® Certification examination.
FIN 3730 - Retirement Planning and Employee Benefits Credits: 3 hours
   Required course for students planning to sit for the CFP® Certification examination.
FIN 4320 - Real Estate Investments Credits: 3 hours
FIN 4330 - Real Estate Appraisal Credits: 3 hours
FIN 4370 - Real Estate Management Credits: 3 hours
FIN 4480 - Internships in Finance Credits: 1 to 5 hours
FIN 4530 - Securities Analysis Credits: 3 hours
FIN 4710 - Applications in Personal Financial Planning Credits: 3 hours
   Required course for students planning to sit for the CFP® Certification examination.
FIN 5530 - Student Managed Investment Fund Credits: 3 hours

Finance Minor (FINN)(15 hours)
Required Courses
FIN 3100 - Introduction to Financial Markets Credits: 3 hours
FIN 3200 - Business Finance Credits: 3 hours
FIN 3510 - Investment Analysis Credits: 3 hours
Elective Courses
Select two additional courses (6 credit hours) from available finance courses at the 3000-level or above in consultation with a faculty advisor. Students should use the list of finance major elective options as a reference.

Law Minor (LAWN)(21-23 hours)
Required Course (3 hours)
LAW 3800 - Legal Environment Credits: 3 hours
Foundational Courses (12 hours)
Choose FOUR of the following:
LAW 3500 - Computer Law Credits: 3 hours
LAW 3820 - Business Law Credits: 3 hours
LAW 3840 - Criminal Law and Procedure Credits: 3 hours
LAW 4840 - International Business Law Credits: 3 hours
LAW 4860 - Marketing and Sales Law Credits: 3 hours
LAW 4870 - Accounting Ethics and Legal Liability Credits: 3 hours
LAW 4880 - Legal Aspects of Entrepreneurship Credits: 3 hours
FIN 3720 - Estate Planning Credits: 3 hours
Perspectives Courses (6-8 hours)
Choose TWO of the following:
COM 3070 - Freedom of Expression Credits: 3 hours
HIST 3135 - American Legal History  Credits: 3 hours
HIST 4245 - Topics in U.S. History and Culture (BW)  Credits: 3 hours
HIST 4495 - Topics in European History and Culture (BW)  Credits: 3 hours
PHIL 3130 - Philosophy of Law  Credits: 3 hours
PSCI 3200 - The American Judicial Process  Credits: 4 hours
PSCI 3250 - Criminal Justice Policy  Credits: 3 hours
PSCI 3700 - Issues in Contemporary Politics  Credits: 3 to 4 hours
PSCI 4200 - Constitutional Law  Credits: 3 hours
PSCI 4210 - Gender and Law  Credits: 3 hours
PSCI 4220 - Civil Rights and Liberties  Credits: 3 hours
PSCI 4230 - The First Amendment  Credits: 3 hours
PSCI 4240 - Environmental Law  Credits: 3 hours
SOC 3630 - Criminal Justice Process  Credits: 3 hours

Real Estate Minor (REAN)(15 hours)

Required Courses
FIN 3200 - Business Finance  Credits: 3 hours
FIN 3300 - Real Estate Fundamentals  Credits: 3 hours

Elective Courses
Select three additional courses (9 credit hours) in consultation with a real estate advisor from the following:
FIN 3310 - Real Estate Finance  Credits: 3 hours
FIN 4320 - Real Estate Investments  Credits: 3 hours
FIN 4330 - Real Estate Appraisal  Credits: 3 hours
FIN 4370 - Real Estate Management  Credits: 3 hours
FIN 4480 - Internships in Finance  Credits: 1 to 5 hours (This course should be taken for 3 credit hours.)
Management
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Kyle Brink
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Melissa Intindola
Douglas Lepisto
Derrick McIver
Todd Morgan
Laurel Ofstein
Timothy Palmer
Jennifer Palthe
Thomas Scannell
Christina Stamper
Bret Wagner
Xiaodan Wang

The Management Department offers majors in management, integrated supply management, and human resource management, entrepreneurship, a minor in general management, and participates in the university-wide minor in entrepreneurship. Advising for majors and minors takes place in the Haworth College of Business Office of Academic Advising and Admissions. Students are also encouraged to discuss majors, minors and elective choices with faculty members in their areas of interest.

Management Major (MGTJ)(24 hours)

Program Requirements

MGMT 2500 - Organizational Behavior  Credits: 3 hours
MGMT 2520 - Human Resource Management  Credits: 3 hours
MGMT 2750 - Analytical Foundations  Credits: 3 hours
MGMT 3010 - Project Management  Credits: 3 hours

And one of the following:
MGMT 4010 - Project Leadership  Credits: 3 hours
MGMT 4020 - Leadership in Business Organizations  Credits: 3 hours

Three Elective Courses (9 hours)
The nine remaining hours may be chosen from the list of Department of Management Approved Electives.

BUS 3960 - Study Abroad Seminar  Credits: 1 to 6 hours
MGMT 2140 - Exploring Entrepreneurship  Credits: 3 hours
MGMT 3140 - Small Business Management  Credits: 3 hours
MGMT 3340 - Business Model Design  Credits: 3 hours
MGMT 3500 - Managing Diversity in Organizations  Credits: 3 hours
MGMT 4000 - Topics in Management  Credits: 3 hours
MGMT 4040 - Business and Society  Credits: 3 hours
MGMT 4070 - Change Management  Credits: 3 hours
Entrepreneurship (ENTJ) (33 hours)

The Entrepreneurship major provides students with a strong foundation in entrepreneurial concepts along with the flexibility to specialize in a secondary area based on academic tracks, or take courses to obtain a minor or another major.

Because the resources required for this major are limited, there is an acceptance process for students seeking to pursue the Entrepreneurship degree. Upon acceptance into the Haworth College of Business, students requesting the Entrepreneurship Major will be conditionally designated as an Entrepreneurship major to facilitate registration for courses. Acceptance will only be confirmed when the student completes the application process, has completed the MGMT 2140 course, and is accepted into the program. Students who either do not complete the application process or who are not accepted into the program will be removed from any classes restricted to students in the Entrepreneurship major.

Students must complete the application process for spring semester admission by December 1st and will be notified of their status no later than December 30th. The application process for acceptance in fall semester must be completed by May 1st and students will be notified of their status no later than June 1. Students must begin the application process in the Haworth College of Business Office of Advising and Admissions, 2130 Schneider Hall. Students applying to the Entrepreneurship program must be eligible for and complete an application to the Haworth College of Business or already be accepted into the Haworth College of Business.

Required Courses

In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, Entrepreneurship majors must also complete 24 credit hours of the following:

- MGMT 2140 - Exploring Entrepreneurship Credits: 3 hours
- MGMT 3340 - Business Model Design Credits: 3 hours
- MKTG 3340 - Entrepreneurial Marketing Credits: 3 hours
- MKTG 3600 - Professional Selling Credits: 3 hours
- FIN 3350 - Small Business Finance Credits: 3 hours
- FIN 3360 - Funding New and Growing Ventures Credits: 3 hours
- MGMT 4140 - Building the Business Credits: 3 hours
Capstone Course
And one of the following:
MGMT 3140 - Small Business Management  Credits: 3 hours
OR
MGMT 4340 - Family Business Management  Credits: 3 hours
OR
MGMT 4380 - Entrepreneurship Practicum  Credits: 3 hours

Electives

Students are given the flexibility to focus their course work in a specific area by taking 9 credit hours from one of the tracks outlined below, another major, or a minor. If students select to follow a track by taking electives, they must take all 9 credits within one track. Courses in a given track cannot be counted towards another major or minor.

Select three additional courses (9 credit hours) from any of the following tracks:

*Entrepreneurship-focused Track*
MGMT 3140 - Small Business Management  Credits: 3 hours
MGMT 4340 - Family Business Management  Credits: 3 hours
CIS 4360 - Technology Entrepreneurship  Credits: 3 hours
OR
MGMT 4360 - Technology Entrepreneurship  Credits: 3 hours
LAW 4880 - Legal Aspects of Entrepreneurship  Credits: 3 hours

*Note:*
If students choose to take MGMT 3140 - Small Business Management or MGMT 4340 - Family Business Management, as an elective, they cannot count either one of the courses toward the Capstone course requirement for the major.

*Business Information Systems Track*

Students may take any three courses from one of the mini-tracks to develop their BIS specialty. If a student does not have a special interest in one of the mini-tracks in BIS, he or she may select any three courses listed in the BIS track. Thus, the BIS mini-tracks are provided to guide students based upon content themes in the BIS courses.

*Information Systems Mini-track*
CIS 2600 - Business Application Programming  Credits: 3 hours
OR
CIS 2610 - Business Mobile Programming  Credits: 3 hours
OR
CIS 2800 - Internet Programming  Credits: 3 hours
CIS 3600 - Systems Analysis and Design  Credits: 3 hours
CIS 4600 - Business Database Applications  Credits: 3 hours
CIS 4990 - Enterprise Project  Credits: 3 hours

*eBusiness Mini-Track*
CIS 2610 - Business Mobile Programming  Credits: 3 hours
OR
CIS 2800 - Internet Programming  Credits: 3 hours
CIS 3900 - Business Web Architecture  Credits: 3 hours
CIS 4700 - Mobile Commerce Development  Credits: 3 hours
CIS 4900 - Electronic Commerce Development  Credits: 3 hours
CIS 4950 - eBusiness Technologies  Credits: 3 hours

*Business Intelligence and Data Analytics Mini-Track*
CIS 2640 - Business Analytics I  Credits: 3 hours
CIS 3620 - Practical Project Management  Credits: 3 hours
CIS 3640 - Business Analytics II  Credits: 3 hours
CIS 4640 - Business Data Mining  Credits: 3 hours

Networking and Information Assurance Focus Mini-Track
CIS 2660 - Networking and Data Communications  Credits: 3 hours
CIS 3660 - Information Assurance and Compliance  Credits: 3 hours
CIS 5550 - Topics in Computer Information Systems  Credits: 3 hours

Finance Track
FIN 3300 - Real Estate Fundamentals  Credits: 3 hours
FIN 3310 - Real Estate Finance  Credits: 3 hours
FIN 3410 - eFinance  Credits: 3 hours
FIN 3450 - Computer Applications in Finance  Credits: 3 hours
FIN 3600 - Risk and Insurance  Credits: 3 hours
FIN 3710 - Personal Financial Planning  Credits: 3 hours
FIN 3720 - Estate Planning  Credits: 3 hours
FIN 4120 - Global Financial Markets  Credits: 3 hours
FIN 4140 - Management of Financial Institutions  Credits: 3 hours
FIN 4250 - Short Term Financial Management  Credits: 3 hours
FIN 4320 - Real Estate Investments  Credits: 3 hours
FIN 4330 - Real Estate Appraisal  Credits: 3 hours
FIN 4370 - Real Estate Management  Credits: 3 hours

Management Track
MGMT 3010 - Project Management  Credits: 3 hours
MGMT 3500 - Managing Diversity in Organizations  Credits: 3 hours
MGMT 2520 - Human Resource Management  Credits: 3 hours
MGMT 4020 - Leadership in Business Organizations  Credits: 3 hours
MGMT 4040 - Business and Society  Credits: 3 hours
MGMT 4100 - Multinational Management  Credits: 3 hours
MGMT 4540 - Employment Relations  Credits: 3 hours
MGMT 4650 - Managing for Quality  Credits: 3 hours

Marketing Track
MKTG 2900 - Introduction to Food and CPG Industries  Credits: 3 hours
MKTG 3710 - Marketing Research  Credits: 3 hours
MKTG 3730 - Digital and Social Media Marketing  Credits: 3 hours
MKTG 3740 - Advertising and Promotion  Credits: 3 hours
MKTG 3760 - Sales Management  Credits: 3 hours
MKTG 3770 - Sales Promotion  Credits: 3 hours
MKTG 3800 - Sport Marketing  Credits: 3 hours
MKTG 4750 - International Marketing  Credits: 3 hours
MKTG 4770 - Consumer Behavior  Credits: 3 hours
MKTG 4860 - Marketing Strategy  Credits: 3 hours

OR

Instead of the elective tracks, students may choose to earn a minor or a second major in the following areas if offered and available: accounting, business analytics, computer information systems, finance, food and consumer package goods marketing, foreign language, international business, management, marketing, or sales and business marketing.

Additional Information:
Creativity and innovation is a vital part of entrepreneurship in regards to discovering opportunities, being resourceful, and creating competitive advantage for both new and established firms. There is no one course in the curriculum that focuses on creativity and innovation. Rather, creativity and innovation activities and topics are integrated into the curriculum of the courses throughout the entrepreneurship program.
Students take two courses of accounting as part of the general requirement for the Bachelor of Business Administration: ACTY 2100 - Principles of Accounting I and ACTY 2110 - Principles of Accounting II. Students are expected to understand accounting principles as part of the finance courses that are in the curriculum. Thus, the two principles of accounting courses will be necessary for students in the Entrepreneurship major. If students want to learn more about finance, accounting, and tax issues, they are advised to pursue a major or a minor in accounting or finance to go along with their Entrepreneurship major. An information sheet for how to obtain an Accounting minor with an Entrepreneurship major is available.

It is encouraged that students are familiar with computer technology, as computers are a necessity in today's business. Courses can be taken in the BIS department to improve one's knowledge of computer technology as it relates to business.

As part of the globally engaged theme at WMU, entrepreneurship students are encouraged to look for and take advantage of global opportunities through study abroad programs. In addition, instructors in the entrepreneurship program have the possibility of integrating a global business activity in their courses by working with entrepreneurship around the world and/or with partner universities in other countries (e.g., Hogeschool Utrecht University - The Netherlands, University of Passau - Germany, Swinburne University - Australia).

**Human Resource Management Major (HRMJ)(24 hours)**

In addition to the BBA requirements, the Human Resources Management major consists of six required courses (18 hours) and two electives (6 hours).

**Required Courses (18 hours)**
- MGMT 2520 - Human Resource Management Credits: 3 hours
- MGMT 2750 - Analytical Foundations Credits: 3 hours
- MGMT 4070 - Change Management Credits: 3 hours
- MGMT 4320 - Compensation and Benefits Credits: 3 hours
- MGMT 4510 - Staffing Organizations Credits: 3 hours
- MGMT 4540 - Employment Relations Credits: 3 hours

**Electives (6 hours) Select two:**
- FIN 3600 - Risk and Insurance Credits: 3 hours
- FIN 3730 - Retirement Planning and Employee Benefits Credits: 3 hours
- LAW 3840 - Criminal Law and Procedure Credits: 3 hours
- MFE 3400 - Design for People at Work Credits: 3 hours
- MGMT 3010 - Project Management Credits: 3 hours
- MGMT 3500 - Managing Diversity in Organizations Credits: 3 hours
- MGMT 4100 - Multinational Management Credits: 3 hours

**Management Minor (MGTN) (18 hours)**

The minor in management requires eighteen credit hours consisting of the following three required courses and three electives:

**Required Courses**
- BUS 1750 - Business Enterprise Credits: 3 hours
- MGMT 2500 - Organizational Behavior Credits: 3 hours
- MGMT 3010 - Project Management Credits: 3 hours

**Electives**
Choose three of the following:
- BUS 3960 - Study Abroad Seminar Credits: 1 to 6 hours
- MGMT 2140 - Exploring Entrepreneurship Credits: 3 hours
Human Resource Management Minor (HRMN) (15 hours)

To be admitted to this minor, you must have an overall GPA of at least 3.00 and have completed at least 30 hours at Western Michigan University (for transfer students, at least 15 hours at Western). The minor requires fifteen credit hours consisting of the following courses:

**Required Courses (12 credit hours)**
- MGMT 2500 - Organizational Behavior  Credits: 3 hours
- MGMT 2520 - Human Resource Management  Credits: 3 hours
- MGMT 2750 – Analytical Foundations  Credits: 3 hours
- MGMT 3140 - Small Business Management  Credits: 3 hours
- MGMT 3500 – Managing Diversity in Organizations  Credits: 3 hours
- MGMT 4000 - Topics in Management  Credits: 3 hours
- MGMT 4010 - Project Leadership  Credits: 3 hours
- MGMT 4020 –Leadership in Business Organizations  Credits: 3 hours
- MGMT 4040 - Business and Society  Credits: 3 hours
- MGMT 4100 - Multinational Management  Credits: 3 hours
- MGMT 4140 - Building the Business  Credits: 3 hours
- MGMT 4320 - Compensation and Benefits  Credits: 3 hours
- MGMT 4500 - Managing for Quality  Credits: 3 hours
- MGMT 4510 - Staffing Organizations  Credits: 3 hours
- MGMT 4540 - Employment Relations  Credits: 3 hours
- MGMT 4650 - Managing for Quality  Credits: 3 hours

**Elective Course (3 hours)**
Any course taught by the Haworth College of Business (ACTY, BCM, BUS, CIS, FIN, LAW, MGMT, MKTG).
Marketing
Mushtaq Luqmani, Chair
Main Office: 3210 Schneider Hall
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JoAnn Atkin
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Ann Veeck
John Weitzel
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Marcellis Zondag

The Department of Marketing offers four majors: marketing, advertising and promotion, food and consumer package goods marketing, and sales and business marketing. The department also supports two interdisciplinary majors: (1) ebusiness marketing with the Department of Business Information systems and (2) integrated supply management with the Department of Management and the College of Engineering. In addition, the department offers minors in advertising and promotion, and in marketing.

Program Requirements
Course requirements for each of the four majors and two minors can be found under each program. Course prerequisites are listed after the course descriptions. Any deviations from these course requirements and prerequisites must have the written approval of the department chairperson.

Advising for majors and minors takes place in the Haworth College of Business Office of Academic Advising and Admissions. Students are also encouraged to discuss majors, minors and elective choices with faculty members in their areas of interest.

Applying for a minor
To be eligible to apply for a minor either in advertising and promotion, or in marketing, a student must have completed a minimum of 56 credit hours with an overall WMU grade point average of at least 2.50. However, meeting these minimum requirements does not guarantee admission into either minor, as the Department of Marketing receives far more minor applications than it has the capacity to accept.

Marketing Major (MKTJ)(24 hours)
Marketing, more than any other business function, deals with people. The Marketing major prepares students for careers in a wide range of industries, as sound marketing is critical to the success of every type of organization, including business-to-consumer companies, business-to-business companies, consumer goods and service companies, as well as non-profit organizations. Marketing majors pursue a variety of career paths including those related to branding, strategy, consumer/marketing research, consumer experience, promotion, channel and sales management.

Required Courses
MKTG 2500 - Marketing Principles Credits: 3 hours
Elective Courses
The Marketing Department offers a wide array of elective courses that span most content areas of the marketing discipline. Students may elect any (2) two courses from the list of available courses below. Students are strongly encouraged to meet with a major advisor to discuss their two elective course options, sequencing, and career plans. As a guideline, a few content categories are provided as an example of how students can purposely align their elective choices with their potential career interests.

MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours
MKTG 3600 - Professional Selling Credits: 3 hours
MKTG 3720 - Sourcing and Purchasing Credits: 3 hours
MKTG 3730 - Digital and Social Media Marketing Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 3760 - Sales Management Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3780 - Marketing Analytics Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
MKTG 3920 - Applied Marketing Analysis Credits: 3 hours
MKTG 4500 - Customer Relationship Management Credits: 3 hours
OR
CIS 4500 - Customer Relationship Management Credits: 3 hours
MKTG 4730 - Data Driven Marketing Credits: 3 hours
MKTG 4760 - Retail Management Credits: 3 hours
MKTG 4780 - Special Topics in Marketing Credits: 3 hours
MKTG 4791 - Advanced Digital Marketing Strategies Credits: 3 hours
MKTG 4820 - Advanced Sports Marketing Credits: 3 hours
MKTG 4840 - Marketing Logistics Credits: 3 hours
MKTG 4980 - Readings in Marketing Credits: 1 to 3 hours
BUS 3960 - Study Abroad Seminar Credits: 1 to 6 hours

Content Categories:
*Elective courses that are related to Digital Marketing*

MKTG 3730 - Digital and Social Media Marketing Credits: 3 hours
MKTG 4500 - Customer Relationship Management Credits: 3 hours
OR
CIS 4500 - Customer Relationship Management Credits: 3 hours
MKTG 4730 - Data Driven Marketing Credits: 3 hours
MKTG 4791 - Advanced Digital Marketing Strategies Credits: 3 hours

*Elective courses that are related to Marketing Research and Analytics*

MKTG 3920 - Applied Marketing Analysis Credits: 3 hours
MKTG 4500 - Customer Relationship Management Credits: 3 hours
MKTG 4730 - Data Driven Marketing Credits: 3 hours

*Elective courses that are related to Sport Marketing*

MKTG 3800 - Sport Marketing Credits: 3 hours
MKTG 4820 - Advanced Sports Marketing Credits: 3 hours

Advertising And Promotion Major (ADVJ)(27 hours)
The advertising and promotion major prepares students for a variety of promotion-related positions, such as account management, media planning, and advertising sales. Graduates typically find employment in the advertising industry or in firms with marketing communications, promotion, or interactive marketing departments. Students are encouraged to pursue a related minor in art, communication, English (writing emphasis), or imaging to enhance their creative skills.

Required Courses
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 4720 - Advertising Media Strategy Credits: 3 hours
MKTG 4740 - Creative Strategy Credits: 3 hours
MKTG 4770 - Consumer Behavior Credits: 3 hours
MKTG 4810 - Integrated Marketing Communications Campaigns Credits: 3 hours

Elective Courses
Select two additional courses from the following:
MKTG 3600 - Professional Selling Credits: 3 hours
MKTG 3730 - Digital and Social Media Marketing Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
MKTG 3920 - Applied Marketing Analysis Credits: 3 hours
MKTG 4730 - Data Driven Marketing Credits: 3 hours
MKTG 4750 - International Marketing Credits: 3 hours
MKTG 4780 - Special Topics in Marketing Credits: 3 hours

Food and Consumer Package Goods Marketing Major (FMKJ)(30 hours)

Western Michigan University is one of the premier universities in the United States offering a four-year, fully accredited business degree in food and consumer package goods marketing. The mission of this major is to prepare students for professional careers within the industry and provide the necessary tools for continuous professional growth. The Food and Consumer Package Marketing major provides experiential learning opportunities such as study-abroad, internships, and tours of industry, business networking, and the annual Food Marketing Conference. The WMU major is one of only a select number of universities with accreditation in Category Management, which allows students to pursue personal certification in this field. The Food and Consumer Package Goods Marketing major also provides career opportunities within retail, consumer package goods, data analytics and supply-chain management.

Required Courses
MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3910 - Retail Merchandising Credits: 3 hours
MKTG 3921 - Food and CPG Marketing Analytics Credits: 3 hours
MKTG 3930 - Food and CPG Sales Credits: 3 hours
MKTG 3970 - Food and CPG Internship Credits: 1 to 3 hours
MKTG 4840 - Marketing Logistics Credits: 3 hours
MKTG 4920 - Category Management Credits: 3 hours
MKTG 4940 - Food and CPG Marketing Issues and Strategies Credits: 3 hours

Elective Courses
Select three hours from the following:
MKTG 3730 - Digital and Social Media Marketing Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3960 - Survey of Food and CPG Industries Credits: 3 hours
MKTG 4730 - Data Driven Marketing Credits: 3 hours
Sales And Business Marketing Major (SBMJ)(24 hours)

The sales and business marketing major prepares students for sales and marketing careers with firms that emphasize business-to-business marketing. Sales and business marketing majors may want to consider a minor in biological sciences, chemistry, computer science, imaging, manufacturing technology, or physics to enhance their career opportunities with technology-oriented employers.

Required Courses
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3600 - Professional Selling Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3760 - Sales Management Credits: 3 hours
MKTG 4100 – Selling Skills Development Credits: 3 hours
MKTG 4600 - Advanced Selling Strategies Credits: 3 hours
MKTG 4700 - Business Marketing Strategy Credits: 3 hours

Elective Courses
Select one additional course (3 credit hours) from the following:
MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours
MKTG 3720 - Sourcing and Purchasing Credits: 3 hours
MKTG 3730 - Digital and Social Media Marketing Credits: 3 hours
MKTG 3740 - Advertising and Promotion Credits: 3 hours
MKTG 3770 - Sales Promotion Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
MKTG 3920 - Applied Marketing Analysis Credits: 3 hours
MKTG 4730 - Data Driven Marketing Credits: 3 hours
MKTG 4750 - International Marketing Credits: 3 hours
MKTG 4780 - Special Topics in Marketing Credits: 3 hours
MKTG 4630 - Supply Chain Logistics Credits: 3 hours

OR

MKTG 4840 - Marketing Logistics Credits: 3 hours

Recommendation:
It is strongly recommended that students considering employment in manufacturing-related industries complete one or more of the following courses either to fulfill their General Education Distribution Area VII requirement or as an elective:
EDMM 1420 - Engineering Graphics Credits: 3 hours (elective)
EDMM 1500 - Introduction to Manufacturing Credits: 3 hours (Distribution Area VII)

Advertising and Promotion Minor (ADVN)(21 to 22 hours)

Note: This minor is not available to students pursuing a major in the Department of Marketing. Nonbusiness students are limited to only one minor and a maximum of 30 credit hours in the Haworth College of Business.
Required Courses

MKTG 2500 - Marketing Principles  Credits: 3 hours
MKTG 3710 - Marketing Research  Credits: 3 hours
MKTG 3740 - Advertising and Promotion  Credits: 3 hours
MKTG 4770 - Consumer Behavior  Credits: 3 hours

STAT 2160 - Business Statistics  Credits: 3 hours
OR
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours

Elective Courses

Select two additional courses (6 credit hours) from the following:
MKTG 3730 - Digital and Social Media Marketing  Credits: 3 hours
MKTG 3770 - Sales Promotion  Credits: 3 hours
MKTG 4720 - Advertising Media Strategy  Credits: 3 hours
MKTG 4730 - Data Driven Marketing  Credits: 3 hours
MKTG 4740 - Creative Strategy  Credits: 3 hours
MKTG 4750 - International Marketing  Credits: 3 hours

Marketing Minor (MKTN)(18 to 19 hours)

Note: This minor is not available to students pursuing a major in the Department of Marketing. Nonbusiness students are limited to only one minor and a maximum of 30 credit hours in the Haworth College of Business.

Required Courses

MKTG 2500 - Marketing Principles  Credits: 3 hours
MKTG 3710 - Marketing Research  Credits: 3 hours

STAT 2160 - Business Statistics  Credits: 3 hours (or equivalent)
OR
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours

Elective Courses

Select three additional courses (9 credit hours) from the following:
MKTG 2900 - Introduction to Food and CPG Industries  Credits: 3 hours
MKTG 3600 - Professional Selling  Credits: 3 hours
MKTG 3720 - Sourcing and Purchasing  Credits: 3 hours
MKTG 3730 - Digital and Social Media Marketing  Credits: 3 hours
MKTG 3740 - Advertising and Promotion  Credits: 3 hours
MKTG 3760 - Sales Management  Credits: 3 hours
MKTG 3770 - Sales Promotion  Credits: 3 hours
MKTG 3800 - Sport Marketing  Credits: 3 hours
MKTG 4730 - Data Driven Marketing  Credits: 3 hours
MKTG 4750 - International Marketing  Credits: 3 hours
MKTG 4760 - Retail Management  Credits: 3 hours
MKTG 4770 - Consumer Behavior  Credits: 3 hours
MKTG 4780 - Special Topics in Marketing  Credits: 3 hours
MKTG 4840 - Marketing Logistics  Credits: 3 hours

Note: MKTG 4760 may not be counted toward both a Management major and a Marketing minor.
Military Science and Leadership
LTC Andrew Morgan, Chair
Main Office: Activity Therapy Building
Telephone: (269) 387-8120
Fax: (269) 387-8112

SFC Amy Anderson (Grand Rapids extension)
SFC Jamie Hand
Mr. Brett E. Johnson
Mrs. Cris Obreiter
Mr. William Parks
CPT Travis Payne
Mr. Rick Rigsby
MSG Robert Ryder
CPT Austin Tazzia
CPT Phil Vandercook

The Department of Military Science and Leadership 1000 and 2000 level courses are open to all University students. Courses are intended to develop responsibility, individual confidence, leadership and tactical skills, and to broaden students’ knowledge of the role of the military in society. The department offers a Military Science and Leadership program, which can lead to an officer's commission in the Army Reserve, Army National Guard, or Regular Army upon successful completion of the program. Merit based ROTC scholarships are available to highly qualified students on a competitive basis without regard to financial need.

The chair of the department and all instructors are officers or noncommissioned officers of the United States Army assigned to the department by permission of the University. They administer the Military Science and Leadership program and conduct all classes offered by the department. The government provides uniforms and financial assistance for students who are contracted in the program.

Career Opportunities
Army ROTC increases opportunities for students by providing options and developing leadership potential for a civilian and/or military career. To enter the Advanced Course, a student agrees to finish the ROTC instruction, then accept a commission as a second lieutenant and an assignment in either active or reserve forces duty.

The active duty career option is usually a minimum of three years for non-scholarship students and assignment to a leadership position similar to the junior management level in the civilian sector. Scholarship students generally have longer active duty commitments. The starting salary for a second lieutenant on active duty is approximately $46,500, plus benefits.

The reserve forces career option combines the benefits of a civilian job with the leadership and management experience gained in the Army Reserve or National Guard. The reserve forces obligation is three to six months on active duty attending the Basic Officer Leader Course and the remainder of an eight-year obligation in the reserve forces.

ROTC Admission Requirements

The 1000 and 2000 level ROTC courses are open to all University students with no military obligation as participating students.

To be eligible to enter into the Advanced Course (Commissioning Program) and take 3000 and 4000 level ROTC courses students must be a full time student, be a U.S. Citizen, be not more than 31 years of age at the time of commissioning, and meet specified benchmarking standards and other contracting criteria.

Scholarships
Army ROTC has one of the largest scholarship programs in the nation.
Awards are competitively based on ability, not on income. ROTC scholarships are offered for two, three, and four years. Four-year scholarships are awarded to high school seniors. Three-year and two-year scholarships are awarded to students already enrolled in the University. It is not a requirement to be enrolled in ROTC to compete for a scholarship.

ROTC scholarships pay for full tuition at WMU and provide $1200 annually for books and fees. They also provide a monthly living stipend. Nursing scholarships are available which cover all of the above plus pay for select nursing fees. Additionally, WMU provides Army ROTC scholarship winners with an additional $3,000 annually towards on-campus housing.

Facilities
The department is located in the Activity Therapy Building adjacent to the College of Health and Human Services and features two drill halls, classroom facilities, a computer lab, a weapons simulator, and supply facilities. Leadership labs are conducted in the field areas near the department's building. The department also operates the rappel tower located on campus and conducts field training at Fort Custer Training Center near Augusta, Michigan.

More information about the ROTC program is available at the ROTC office in the Activity Therapy Building, by calling (269) 387-8120 or (269) 387-8122, or online at http://www.wmich.edu/rotc.

Military Science and Leadership - Four Year Program

The four-year military science and leadership program is divided into a Basic Course (first two years) and an Advanced Course (last two years) and is offered as a minor program by the University. Non-contracted students who participate in the Basic Course incur no military service requirement.

Basic Course
The Basic Course is designed to give students a general knowledge of the role of national defense and also provides knowledge of leadership skills needed by military officers. Students completing the Basic Course have an opportunity to be considered for the Advanced Course program and obtain a commission in the active Army or Reserve Components. ROTC students take at least one military science and leadership course each semester. First year students normally take MSL 1010 in the fall and MSL 1020 in the spring semester. Sophomore students take MSL 2010 during the fall and MSL 2020 during the spring.

Exceptions to the above requirements must be approved by the chair of the department. Students who have had three years of junior ROTC (High School JROTC) or who have completed basic training in any service may, with the approval of the chair of the department, have certain portions of the Basic Course waived. Students transferring from other institutions who have started any ROTC program will have their records reviewed to determine proper placement credit.

Advanced Course
Students successfully completing the Basic Course may be enrolled in the Advanced Course with the permission of the chair of the department. The major emphasis of the Advanced Course is the development of individual leadership and military skills. During the junior year, students complete MSL 3010 and 3020. Between the junior and senior year, students will attend a 29-day ROTC Cadet Leaders' Course at Fort Knox, Kentucky. During the senior year, students complete MSL 4010 and MSL 4020. HIST 3200, American Military History, or an equivalent course, is also required for commissioning.

Students who have less than four years, but at least two years, until graduation should contact the department about alternate entry options. Students who meet criteria outlined in Basic Course above may have some requirements waived and students with no military experience may be eligible for course compression or summer training to meet eligibility requirements subject to availability.

Military Science and Leadership Minor
A department minor slip is required.

Four-Year Program
Freshman Year (2 hours)
MSL 1010 – Introduction to the Army and Critical Thinking  Credits: 1 hour and
MSL 1020 – Introduction to the Profession of Arms  Credits: 1 hour

Sophomore Year (4 hours)
MSL 2010 – Leadership and Decision Making  Credits: 2 hours and
MSL 2020 – Army Doctrine and Team Development  Credits: 2 hours

Junior Year (6 hours)
MSL 3010 – Unit Training and the Warfighting Functions  Credits: 3 hours and
MSL 3020 - Applied Leadership in Small Unit Operations  Credits: 3 hours

Senior Year (6 hours)
MSL 4010 – Mission Command and the Army Profession  Credits: 3 hours and
MSL 4020 – Mission Command and the Company Grade Officer  Credits: 3 hours

Two-Year Commissioning Program
Prerequisite: Veteran or Leaders Training Course, or approval of department chair.

Junior Year (6 hours)
MSL 3010 – Unit Training and the Warfighting Functions  Credits: 3 hours and
MSL 3020 - Applied Leadership in Small Unit Operations  Credits: 3 hours

Senior Year (6 hours)
MSL 4010 – Mission Command and the Army Profession  Credits: 3 hours and
MSL 4020 – Mission Command and the Company Grade Officer  Credits: 3 hours

Additional Requirements
In addition to the courses listed above, all students in the military science and leadership minor program must complete one course from each group below:

A. Military History
HIST 3200 - American Military History  Credits: 3 hours

B. Mathematics, Statistics and Quantitative Reasoning
In general, any mathematics or statistics course that satisfies the Proficiency 3 or 4b under the General Education Program Courses will also satisfy the mathematics/quantitative reasoning requirement for the Military Science and Leadership Minor.

MATH 1140 - Excursions in Mathematics  Credits: 3 hours
MATH 1160 - Finite Mathematics with Applications  Credits: 3 hours
MATH 1180 - Precalculus Mathematics  Credits: 4 hours
MATH 1220 - Calculus I  Credits: 4 hours
MATH 1500 - Number Concepts for Elementary/Middle School Teachers  Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers  Credits: 4 hours
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours
MATH 2000 - Calculus with Applications  Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers  Credits: 4 hours
STAT 1600 - Statistics and Data Analysis  Credits: 3 hours
STAT 2160 - Business Statistics  Credits: 3 hours
STAT 2600 - Data Analysis Using R  Credits: 4 hours
STAT 2830 - Methods of Data Analysis  Credits: 3 hours
STAT 3620 - Probability  Credits: 4 hours
STAT 3640 - Foundations of Data Analysis  Credits: 4 hours
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours

C. Political Science and International Relations
Students pursuing the Military Science and Leadership Minor are required to acquire an advanced knowledge of political science with a primary focus on international relations or foreign policy. Courses meeting this requirement include:

- PSCI 2400 - Comparative Politics  
  Credits: 3 hours  
- PSCI 2500 - International Relations  
  Credits: 4 hours  
- PSCI 3110 - American Politics and the Media  
  Credits: 3 hours  
- PSCI 3140 - The Presidency  
  Credits: 3 hours  
- PSCI 3400 - European Politics  
  Credits: 4 hours  
- PSCI 3410 - The Politics of Sub-Saharan Africa  
  Credits: 4 hours  
- PSCI 3440 - The Politics of Sub-Saharan Africa  
  Credits: 4 hours  
- PSCI 3450 - Latin American Politics  
  Credits: 4 hours  
- PSCI 3500 - American Foreign Policy  
  Credits: 4 hours

D. Psychology, Sociology, and Teamwork

In addition to studying human behavior and interaction in the Military Science and Leadership Courses, students pursuing the Military Science and Leadership Minor are required to acquire additional knowledge of human behavior and interaction in a more rigorous manner through a course in psychology, sociology, or other discipline specific teamwork oriented course. Courses meeting this requirement include:

- EDMM 3020 - Engineering Teams: Theory and Practice  
  Credits: 3 hours  
- PSY 1000 - General Psychology  
  Credits: 3 hours  
- SOC 2000 - Principles of Sociology  
  Credits: 3 hours  
- SOC 2100 - Modern Social Problems  
  Credits: 3 hours  
- SOC 3000 - Sociological Theory  
  Credits: 3 hours  
- SOC 3040 - Nonwestern World  
  Credits: 4 hours  
- SOC 3140 - Ethnic Relations  
  Credits: 3 hours  
- SOC 3200 - Introduction to Social Psychology  
  Credits: 3 hours  
- SOC 3340 - East Asia and the World  
  Credits: 3 hours  
- SOC 3350 - Modern Latin American Societies  
  Credits: 3 hours
Interdisciplinary Programs

Related Majors
Students who complete the B.B.A. program requirements may major in Economics and other related majors and receive the B.B.A. degree.

eBusiness Marketing (EBMJ) (27 hours)

The ebusiness marketing major is an interdisciplinary major that combines the study of Marketing and Information Systems to prepare students for careers in fields such as e-commerce, digital marketing, social media, and web application development and services. Students will study digital technologies, web applications, web design and digital marketing practices in order to solve contemporary business problems and meet challenges in the rapidly changing digital marketplace.

This major has two tracks, from which students should choose one: Information Systems or Marketing.

Core Requirements for both tracks:
CIS 2900 - Web Applications for Business Credits: 3 hours
CIS 3900 - Business Web Architecture Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3710 - Marketing Research Credits: 3 hours
MKTG 3730 - Digital and Social Media Marketing Credits: 3 hours

Information Systems Track (4 courses - 12 credits)

Required Courses
CIS 2610 - Business Mobile Programming Credits: 3 hours
OR
CIS 2800 - Internet Programming Credits: 3 hours
CIS 4950 - eBusiness Technologies Credits: 3 hours

Two Electives
CIS 2610 - Business Mobile Programming Credits: 3 hours
(Note: If CIS 2610 is used as a required course for the student's major, it cannot also be used as an elective in the major.)
CIS 2640 - Business Analytics I Credits: 3 hours
CIS 2660 - Networking and Data Communications Credits: 3 hours
CIS 3600 - Systems Analysis and Design Credits: 3 hours
CIS 3620 - Practical Project Management Credits: 3 hours
CIS 3640 - Business Analytics II Credits: 3 hours
CIS 4100 - Internship Credits: 1 to 4 hours
CIS 4600 - Business Database Applications Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours
CIS 4700 - Mobile Commerce Development Credits: 3 hours
CIS 4900 - Electronic Commerce Development Credits: 3 hours
CIS 5550 - Topics in Computer Information Systems Credits: 3 hours
MKTG 4500 - Customer Relationship Management Credits: 3 hours
MKTG 4791 - Advanced Digital Marketing Strategies Credits: 3 hours

Marketing Track (4 courses - 12 credits)

Required Course
MKTG 4791 - Advanced Digital Marketing Strategies Credits: 3 hours

Three Electives (Limited to one CIS Course)
MKTG 3600 - Professional Selling Credits: 3 hours
Economics (ECBJ) (30 hours)

Students should contact a faculty advisor through the Economics department, 5307 Friedman Hall.

In addition to the completion of the program requirements for the B.B.A. degree, all students must satisfactorily complete the following:

Requirements
A major in economics consists of a minimum of 30 hours of credit in the department. The following are required courses for majors:

ECON 2010 - Principles of Microeconomics  Credits: 3 hours
ECON 2020 - Principles of Macroeconomics  Credits: 3 hours
ECON 3390 - Exploring Economic Data  Credits: 3 hours

OR

CIS 2640 - Business Analytics I  Credits: 3 hours
ECON 4020 - Introductory Economic Statistics  Credits: 3 hours
ECON 4030 - Intermediate Microeconomics  Credits: 3 hours

OR

ECON 4031 - Intermediate Microeconomics with Calculus  Credits: 3 hours
ECON 4060 - Intermediate Macroeconomics  Credits: 3 hours
ECON 4090 - Econometrics  Credits: 3 hours

Advanced Electives
In conjunction with an Economics advisor, students will select an additional 9 semester hours of advanced courses (3000-5000 level) to include:

Mathematics
A major in economics is also required to take one semester of mathematics as a cognate course.
MATH 1220 - Calculus I  Credits: 4 hours

OR

MATH 2000 - Calculus with Applications  Credits: 4 hours

Health Informatics and Information Management (HIBJ) (50-55 hours)

Health Informatics and Information Management (HiiM) major is a cross-disciplinary academic program that integrates courses from multiple colleges at Western Michigan University (WMU). At present, HiiM major is offered by two colleges (i.e., College of Health and Human Services and Haworth College of Business).

Students who complete HiiM major from the Haworth College of Business will receive a Bachelor of Business Administration (B.B.A.) degree.

Admission Requirements
Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained from that office or the University’s website at www.wmich.edu.
Because the resources required for this major are integrated across colleges and are limited, there is an application process for students seeking admission to the HiiM program. Admission criteria will be determined by a committee that is composed of HiiM faculty advisors from each hosting college.

Applicants will be evaluated for admission at least twice (i.e., fall and spring semesters) based on each applicant’s academic performance. Acceptance will only be confirmed when the student completes the application process and is accepted into the HiiM program. Students who either do not complete the application process or who are not accepted into the program will be removed from any classes that are restricted to HiiM majors.

To seek admission to the HiiM program in fall semester, student applications must be completed by February 15 and students will be notified of their status no later than March 1. For spring semester admission, students must complete the application process by September 15 and will be notified of their status no later than October 1, HCoB students must begin the application process in the HCoB Office of Student Advising and Admissions. Any HiiM major applicant must be an eligible WMU student who has been admitted to the College of Business and has completed all pre-HiiM course requirements, and has a minimum GPA of 2.75.

Due to limited program capacity, all applicants are evaluated on a competitive basis in terms of academic performance. In addition, the following materials and criteria may be reviewed and applied:

- Resume
- Statement of Purpose
- HiiM Advisor Interview
- Overall GPA

Acceptance standards are dynamically adjusted based on the available program capacity. Applicants that miss the application deadline will be considered in the next application cycle.

**Program Requirements:**
In addition to completing all pre-B.B.A. and B.B.A. requirements, HiiM majors in HCoB must complete with a grade of “C” or above:

**Pre-Major Requirements (17-21 hours)**

*Basic Computing*
Select one of the following:
CIS 1020 - Introduction to Business Computing Credits: 3 hours
CIS 1100 - Business Computing Credits: 1 hour

*Health Profession*
Select one of the following:
NUR 1040 - Introduction to the Health Disciplines and Inter-professional Practice Credits: 2 hours
HSV 1040 - Introduction to the Health Disciplines and Inter-professional Practice Credits: 2 hours

*Health Sciences*
Select ALL of the following:
MDSC 2010 - Medical Terminology Credits: 1 hour
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2400 - Human Physiology Credits: 4 hours

*Human Anatomy*
Select one of the following:
BIOS 2110 - Human Anatomy Credits: 4 hours
OT 2000 - Human Functional Anatomy Credits: 3 hours

*Statistics*
Select one of the following:
STAT 2160 - Business Statistics Credits: 3 hours
STAT 2600 - Data Analysis Using R Credits: 4 hours
STAT 3660 - Data Analysis for Biosciences Credits: 4 hours

Required Courses (24-25 hours)

Health Info Systems and Management
Select one of the following:
NUR 2350 - Special Topics in Nursing Credits: 1 to 4 hours (Credits: 3 hours needed)
HSV 2350 - Special Topics in Interdisciplinary Health Services Credits: 1 to 4 hours (Credits: 3 hours needed)
CIS 2700 - Business-Driven Information Technology Credits: 3 hours (customized content)

Health Care Ethics
Select one of the following:
NUR 3220 - Health Care Ethics Credits: 3 hours
PHIL 2010 - Introduction to Ethics Credits: 4 hours
PHIL 3340 - Biomedical Ethics Credits: 4 hours

And
NUR 3330 - Health Informatics Credits: 3 hours
CIS 3600 - Systems Analysis and Design Credits: 3 hours
CIS 3660 - Information Assurance and Compliance Credits: 3 hours
CIS 4600 - Business Database Applications Credits: 3 hours
HSV 4800 - Health Services Practice Management Credits: 3 hours

HiM Capstone Project
Select one of the following:
NUR 4300 - Special Topics in Nursing Credits: 1 to 6 hours (Credits: 3 hours needed)
HSV 4350 - Special Topics in Health and Human Services Credits: 1 to 4 hours (Credits: 3 hours needed)
CIS 4990 - Enterprise Project Credits: 3 hours

College Elective Specialty Courses (a minimum of 9 credits)

Haworth College of Business
Select one of the following specialty tracks:

A. Data Analysis (DAN)
Elect three courses from the following list:
CIS 2640 - Business Analytics I Credits: 3 hours
CIS 3620 - Practical Project Management Credits: 3 hours
CIS 3640 - Business Analytics II Credits: 3 hours
CIS 4640 - Business Data Mining Credits: 3 hours

B. Health Information Networking (HIN)
Elect three courses from the following list:
CIS 2660 - Networking and Data Communications Credits: 3 hours
CIS 5550 - Topics in Computer Information Systems Credits: 3 hours
Topics for CIS 5550:
Advanced Networking Credits: 3 hours
Network Security Credits: 3 hours
Health Information Networking Credits: 3 hours

C. Management (MGMT)
Take all three courses from the following list:
MGMT 2520 - Human Resource Management Credits: 3 hours
MGMT 3010 - Project Management Credits: 3 hours
Integrated Supply Management (ISUJ) (43 hours)

Admission Requirements

Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained from that office or the University’s website at www.wmich.edu.

The Integrated Supply Management (ISM) major is in high demand. Because the resources required for this major are limited, there is an acceptance process for students seeking to pursue the Integrated Supply Management degree. Upon acceptance into the Haworth College of Business, students requesting the ISM major will be conditionally designated as an ISM major to facilitate registration for courses. Acceptance will only be confirmed when the student completes the application process and is accepted into the program. Students who either do not complete the application process or who are not accepted into the program will be removed from any classes restricted to ISM majors.

Students must complete the application process for spring semester admission by December 1 and will be notified of their status no later than December 23. The application process for acceptance in fall semester must be completed by April 15 and students will be notified of their status no later than May 15. Students must begin the application process in the Haworth College of Business Office of Advising and Admissions. Students applying to the ISM program must be eligible for and complete an application to the Haworth College of Business or already be accepted into the Haworth College of Business.

Applicants are evaluated using the following four criteria:

- Resume
- Statement of Purpose
- ISM Faculty Member Interview
- Overall GPA

Because most employers require a minimum 3.0 GPA to be considered for internships or full-time employment, the student’s overall GPA is a critical factor in the acceptance decision.

In addition to the courses listed below, ISM majors must complete an internship or have related work experience prior to graduation.

Required Courses

EDMM 1420 - Engineering Graphics Credits: 3 hours
EDMM 1500 - Introduction to Manufacturing Credits: 3 hours
EDMM 1501 - Processes and Materials in Manufacturing Laboratory Credits: 1 hour
EDMM 3280 - Quality Assurance and Control Credits: 3 hours
MGMT 2800 - Introduction to Supply Management Credits: 3 hours
MGMT 3200 - Managing ERP Systems Credits: 3 hours
MGMT 3810 - Applied Six Sigma Problem-Solving Credits: 3 hours
MGMT 4640 - Production Management and Control Credits: 3 hours
MKTG 3720 - Sourcing and Purchasing Credits: 3 hours
MKTG 4630 - Supply Chain Logistics Credits: 3 hours

AND either:
EDMM 4880 - Applied Process Reengineering Credits: 3 hours
OR
MKTG 4880 - Applied Process Reengineering Credits: 3 hours

AND either:
LAW 4840 – International Business Law  Credits: 3 hours
OR
LAW 4860 - Marketing and Sales Law  Credits: 3 hours

AND either:
GEOG 3010 – Fundamentals of Geographic Information Systems  Credits: 4 hours
OR
EDMM 4870 - Manufacturing Productivity Techniques  Credits: 3 hours
OR
EM 5120 – Management of Service Operations  Credits: 3 hours

Electives
Select two additional courses (6 credit hours) from the following:

- Basic or intermediate foreign language courses (1000, 1010, 2000 or 2010)
- ACTY 3100 - Financial Accounting I  Credits: 3 hours
- ACTY 3220 - Managerial Accounting - Concepts and Practices  Credits: 3 hours
- BCM 4540 - Intercultural Business Communication  Credits: 3 hours
- BUS 3960 - Study Abroad Seminar  Credits: 1 to 6 hours
- CIS 2640 - Business Analytics I  Credits: 3 hours
- CIS 3640 - Business Analytics II  Credits: 3 hours
- CIS 4640 - Business Data Mining  Credits: 3 hours
- EDMM 3050 - Work Analysis  Credits: 3 hours
- EM 5080 - Advanced Quality Management  Credits: 3 hours
- FIN 3100 - Introduction to Financial Markets  Credits: 3 hours
- FIN 4420 - International Finance  Credits: 3 hours
- GEOG 2440 - Economic Geography  Credits: 3 hours
- IEE 5200 - Modern Industrial Practices  Credits: 3 hours
- MGMT 2140 - Exploring Entrepreneurship  Credits: 3 hours
- MKTG 2750 - Global Negotiation  Credits: 3 hours

A major or minor in the following areas (if offered and available): accounting, business analytics, computer information systems, economics, entrepreneurship, finance, food and consumer package goods marketing, foreign language, international business, management, marketing or sales and business marketing.

**Entrepreneurship Minor (ENTN) (15 hours)**

Any undergraduate student at Western Michigan University can complete an Entrepreneurship minor. The minor requires a minimum of fifteen credit hours consisting of three required courses and two approved electives. The student should consult with a designated university-wide entrepreneurship minor advisor at their college prior to enrolling in courses for the minor. It is preferred that a student take electives offered in their college.

**Required Courses**
- MGMT 2140 - Exploring Entrepreneurship  Credits: 3 hours
- FIN 2420 - Entrepreneurial Finance  Credits: 3 hours
- IEE 3010 - Entrepreneurial Engineering II: Product and Service Design  Credits: 3 hours

**Approved Electives**
- MKTG 3600 - Professional Selling  Credits: 3 hours
- MGMT 4140 - Building the Business  Credits: 3 hours
- MGMT 3140 - Small Business Management  Credits: 3 hours
- MGMT 3340 - Business Model Design  Credits: 3 hours
- MGMT 4340 - Family Business Management  Credits: 3 hours
- MGMT 3010 - Project Management  Credits: 3 hours
MGMT 4010 - Project Leadership  Credits: 3 hours
MGMT 4380 - Entrepreneurship Practicum  Credits: 3 hours
FCS 3290 - Promotion in the Merchandising Environment  Credits: 3 hours
FCS 1260 - The Fashion Industry  Credits: 3 hours
FCS 3300 - Entrepreneurship in Family and Consumer Sciences  Credits: 3 hours
IEE 2010 - Entrepreneurial Engineering I: Cost and Financial Analysis  Credits: 3 hours
PADM 2000 - Introduction to Nonprofit Leadership  Credits: 3 hours
PADM 5870 - Fund Raising for Nonprofit Organizations  Credits: 3 hours
PADM 5830 - Grant Writing for Nonprofit Organizations  Credits: 3 hours

**General Business Minor (GBZN) (18 hours)**

Students pursuing the General Business minor must complete at least 33% of all minor courses at WMU. Any student who completes the B.B.A. program requirements will automatically receive a general business minor. Students pursuing a degree other than a B.B.A. degree may minor in General Business by completing the following:

**Required Courses**
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
BUS 1750 - Business Enterprise  Credits: 3 hours
MGMT 2500 - Organizational Behavior  Credits: 3 hours
MKTG 2500 - Marketing Principles  Credits: 3 hours
FIN 3200 - Business Finance  Credits: 3 hours

**OR**
FIN 2420 - Entrepreneurial Finance  Credits: 3 hours

**Elective Courses**
Choose one course (3 credit hours) from the following:
CIS 2700 - Business-Driven Information Technology  Credits: 3 hours
BUS 2200 - Introduction to Global Business  Credits: 3 hours
LAW 3800 - Legal Environment  Credits: 3 hours

**International Business Minor (INTN) (15 hours)**

Contact the Haworth College of Business Advising Office for information on the international-business minor. Students should consult with an international-business faculty advisor prior to enrolling in courses for the minor.

The international-business minor consists of three components:

**Four Business Content Courses (12 hours):**
BCM 4540 - Intercultural Business Communication  Credits: 3 hours
BUS 3960 - Study Abroad Seminar  Credits: 1 to 6 hours  (Credits: 3 hours needed)
ECON 3800 - International Economics  Credits: 3 hours
FIN 4420 - International Finance  Credits: 3 hours
LAW 4840 - International Business Law  Credits: 3 hours
MGMT 4100 - Multinational Management  Credits: 3 hours
MKTG 4750 - International Marketing  Credits: 3 hours

**One Cultural Content Course (3 or 4 hours)**
Courses that qualify are listed below. Other courses taken at an approved study-abroad location or other WMU courses could also meet this requirement. Consult with an international-business advisor to determine if a course not listed below can be used as an elective. Note that courses cannot be counted towards more than one major or minor.

Foreign Language Study (1000, 1010, 2000, 2010)  Credits: 4 hours
ANTH 3560 - Food and Culture   Credits: 3 hours
GEOG 3830 - Geography of Europe   Credits: 3 hours
HIST 3618 - The Cold War to Unification Europe 1945-Present (WI)  Credits: 3 hours

The following courses also satisfy General Education Area III:
ANTH 3470 - Ethnicity/Multiculturalism Credits: 3 hours
GEOG 2440 - Economic Geography Credits: 3 hours

The following courses also satisfy General Education Area IV:
ANTH 3390 - Cultures of Latin America   Credits: 3 hours
ANTH 3400 - Cultures of Asia   Credits: 3 hours
ANTH 3410 - Global Africa Past and Present   Credits: 3 hours
ANTH 3580 - The African Diaspora: Peoples and Cultures   Credits: 3 hours
ARAB 2750 - Life and Culture of the Arabs   Credits: 3 hours
CHIN 2750 - Chinese Life and Culture   Credits: 3 hours
FREN 2750 - Francophone Culture   Credits: 3 hours
GEOG 3810 - South America   Credits: 3 hours
GEOG 3820 - Mexico and the Caribbean   Credits: 3 hours
GEOG 3860 - Geography of Africa   Credits: 3 hours
GEOG 3890 - Monsoon Asia   Credits: 3 hours
GEOG 3900 - China, Japan, and Korea: Lands and Cultures   Credits: 3 hours
HIST 3760 - Modern East Asia   Credits: 3 hours
HIST 3850 - Modern Middle East   Credits: 3 hours
JPNS 2750 - Japanese Life and Culture   Credits: 3 hours

The following course also satisfies General Education Area V:
HIST 3330 - The World since 1945   Credits: 3 hours

Language fluency or a semester of study abroad:
Demonstrated foreign language fluency (successful completion of a foreign language course at the 2010-level or equivalent proficiency).
or
Participation in an approved semester-long study abroad or internship program.
College of Education and Human Development
Deans Office 2301 Sangren Hall

Ming Li
Dean

Christopher Cheatham
Associate Dean of Academic Services

Marcia Fetters
Associate Dean and Director of Teacher Education

Mission
Embracing WMU’s goals to be learner centered, discovery driven, and globally engaged, the College of Education and Human Development is committed to:

- Developing exceptional education and human development professionals who positively impact our global society
- Advancing knowledge through teaching, scholarship, creative works, and service
- Enhancing the university and its stakeholders through transformative field experiences and collaborations

Vision
Be the premier choice for a diverse community of education and human development learners by offering a portfolio of regionally, nationally and internationally recognized programs.

Academic Departments:
Counselor Education and Counseling Psychology
Educational Leadership, Research, and Technology
Family and Consumer Sciences
Human Performance and Health Education
Special Education and Literacy Studies
Teaching, Learning, and Educational Studies

Centers and Offices:
Office of Admissions and Advising
Office of Field Placements
Office of Teacher and Administrator Certification
Center for Counseling and Psychological Services
Merze Tate Grant and Innovation Center
Dorothy J. McGinnis Reading Center and Clinic

Curricula for Teachers
The program for prospective teachers consists of three parts: (1) general education, designed to develop an intellectual foundation of appropriate depth and breadth in liberal arts and general studies; (2) advanced specialized study, in a major and minor or two major field(s) structured to develop a high level of academic competence and understanding; and (3) professional education study organized to prepare teacher candidates to work effectively in schools.

Prospective teachers choose to work toward eligibility for the Michigan Elementary Provisional Certificate (valid for teaching all subjects in grades kindergarten through fifth, all subjects in self-contained classrooms in grades kindergarten through eighth, and major/minor subjects in grades kindergarten through eighth) OR the Michigan Secondary Provisional Certificate (valid for major and minor subjects in grades six through twelve).

The following undergraduate curricula lead to certification and are offered in the College of Education and Human Development: Elementary Education, Secondary Education, and Special Education. Students seeking admission to these curricula must contact the Office of Admissions and Advising, 2421 Sangren Hall.

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Students electing to major in Art, Career and Technical Education, Music, Physical Education, Health Education, and Special Education may be certified to teach in their specialized area in grades K-12 by completing the curriculum and certification requirements.

Students seeking admission to one of the following curricula will work with the appropriate advisor in the College of Fine Arts:

- Art (see School of Art advisor)
- Music (see School of Music for audition)

Teaching certificates are recommended only for those students who satisfactorily complete an approved teacher education program with the required grade point average for their program, meet the Michigan basic skills examination requirement with passing SAT scores or other Michigan Department of Education approved measure, pass the appropriate MTTC subject area test(s), complete a background check and provide any necessary documentation, hold valid CPR and First Aid credentials from an approved agency, and have a bachelor's degree.

**Office of Admissions and Advising**

Main Advising Office
2421 Sangren Hall
(269) 387-3474
[www.wmich.edu/education/advising](http://www.wmich.edu/education/advising)
cedh-advising@wmich.edu

Staff:
Christine Robinson, Director
Carol Morris-Mier, Administrative Assistant II
Jennifer Nitzel, Administrative Assistant I
Derek Andree, Assistant Director
Andrea Bau, Advisor
Stacie Ballard, Advisor
Douglas Engebretsen, Advisor
Amanda Lozier, Advisor
Shannon Myers, Advisor

The Office of Admissions and Advising provides information regarding teacher education curricula and processes applications for admissions to those curricula in the College of Education and Human Development. The office also provides academic advisement for students enrolled in both teaching and human development curricula within the College and advises post-baccalaureate students seeking initial teacher certification and second bachelor’s degrees.

All students seeking admission to teacher education curricula as entering freshmen, transfers, or as students changing curricula must contact the Office of Admissions and Advising. All students declaring a preference for a curriculum leading to a teaching certificate will be assigned a pre-education designator at the time of admission to the University.

Students wishing to enter the **Elementary or Early Childhood Elementary Education** program must meet the following **minimum requirements at the time of application**:

- Completion of at least 35 credit hours
- Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g. MATH 1090, LS 1040, ENGL 1000)
- Completion of an approved college level writing course
- Completion with a grade of "CB" or better ED 2500: Human Development
- Achievement of a cumulative grade point average (GPA) of 3.0 or better
- Achievement of passing scores on the Michigan basic skills examination - see advisor for specific approved test
- Completion of a background check and submission of any necessary additional documentation

Once all of the above requirements have been met, a formal application requesting admission to the program must be submitted to the Office of Admissions and Advising, 2421 Sangren Hall.
Students wishing to enter the **Secondary Education** program must meet the following **minimum requirements at the time of application**:

- Completion of at least 60 credit hours
- Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g. MATH 1090, LS 1040, ENGL 1000)
- Completion of an approved college level writing course
- Completion with a grade of "CB" or better ED 2000: Introduction to American Education
- Achievement of a cumulative grade point average (GPA) of 3.0 or better
- Completion of a background check and submission of any necessary additional documentation
- Once all of the above requirements have been met, a formal application requesting admission to the program must be submitted to the Office of Admissions and Advising, 2421 Sangren Hall.

Students wishing to enter the **Special Education** program must meet the following **minimum requirements at the time of application** (February 1) for consideration - admission to the Special Education program is not guaranteed:

- Completion of 56 hours (Spring semester hours may be counted)
- Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g., MATH 1090, LS 1040, ENGL 1000)
- Completion of an approved college level writing course
- Completion of ED 2500 Human Development: Applications in Education or an approved course, with a grade of “CB” or better
- Achievement of a cumulative grade point average (GPA) of 3.0 or better
- Achievement of passing scores on the Michigan basic skills examination - see advisor for specific approved test
- Completion of a background check and submission of any necessary additional documentation
- Submission of Letter of Intent
- Documentation of thirty clock hours of experience with person(s) with a disability and a current T.B. test.
- Completion of a formal application for admission to Special Education by February 1. **Admission applications will be processed once a year.**

Students wishing to enter the **Physical Education, Health Education or Career and Teacher Education** program must meet the following **minimum requirements at the time of application**:

- Completion of at least 35 credit hours
- Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g. MATH 1090, LS 1040, ENGL 1000)
- Completion of an approved college level writing course
- Completion with a grade of "C" or better ED: 2500 Human Development (for Health Education and Career and Technical Education) or HPHE 2400 (Physical Education)
- Achievement of a cumulative grade point average (GPA) of 2.5 or better
- Achievement of passing scores on the Michigan basic skills examination - see advisor for specific approved test
- Completion of a background check and submission of any necessary additional documentation
- Once all of the above requirements have been met, a formal application requesting admission to the program must be submitted to the Office of Admissions and Advising, 2421 Sangren Hall.

**Teacher Testing**

Public Act 282 (1992) amends Section 1531 of Public Act 451 (1976), as amended by Public Act 267 (1986), mandates the implementation of a teacher certification testing program in Michigan effective July 1, 1992. Under the provisions of this act, all candidates for teacher certification in Michigan must pass a basic skills examination (reading, writing, math) test. Candidates for a secondary certification must pass their subject exam to be certified. Passing the mandatory minor subject exam is optional. Candidates for an elementary certification must pass the elementary certification examination. The Michigan basic skills examination requirement must be passed prior to intern teaching.

This act also requires the passing of appropriate and available test(s) prior to the addition of new subjects or grade-levels endorsements.
Information regarding required teacher testing may be obtained from the Office of Admissions and Advising, 2421 Sangren Hall or the college website.

Appeals
A student aggrieved by an action taken within the College of Education and Human Development has the right to appeal such action by filing an appeal form in the Dean’s Office within twenty-one (21) days of the aggrieved action. Appeals may be reviewed by the Academic and Professional Standards Committee. Information about the appeal procedure is available in the Office of Admission and Advising.

Office of Teacher and Administrator Certification
2421 Sangren Hall
(269) 387-3473
wmich.edu/teachercertification

Staff:
Laura Ciccantell, Certification Officer
Rachel Carlson, Coordinator of Data and Reporting
Nicole Lockwood-Womack, Certification Advisor

The Office of Teacher and Administrator Certification processes recommendations for administrator, counseling, and initial provisional and interim occupational teacher certification. The office provides advising regarding Michigan certification laws, rules and policies, and requirements for additional grade-level and subject endorsements. Michigan certification laws and requirements change frequently. Please see the certification website or contact the certification office for the most current information.

TRIO Future Educator Success Program Office
2302 Sangren Hall
(269) 387-3500
wmich.edu/trio-future-educators

Staff:
M'Myia Hughes, TRIO FESP Director
Toni Latham, Program Services Coordinator
Harmony Williams, Administrative Assistant II

The TRiO Future Educator Success Program is a federally funded grant program that promotes the success of future teachers from Western Michigan University who are first-generation college, income-eligible students or students with disabilities. Services include a robust first year experience, career and graduate school exploration, financial assistance, leadership opportunities, mentorship and more.

Office of Field Placements
2421 Sangren Hall
(269) 387-3466
wmich.edu/internteaching

Staff:
To Be Determined, Director
Katrina Goodall, Coordinator Pre-Internships
Marijo Elwell, Administrative Assistant I

The Office of Field Placements is responsible for the coordination and oversight of all field experiences, including intern teaching associated with teacher education curricula.

Intern Teaching
The following criteria must be met prior to undertaking intern teaching:
- Completion of all required course work.
- Completion of a background check and submission of any necessary additional documentation.
- Proof of having met the GPA and course requirements as conveyed in the student’s course catalog year.
- Recommendation from major and minor departments.
- Completion of methods course(s) in major and/or minor.
- Passing scores on the Professional Readiness Exam.
- Proof of graduation audit.

Students must apply for their internship at least one year prior to the semester in which they plan to complete their intern teaching requirements. Students may not select their placements for intern teaching. Placements are made by the Office of Field Placements based on programmatic needs and are usually within a 30 mile radius from the main campus and/or in designated partnership schools. Students may not enroll in other course work during intern teaching.

Please note: To be recommended for teacher certification, students must achieve at least a grade of “C” in ED 4100: Seminar in Education and “credit” in Intern Teaching, in addition to having met all other requirements for graduation.

**Health and Liability Insurance**

Students engaged in field experiences or intern teaching must give evidence of having health insurance at the time of course enrollment. Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in courses requiring field experiences.

**Dorothy J. McGinnis Reading Center and Clinic**

Deanna Roland, Director
4511 Sangren Hall
(269) 387-3470

The primary purpose of the Dorothy J. McGinnis Reading Center and Clinic is to provide clinical experiences in literacy (reading and writing) assessment and instruction for undergraduate and graduate students enrolled at Western Michigan University who are preparing to work with children (Kindergarten through 12th grade) in literacy instruction. All activities and experiences designed by clinic instructors and students provide literacy assessment, diagnosis, tutoring in one-on-one or small class, and coaching in a clinical setting. Additional services the Reading Center offers are consultative literacy workshops and seminars for teachers, schools, and organizations in southwestern Michigan. The Reading Center also houses a library, serving educators and children in the community with a large collection of children and young adult literature for use in all content areas. Furthermore, the clinic provides students in education an opportunity to observe and participate in the administration of educational and clinical assessments, and the procedures employed in interviewing children, parents as well as procedures in interviewing children, parents, and school personnel. Also, the center serves as a partner to various educational organizations and schools in the community and provides literacy enrichment experiences for families and youth, including summer programs. See Department of Special Education and Literacy Studies course listings for reading courses offered.
Counselor Education and Counseling Psychology
Patrick H. Munley, Chair
Main Office: 3521 Sangren
Telephone: (269) 387-5100
Fax: (269) 387-5090

Carla R. Adkison-Johnson
Mary L. Anderson
Mary Z. Anderson
Samuel T. Beasley
Stephanie Burns
Stephen E. Craig
Jennifer M. Foster
Kelley R. Holladay
Alan J. Hovestadt
Phillip D. Johnson
Kelly A. McDonnell
Jerry E. McLaughlin
Joseph R. Morris
Glinda Rawls
Eric M. Sauer
Beverly Vandiver
Jennipher Wiebold

The Department of Counselor Education and Counseling Psychology offers professional education in the field of counseling psychology and in the following concentrations in counselor education: college counseling; clinical mental health counseling; marriage, couple and family counseling; school counseling; rehabilitation counseling and teaching. Most of the courses are open to graduate students only, but some courses are open to qualified undergraduates.
The mission of the Department of Family and Consumer Sciences is to provide integrative educational programs and conduct research focused on reciprocal relationships among individuals, families, and their near environments toward the goal of improving the quality of life within a dynamic world community.

Curricula offered in the department include:
- Child and Family Development
- Dietetics
- Family and Consumer Sciences Teacher Education
- Family Studies
- Food Service Administration
- Industrial Technology Education
- Interior Design
- Occupational Education Studies
- Business Education
- Secondary Education in Marketing
- Fashion Merchandising and Design: Merchandising
- Fashion Merchandising and Design: Design and Development

Minors offered in the department include:
- Family Science
- Fashion Merchandising
- Industrial Technology Education
- Workforce Education and Development
- Secondary Education in Marketing
- Vocational-Technical
  - Drafting
  - Graphic Arts

Academic Advising
College of Education and Human Development Undergraduate Advising
Advisors are available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, and help solve academic problems. Careful and regular planning with an advisor is critical to program completion in a timely manner. Substitutions and transfer credit must be approved by a faculty member in the major or the department chair.

**Work Experience Programs**
Programs offered in child and family development, dietetics, family studies, food service administration, interior design, and textile and apparel studies are designed to develop occupational competencies in their respective areas. These programs, which are sponsored jointly with businesses and agencies, provide students with an opportunity to complete a four-year program leading to a Bachelor of Science degree.

**Career and Technical Education Curricula**
Career and technical education is a curriculum that prepares students to qualify as teachers in Michigan middle and junior high schools, secondary high schools, and area technical centers in non-vocational and vocational education subject areas.

Areas of career and technical education offered by the department that do not require vocational endorsements include majors in industrial technology education, and secondary education in business, as well as minors in industrial technology and family life education. The program requirements are listed below under Non-Vocational Majors and Minors.

Areas of career and technical education offered by the department that require vocational endorsements include majors in family and consumer sciences education, secondary education in business, and second technical education, as well as minors in occupational child care, occupational foods, secondary education in marketing, and vocational-technical (drafting and graphic arts).

**Non-Vocational Majors**
The requirements for each of the two non-vocational majors are described within the programs. The non-vocational majors are Industrial Technology Education and Secondary Education in Business.

**Vocational Minors**
The requirements for each of the vocational minors are described within the programs. The vocational minors are Secondary Education in Marketing, and Vocational-Technical (Drafting and Graphic Arts).

Majors in non-vocational teacher preparation programs may also earn one of the vocational minors in consultation with the advisor.

**Child and Family Development (122 hours)**
The Child and Family Development major prepares individuals to work with infants, toddlers, preschoolers, school-age children, and their families in a variety of settings. Students explore relationships among children, families and their environment and culture with the goal of improving quality of life within communities and society at large. This program meets State of Michigan requirements for childcare center directors. It is not meant to provide Michigan Teacher Certification.

The Child and Family Development major includes knowledge about human growth and development; parent education; family dynamics; societal factors that influence family life; human sexuality; interpersonal relationships; family resource management; family law and public policy; and ethics. Students graduate with a solid understanding and knowledge of how to teach and/or develop curriculum for what are often sensitive and personal issues.

Graduates of this program are eligible to be granted provisional status as a Certified Family Life Educator (CFLE) by the National Council on Family Relations. Graduates with this major hold positions such as parent educators, child life specialists, and early childhood educators in school readiness programs, child development centers, youth and community programs, and alternate education settings.
Classes in this major are available in three formats: entirely online, online/hybrid (completed primarily online with periodic, required, on-campus sessions), or on-campus (completed in-class at the main campus).

1. General Education Requirements (37 hours)

2. Required Core Family Science Courses (36 hours)  
Grade of "C" or better is required in Core Family Science Courses.  
FCS 1010 - Introduction to Family Science  Credits: 3 hours  
FCS 1030 - Lifespan Development  Credits: 3 hours  
FCS 2100 - Human Sexuality  Credits: 3 hours  
FCS 2170 - Diverse Children, Families, and Communities  Credits: 3 hours  
FCS 2190 - Principles of Research in Family Science  Credits: 3 hours  
FCS 3170 - Crisis and Resiliency in Families  Credits: 3 hours  
FCS 3180 - Intimate Relationships: Friends, Family, and Marriage  Credits: 3 hours  
FCS 4120 - Family Policy  Credits: 3 hours  
FCS 4150 - Effective Parenting  Credits: 3 hours  
(Students will satisfy the Baccalaureate-level Writing requirement by successfully completing FCS 4150.)  
FCS 4190 - Teaching Family Life Education  Credits: 3 hours  
FCS 4290 - Internship  Credits: 2 to 6 hours  
(6 credit hours total are required)

3. Required Child & Family Development Courses (20 hours)  
Grade of "C" or better is required in Child and Family Development Courses.  
FCS 2020 - Field Experience  Credits: 1 to 3 hours  
(2 credit hours total are required)  
FCS 2090 - Family Resource Management  Credits: 3 hours  
FCS 2140 - Child Development  Credits: 3 hours  
FCS 2250 - Computer Applications  Credits: 3 hours  
FCS 3140 - Infant and Toddler Development  Credits: 3 hours  
FCS 3160 - Early Childhood Assessment and Curricula  Credits: 3 hours  
FCS 3190 - Administration of Programs for Young Children  Credits: 3 hours

4. Required Related Courses (3 hours)  
COM 1040 - Public Speaking  Credits: 3 hours

Dietetics

The Didactic Program in Dietetics (DPD) leads to a Bachelor of Science degree and is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics. Based on data from the U.S. Bureau of Labor Statistics Occupational Outlook (2014), "Employment of dietitians and nutritionists is projected to grow 21 percent from 2012 to 2022, faster than the average for all occupations. The role of food in preventing and treating illnesses, such as diabetes, is now well known. More dietitians and nutritionists will be needed to provide care for patients with various chronic medical conditions and to advise people who want to improve their overall health."

Program graduates are eligible to apply for post-graduate internship programs. Graduates must complete the internship and pass the registration examination for dietitians in order to qualify for certification as Registered Dietitian (R.D.). Students apply for admission to internships during the last semester of their senior year or after graduation. Appointment to internships is competitive. Students are selected on the basis of a variety of criteria including, grade point average (GPA), work and volunteer experience, and recommendation letters. Most dietetic internships require that applicants have a GPA of at least 3.0. After registration, the dietitian is eligible for positions in: hospitals such as clinical dietitian or director of food and nutrition services; commercial food establishments such as restaurants, hotels and industrial facilities; schools, colleges, universities and the armed forces; community health agencies. For more information on career opportunities in dietetics visit www.eatright.org.
Students applying to the professional component (years 3 and 4) of the DPD must be admitted to Western Michigan University prior to applying to the Dietetics program. Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. See the University website at www.wmich.edu.

Admission Requirements
All students are initially admitted to the pre-dietetics program. They apply for admission to the professional component of the dietetics program (years 3 and 4) once all required pre-dietetics courses have been completed. The admission criteria and application procedures are described below.

Transfer students applying to the professional component (years 3 and 4) of the DPD must be admitted to Western Michigan University prior to applying to the Dietetics program. Only the Office of Admission and Orientation grants admission to Western Michigan University for undergraduate students. See the University website at www.wmich.edu.

Minimum Admission Requirements
1. Attainment of a cumulative GPA of 3.0 or above on a 4.0 scale.
2. Completion of required courses or the equivalent under pre-dietetics with no grade lower than a “C” in any of the following courses: ENGL 1050, BIOS 1120, CHEM 1100/1110, FCS 2600, CHEM 1120/1130. BIOS 2400, BIOS 2320, BIOS 3700/3710.
3. Completion of the majority (70%) of WMU general education requirements is strongly suggested prior to applying to the dietetics program.
4. Completion of a letter of application stating reasons for selecting dietetics as a career and short- and long-term professional goals.

Admission Process
Applicants must complete the DPD application form and write a letter of application. Applications will not be reviewed until all application materials have been received. The application deadline is September 15 of each academic year. All applications are reviewed and admission determined by the DPD selection committee, consisting of full-time and part-time DPD faculty. Applications may be obtained online.

Applicants should include the following:
1. A completed DPD application form.
2. Official transcripts from all Universities and colleges attended, and student copies of WMU transcripts.
3. A word-processed letter of application (maximum length 1 1/2 pages in font size 12 and double spaced) stating reasons for selecting dietetics as a career and short- and long-term professional goals.
4. A non-refundable application fee of $20 (make check payable to the Department of Family and Consumer Sciences).
5. Please place all materials in an envelope and send to the address below.

Note: Some practicum sites may require background checks, drug screening tests and/or vaccinations such as TB screening. It is the student's responsibility to provide evidence that these requirements have been met.

Application materials should be sent to:
College of Education and Human Development Admissions and Advising Office
2421 Sangren Hall
Western Michigan University
1903 W. Michigan Ave.
Kalamazoo, MI 49008-5275

Pre-Dietetics Required Courses:
MATH 1110 - Algebra II  Credits: 3 hours
FCS 1000 - Career Seminar  Credits: 1 to 2 hours, Credits: 1 hour required
ENGL 1050 - Thought and Writing  Credits: 4 hours
BIOS 1120 - Principles of Biology  Credits: 3 hours
COM 1700 - Interpersonal Communication  Credits: 3 hours
PSY 1000 - General Psychology  Credits: 3 hours
CHEM 1100 - General Chemistry I  Credits: 3 hours and
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
SOC 2000 - Principles of Sociology  Credits: 3 hours
FCS 1650 - Culinary Skills  Credits: 3 hours
CHEM 1120 - General Chemistry II  Credits: 3 hours and
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
BIOS 2400 - Human Physiology  Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours
FCS 2600 - Nutrition  Credits: 3 hours
CHEM 3700 - Introduction to Organic Chemistry  Credits: 3 hours and
CHEM 3710 - Introduction to Organic Chemistry Lab  Credits: 1 hour
FCS 2250 - Computer Applications  Credits: 3 hours
OR
CIS 1020 - Introduction to Business Computing  Credits: 3 hours

In addition, applicants must have completed approximately 70% of University’s General Education Requirements. Note: Some of the required pre-dietetics courses fulfill the General Education Requirements of the University (PLEASE SEE THE RECOMMENDED COURSE SEQUENCE FOR THE DIETETICS CURRICULUM). Please schedule a conference with an academic advisor in the College of Education and Human Development’s Advising Office for more information about the University’s General Education and graduation requirements. For more information about the dietetics curriculum, admission to internships, and registration examination, please contact the program director, Dr. Arezoo Rojhani (arezoo.rojhani@wmich.edu).

Dietetics Curriculum Recommended Course Sequence

First Year Pre-Dietetics (courses listed by semester):
Fall semester (15 hours)
General Education  Credits: 4 hours
MATH 1110 - Algebra II  Credits: 3 hours
FCS 1000 - Career Seminar  Credits: 1 to 2 hours, Credits: 1 hour required
ENGL 1050 - Thought and Writing  Credits: 4 hours
With a grade of “C” or better. Satisfies General Education Proficiency 1.
BIOS 1120 - Principles of Biology  Credits: 3 hours
With a grade of “C” or better.

Spring semester (16 hours)
COM 1700 - Interpersonal Communication  Credits: 3 hours
Satisfies General Education Proficiency 4.
PSY 1000 - General Psychology  Credits: 3 hours
Satisfies General Education Area V.
CHEM 1100 - General Chemistry I  Credits: 3 hours
With a grade of “C” or better. Satisfies General Education Area VI.
AND
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
With a grade of “C” or better. Satisfies General Education Area VI.
SOC 2000 - Principles of Sociology  Credits: 3 hours
Satisfies General Education Area V.
FCS 1650 - Culinary Skills  Credits: 3 hours

Second Year Pre-Dietetics (courses listed by semester):
Fall semester (14 hours)
General Education  Credits: 3 hours
CHEM 1120 - General Chemistry II  Credits: 3 hours
With a grade of “C” or better.
AND
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
With a grade of “C” or better.
BIOS 2400 - Human Physiology  Credits: 4 hours
With a grade of “C” or better.
FCS 2250 - Computer Applications  Credits: 3 hours
OR
CIS 1020 - Introduction to Business Computing  Credits: 3 hours
Satisfies General Education Area VII.

Spring semester (15 hours)
General Education  Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours
With a grade of “C” or better.
FCS 2600 - Nutrition  Credits: 3 hours
With a grade of “C” or better.
CHEM 3700 - Introduction to Organic Chemistry  Credits: 3 hours
With a grade of “C” or better.
AND
CHEM 3710 - Introduction to Organic Chemistry Lab  Credits: 1 hour
With a grade of “C” or better.

Third Year Dietetics (courses listed by semester):
Fall semester (16 hours)
General Education  Credits: 3 hours
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours
PHIL 3340 - Biomedical Ethics  Credits: 4 hours
Satisfies General Education Area VII.
FCS 3150 - Global Ecology of the Family  Credits: 3 hours
Satisfies General Education Area IV.
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours
Satisfies General Education Proficiency 3.

Spring semester (16 hours)
Elective  Credits: 3 hours
FCS 3460 - Nutrition Education and Counseling  Credits: 3 hours
FCS 3600 - Lifespan Nutrition  Credits: 3 hours
FCS 3650 - Understanding Research in Dietetics  Credits: 3 hours
FCS 3680 - Quantity Foods  Credits: 4 hours

Fourth Year Dietetics (courses listed by semester):
Fall semester (14 hours)
FCS 4600 - Medical Nutrition Therapy I  Credits: 4 hours
FCS 4630 - Medical Nutrition Therapy Laboratory I  Credits: 1 hour
FCS 4620 - Community Nutrition  Credits: 3 hours
FCS 4670 - Professional Issues in Dietetics  Credits: 2 hours
FCS 4680 - Advanced and Experimental Foods  Credits: 4 hours

Spring semester (15 hours)
Elective  Credits: 3 hours
FCS 4610 - Medical Nutrition Therapy II  Credits: 4 hours
FCS 4640 - Medical Nutrition Therapy Laboratory II  Credits: 1 hour
FCS 4660 - Institutional Management  Credits: 4 hours
FCS 4690 - Nutrient Metabolism  Credits: 3 hours

Total Credit Hours for Program: 101 hours
Total Credit Hours for Graduation: 122 hours
Number of weeks in semester excluding examination time: 14 weeks
A Minimum of 122 Hours is Required for the Dietetics program (DIDJ).

1. General Education Requirements (37 hours)

2. Required Core Courses (46 hours). With a grade of “C” or better.
   FCS 1000 - Career Seminar Credits: 1 to 2 hours Credits: 1 hour
   FCS 1650 - Culinary Skills Credits: 3 hours
   FCS 2600 - Nutrition Credits: 3 hours
   FCS 3460 - Nutrition Education and Counseling Credits: 3 hours
   FCS 3600 - Lifespan Nutrition Credits: 3 hours
   FCS 3650 - Understanding Research in Dietetics Credits: 3 hours
   FCS 3680 - Quantity Foods Credits: 4 hours
   FCS 4600 - Medical Nutrition Therapy I Credits: 4 hours
   FCS 4610 - Medical Nutrition Therapy II Credits: 4 hours
   FCS 4620 - Community Nutrition Credits: 3 hours
   FCS 4630 - Medical Nutrition Therapy Laboratory I Credits: 1 hour
   FCS 4640 - Medical Nutrition Therapy Laboratory II Credits: 1 hour
   FCS 4660 - Institutional Management Credits: 4 hours
   FCS 4670 - Professional Issues in Dietetics Credits: 2 hours
   FCS 4680 - Advanced and Experimental Foods Credits: 4 hours
   Students in the dietetics major will satisfy the Baccalaureate Writing requirement by successfully completing FCS 4680.
   FCS 4690 - Nutrient Metabolism Credits: 3 hours

3. Required Related Courses (30 hours). With a grade of “C” or better.
   COM 1700 - Interpersonal Communication Credits: 3 hours
   ENGL 1050 - Thought and Writing Credits: 4 hours
   FCS 3150 - Global Ecology of the Family Credits: 3 hours
   MATH 1110 - Algebra II Credits: 3 hours
   PHIL 3340 - Biomedical Ethics Credits: 4 hours
   PSY 1000 - General Psychology Credits: 3 hours
   SOC 2000 - Principles of Sociology Credits: 3 hours
   STAT 3660 - Data Analysis for Biosciences Credits: 4 hours
   FCS 2250 - Computer Applications Credits: 3 hours
   OR
   CIS 1020 - Introduction to Business Computing Credits: 3 hours

4. Science Courses (26 hours). With a grade of “C” or better.
   BIOS 1120 - Principles of Biology Credits: 3 hours
   BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
   BIOS 2400 - Human Physiology Credits: 4 hours
   CHEM 1100 - General Chemistry I Credits: 3 hours and
   CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
   CHEM 1120 - General Chemistry II Credits: 3 hours and
   CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
   CHEM 3550 - Introductory Biochemistry Credits: 3 hours
   CHEM 3700 - Introduction to Organic Chemistry Credits: 3 hours and
   CHEM 3710 - Introduction to Organic Chemistry Lab Credits: 1 hour

5. Electives - As needed for graduation total of 122 hours.

**Family Studies (122 hours)**
The Family Studies major prepares students to use preventive and educational approaches in a variety of settings to strengthen individual and family well-being across the life span. Students explore relationships among individuals, families and their environment and culture with the goal of improving quality of life within communities and society at large.

The Family Studies major provides skills and knowledge to enrich individual and family life. It includes knowledge about how families work, the interrelationship of families and society, human growth and development throughout the lifespan, parent education, human sexuality, family resource management, the effects of policy and legislation on families, ethical considerations in professional conduct, and a solid understanding and knowledge of how to teach and/or develop curriculum for what are often sensitive and personal issues.

Graduates of the program are eligible to be granted provisional status as a Certified Family Life Educator (CFLE) by the National Council on Family Relations. Recent graduates hold positions such as sexuality educators, caseworkers, family court workers, substance abuse assessment specialists, and volunteer and activity directors in state government, community programs, and public and private agencies.

Classes in this major are available in three formats: entirely online, online/hybrid (completed primarily online with periodic, required, on-campus sessions), or on-campus (completed in-class at the main campus).

1. General Education Requirements (37 hours)

2. Required Core Family Science Courses (36 hours)

Grade of "C" or better is required in Core Family Science Courses.

- FCS 1010 - Introduction to Family Science Credits: 3 hours
- FCS 1030 - Lifespan Development Credits: 3 hours
- FCS 2100 - Human Sexuality Credits: 3 hours
- FCS 2170 - Diverse Children, Families, and Communities Credits: 3 hours
- FCS 2190 - Principles of Research in Family Science Credits: 3 hours
- FCS 3170 - Crisis and Resiliency in Families Credits: 3 hours
- FCS 3180 - Intimate Relationships: Friends, Family, and Marriage Credits: 3 hours
- FCS 4120 - Family Policy Credits: 3 hours
- FCS 4150 - Effective Parenting Credits: 3 hours

(Students will satisfy the Baccalaureate-level Writing requirement by successfully completing FCS 4150.)

- FCS 4190 - Teaching Family Life Education Credits: 3 hours
- FCS 4290 – Internship Credits: 2 to 6 hours

(6 credit hours total are required)

3. Required Family Studies Courses (17 hours)

Grade of "C" or better is required in Family Studies Courses.

- FCS 2020 - Field Experience Credits: 1 to 3 hours
- FCS 2090 - Family Resource Management Credits: 3 hours

(2 credit hours total are required)

- FCS 2250 - Computer Applications Credits: 3 hours
- FCS 2660 - Personal Nutrition Credits: 3 hours
- FCS 3150 - Global Ecology of the Family Credits: 3 hours
- FCS 4130 - Later Life Family Relationships Credits: 3 hours

4. Required Related Courses (3 hours):

- COM 1040 - Public Speaking Credits: 3 hours

5. Suggested Elective Courses (NOT REQUIRED):

As needed for graduation total of 122 hours.

- FCS 2050 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours
- FCS 2140 - Child Development Credits: 3 hours
- FCS 2150 - Adolescent Development Credits: 3 hours
- FCS 3140 - Infant and Toddler Development Credits: 3 hours
- FCS 4130 - Later Life Family Relationships Credits: 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FCS 5100</td>
<td>Teaching Sexuality Education</td>
<td>3 hours</td>
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<tr>
<td>FCS 5110</td>
<td>Kinship Care Family Members: Strengths and Challenges</td>
<td>3 hours</td>
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<tr>
<td>FCS 5220</td>
<td>Topics in Family and Consumer Sciences</td>
<td>1 to 3 hours</td>
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<tr>
<td>FCS 5350</td>
<td>Communication Skills for Working with Families Across the Lifespan</td>
<td>3 hours</td>
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<tr>
<td>FCS 5500</td>
<td>Raising Children in Contemporary Society</td>
<td>3 hours</td>
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<tr>
<td>ADA 2250</td>
<td>Drug Use: Personal and Social Impact</td>
<td>3 hours</td>
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<tr>
<td>COM 4750</td>
<td>Family Communication</td>
<td>3 hours</td>
</tr>
<tr>
<td>GWS 3200</td>
<td>Women, Globalization and Social Change</td>
<td>3 hours</td>
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<tr>
<td>PADM 2000</td>
<td>Introduction to Nonprofit Leadership</td>
<td>3 hours</td>
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<tr>
<td>SOC 2600</td>
<td>Introduction to Criminal Justice</td>
<td>3 hours</td>
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<tr>
<td>SOC 4540</td>
<td>Juvenile Delinquency</td>
<td>3 hours</td>
</tr>
<tr>
<td>SWRK 2100</td>
<td>Social Work Services and Professional Roles</td>
<td>3 hours</td>
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</tbody>
</table>

### Food Service Operations and Sustainability

The Food Service Operations and Sustainability curriculum is scientifically oriented for in depth study of foods in relation to the business field. Students may pursue supervisory/managerial careers in hospitals, extended care facilities, school systems, hotel or restaurant food services, industrial food services, food service companies that sell food and equipment and governmental food and health agencies.

A minimum of 122 hours is required for this curriculum.

1. General Education Requirements (37 hours)

2. Required FCS Courses (44 hours)
   - FCS 1020 - Introduction to the Food Service Industry: 2 hours
   - FCS 1650 - Culinary Skills: 3 hours
   - FCS 2020 - Field Experience: 1 to 3 hours
   - FCS 2660 - Personal Nutrition: 3 hours
   - FCS 2700 - Advanced Culinary Skills and Food Service: 4 hours
   - FCS 2720 - Food Purchasing and Resource Management: 3 hours
   - FCS 3300 - Entrepreneurship in Family and Consumer Sciences: 3 hours
   (Students in the Food Service Administration major will satisfy the Baccalaureate-Level Writing requirement by successfully completing FCS 3300.)
   - FCS 3680 - Quantity Foods: 4 hours
   - FCS 3700 - Introduction to Food Systems and Sustainability: 3 hours
   - FCS 4290 - Internship: 2 to 6 hours
   - FCS 4660 - Institutional Management: 4 hours
   - FCS 4700 - Food and Beverage Systems: 3 hours
   - FCS 4720 - Farm to Table and Sustainability: 3 hours
   - FCS 4740 - Global Food Systems and Sustainability: 3 hours

3. Required Related Courses (41 hours)
   - Select one:
     - BIOS 1120 - Principles of Biology: 3 hours
     - BIOS 1100 - Biological Sciences Laboratory: 1 hour
     - BIOS 1980 - Human Form and Function: 4 hours
     - BIOS 2320 - Microbiology and Infectious Diseases: 4 hours
     - ECON 2010 - Principles of Microeconomics: 3 hours

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ECON 2020 - Principles of Macroeconomics  Credits: 3 hours
MATH 1160 - Finite Mathematics with Applications  Credits: 3 hours
PSY 1000 - General Psychology  Credits: 3 hours
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
ACTY 2110 - Principles of Accounting II  Credits: 3 hours
BUS 1750 - Business Enterprise  Credits: 3 hours
MGMT 2500 - Organizational Behavior  Credits: 3 hours
MKTG 2500 - Marketing Principles  Credits: 3 hours
SOC 2000 - Principles of Sociology  Credits: 3 hours

And
Select one:
COM 1700 - Interpersonal Communication  Credits: 3 hours
or
COM 1000 - Communication and Community Engagement  Credits: 3 hours
or
COM 1040 - Public Speaking  Credits: 3 hours

4. Related Elective Courses (choose a minimum of 20 hours)
BIOS 2400 - Human Physiology  Credits: 4 hours
CHEM 1100 - General Chemistry I  Credits: 3 hours
and
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
CHEM 1120 - General Chemistry II  Credits: 3 hours
and
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry  Credits: 3 hours
and
CHEM 3710 - Introduction to Organic Chemistry Lab  Credits: 1 hour
COM 2000 - Human Communication Theory  Credits: 3 hours
COM 2800 - Introduction to Organizational Communication  Credits: 3 hours
COM 1040 - Public Speaking  Credits: 3 hours
CIS 2700 - Business-Driven Information Technology  Credits: 3 hours
CIS 1020 - Introduction to Business Computing  Credits: 3 hours
or
FCS 2250 - Computer Applications  Credits: 3 hours
ECON 3040 - The Organization of Industries  Credits: 3 hours
ECON 3190 - Environmental Economics  Credits: 3 hours
ECON 3200 - Money and Banking  Credits: 3 hours
ECON 4000 - Managerial Economics  Credits: 3 hours
ENVS 3000 - Introduction to Sustainability: A Local to Global Survey  Credits: 3 hours
FIN 2420 - Entrepreneurial Finance  Credits: 3 hours
FIN 3200 - Business Finance  Credits: 3 hours
GEOG 3200 - Culinary Tourism  Credits: 3 hours
HPHE 1700 - Introduction to Recreation/Sport Management  Credits: 3 hours
HPHE 2100 - Event Strategic Planning for Special Events  Credits: 3 hours
HPHE 3100 - Event Management Advanced Applications  Credits: 3 hours
HPHE 3110 - Event Marketing  Credits: 3 hours
LAW 3800 - Legal Environment  Credits: 3 hours
MGMT 2520 - Human Resource Management  Credits: 3 hours
MGMT 2800 - Introduction to Supply Management  Credits: 3 hours
MGMT 3010 - Project Management  Credits: 3 hours
MGMT 3140 - Small Business Management  Credits: 3 hours
MGMT 3200 - Managing ERP Systems  Credits: 3 hours
MGMT 4040 - Business and Society  Credits: 3 hours
MKTG 2900 - Introduction to Food and CPG Industries  Credits: 3 hours
MKTG 3720 - Sourcing and Purchasing  Credits: 3 hours
MKTG 3730 - Digital and Social Media Marketing  Credits: 3 hours
MKTG 3740 - Advertising and Promotion  Credits: 3 hours
MKTG 4740 - Creative Strategy  Credits: 3 hours
PADM 2000 - Introduction to Nonprofit Leadership  Credits: 3 hours
PHIL 2010 - Introduction to Ethics  Credits: 4 hours
PHIL 2200 - Critical Thinking  Credits: 3 hours
PHIL 3140 - Philosophy and Public Affairs  Credits: 3 hours
PHIL 4100 - Professional Ethics  Credits: 3 hours
PHIL 5440 - Practical Ethics  Credits: 3 hours
PSY 3440 - Organizational Psychology  Credits: 3 hours
STAT 2160 - Business Statistics  Credits: 3 hours
or
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours

5. Electives - As needed for graduation total of 122 hours.

**Interior Design**

The interior design program provides integrative learning through a multi-disciplinary course of study that includes courses in art, business, communications and interior design. Students are encouraged to combine a major in interior design with a minor in marketing, management, art, or communications. Graduates are employed in interior design firms, architectural firms, interior/facilities management divisions of large corporations, home furnishings retail, institutional and commercial furnishings, marketing positions and showroom management.

Most of the interior design courses are in the studio format where students integrate a variety of subjects to solve complex design problems. At the heart of the interior design program is the goal that students will understand human interaction with the environment to enhance quality of life. Students focus on the reciprocal relationships of humans and their interior environments.

The program is accredited by CIDA (Council for Interior Design Accreditation) and by NASAD (National Association of Schools of Art and Design).

**Admission Requirements**

Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Students may be admitted to the university as pre-interior design majors. Application forms may be obtained from that office or the University's website at [www.wmich.edu](http://www.wmich.edu).

**Portfolio Review Requirement**

During their fourth semester in the program, students in the PRE-ITD program will submit to a portfolio review, held annually toward the end of the spring semester, which is the basis for selective admission to the upper division of the curriculum. The purpose of the review is to encourage excellence in design and recognize those students best prepared for the challenge of the upper-level interior design sequence of courses.

To apply for the portfolio review:

1. Students must complete the following courses:
   FCS 1490 - Design Communication I: Architectural Drawing  Credits: 3 hours
   FCS 1500 - Introduction to Interior Design  Credits: 3 hours
   FCS 1560 - Introduction to Design Theory and History  Credits: 3 hours
   FCS 1570 - Sketching for Interior Designers  Credits: 3 hours
   FCS 2200 - Textiles  Credits: 3 hours
   FCS 2490 - Residential Architectural Design  Credits: 3 hours
   FCS 2510 - Period Interiors I  Credits: 3 hours

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FCS 2560 – Materials for Interiors: Soft Finishes Credits: 3 hours

2. The courses listed above must be completed with an average grade of 3.0.

3. The University overall grade point average must be no less than 2.5.

4. To receive acceptance into the upper-level sequence of course, students must have completed or be enrolled in the following courses at the time of the portfolio review. All program required courses must be completed with an average grade of 3.0.
   FCS 2500 - Interiors CADD Applications   Credits: 3 hours
   FCS 2520 - Period Interiors II   Credits: 3 hours
   FCS 2540 – Materials for Interiors: Hard Finishes Credits: 3 hours
   FCS 2590 - Studio I   Credits: 3 hours

5. The review will consist of a 20-minute presentation by the student to the Interior Design faculty. The student will submit a statement detailing why they are interested in the field of interior design and what they perceive to be their strengths and weaknesses as a student of design. Application materials will also include an essay (topic to be selected by the faculty) and student portfolio materials showing their abilities in 2D and 3D design, drafting, free hand drawing, etc.

Up to eighteen (18) students will be selected from the portfolio review applicants each year to continue in the upper-level in the interior design program. Students who are denied advancement may retake courses or redo projects before reapplying for portfolio review the following spring semester.

A Minimum of 122 Hours is Required for this Curriculum

1. General Education/Liberal Arts Requirements (37 hours)

2. Required Core Courses (65 hours)
   FCS 1490 – Introduction to Architectural Drawing   Credits: 3 hours
   FCS 1500 - Introduction to Interior Design   Credits: 3 hours
   FCS 1560 - Introduction to Design Theory and History   Credits: 3 hours
   FCS 1570 - Sketching for Interior Designers   Credits: 3 hours
   FCS 2020 - Field Experience   Credits: 1 to 3 hours, Credits: 3 hours required
   FCS 2200 - Textiles   Credits: 3 hours
   FCS 2490 - Residential Architectural Design   Credits: 3 hours
   FCS 2500 - Interiors CADD Applications   Credits: 3 hours
   FCS 2510 - Period Interiors I   Credits: 3 hours
   FCS 2520 - Period Interiors II   Credits: 3 hours
   FCS 2540 - Materials for Interiors: Hard Finishes   Credits: 3 hours
   FCS 2560 - Materials for Interiors: Soft Finishes   Credits: 3 hours
   FCS 2590 - Studio I   Credits: 3 hours
   FCS 3510 - Studio II   Credits: 3 hours
   FCS 3520 - Professional Practices   Credits: 3 hours
   FCS 3530 – Introduction to the Construction Environment   Credits: 3 hours
   FCS 3540 - Lighting for Interiors   Credits: 3 hours
   FCS 3550 - 3D Computer Visualization   Credits: 3 hours
   FCS 3590 - Studio III   Credits: 3 hours
   FCS 4510 - Studio IV   Credits: 4 hours
   FCS 4590 - Studio V   Credits: 4 hours

3. Required Related Courses (31 hours)
   ACTY 2100 - Principles of Accounting I   Credits: 3 hours
   ART 1080 - Form and Space   Credits: 3 hours
   ART 2200 - History of Art   Credits: 3 hours

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ART 2210 - History of Art   Credits: 3 hours
ART 2450 - Graphic Design-Non BFA in Graphic Design   Credits: 3 hours
COM 1040 - Public Speaking   Credits: 3 hours
ENGL 1050 - Thought and Writing   Credits: 4 hours
MGMT 2500 - Organizational Behavior   Credits: 3 hours
MKTG 2500 - Marketing Principles   Credits: 3 hours
Either
CIS 1020 - Introduction to Business Computing   Credits: 3 hours
or
FCS 2250 - Computer Applications   Credits: 3 hours
4. Electives - As needed for graduation total of 122 hours

Occupational Education Studies

This Bachelor of Science program is designed for those who wish to become a certified teacher in a technical/occupational subject area. The program leads to a state of Michigan Secondary Provisional Certificate with a vocational endorsement. The program appeals to individuals desiring to teach technical/occupational subjects in comprehensive high schools, trade academies, area career and technical centers. The Office of Teacher Certification within the College of Education and Human Development processes all recommendations for certification and advises students seeking additional teaching endorsements.

Admission Requirements
In addition to the regular University admission requirements, applicants to this program must also meet the following prerequisites required for all degree candidates recommended for teaching certification by the College of Education and Human Development at the time of application:
1. Complete ED 2500 Human Development: Applications in Education or an approved course with a grade of “C” or better;
2. possess a cumulative grade point average of 2.5 or higher; and,
3. achieve passing scores of the Michigan Test for Teacher Certification (MTTC)-Basic Skills Test.

When admission has been granted, the Office of Admissions and Advising will prepare a credit evaluation which will enable the advisor to prepare a program outline prior to the first registration.

Program Requirements For Occupational Education Studies

1. Complete a teachable major:
A minimum of 30 hours in a teachable technical/occupational program of study, which is approved by the Michigan Department of Education for the OES program and completed at one of the collaborating Michigan community colleges. If an approved program of study was not followed at a Michigan community college, the passing scores of the Michigan Occupational Competency Assessment Center (MOCAC) must be submitted.

2. Complete a teachable minor:
A minimum of 20 hours in a teaching minor sequence for Secondary Education Curriculum approved in consultation with a university advisor.

3. Complete work experience:
A minimum of 4,000 hours of recent and relevant work experience required in the teachable major.

4. Complete the following 21 hours of Professional Education Courses:
WFED 3050 - Career and Employability Skills   Credits: 3 hours
WFED 3480 - Student Assessment and Management   Credits: 3 hours
WFED 5100 - Special Populations in Career and Technical Education   Credits: 3 hours
WFED 5120 - Principles of Workforce Education and Development   Credits: 3 hours
WFED 5130 - Teaching Methods in Workforce Education and Development   Credits: 3 hours
WFED 5420 - Curriculum Development in Workforce Education and Development  Credits: 3 hours
LS 3050 - K-12 Content Area Literacy  Credits: 3 hours

5. Complete the following 12 hours internship and seminar courses:
CTE Seminar in Education  Credits: 2 hours
CTE Intern Teaching in CTE  Credits: 10 hours

Business Education

The Business Education major is designed to prepare teachers for business education subjects in the middle, junior, and senior high schools. The student must complete the major in Business Education and an approved teachable minor offered for Secondary Education Curriculum.

A minimum of 122 hours is required for this curriculum.

General Education/Liberal Arts Requirements (37 hours)

Required Core Courses (72 hours)
- ACTY 2100 - Principles of Accounting I  Credits: 3 hours
- ACTY 2110 - Principles of Accounting II  Credits: 3 hours
- BUS 1750 - Business Enterprise  Credits: 3 hours
- CIS 2700 - Business-Driven Information Technology  Credits: 3 hours
  (Previously BUS 2700)
- WFED 3050 - Career and Employability Skills  Credits: 3 hours
- WFED 3480 - Student Assessment and Management  Credits: 3 hours
- WFED 5100 - Special Populations in Workforce Education and Development  Credits: 3 hours
- WFED 5120 - Principles of Workforce Education and Development  Credits: 3 hours
- WFED 5130 - Teaching Methods in Workforce Education and Development  Credits: 3 hours
- WFED 5420 - Curriculum Development in Workforce Education and Development  Credits: 3
- WFED 4100 - Seminar in Education  Credits: 2 hours
- WFED 4750 - Teaching in Workforce Education and Development  Credits: 10 hours
- ECON 2010 - Principles of Microeconomics  Credits: 3 hours
- ECON 2020 - Principles of Macroeconomics  Credits: 3 hours
- FIN 2420 - Entrepreneurial Finance  Credits: 3 hours
- LAW 3800 - Legal Environment  Credits: 3 hours
- LS 3050 - K-12 Content Area Literacy  Credits: 3 hours
- MGMT 2500 - Organizational Behavior  Credits: 3 hours
- MGMT 2800 - Introduction to Supply Management  Credits: 3 hours
- MKTG 2500 - Marketing Principles  Credits: 3 hours

Either:
- FCS 2140 - Child Development  Credits: 3 hours
  OR
- ED 2500 - Human Development: Applications in Education  Credits: 3 hours

Either:
- FCS 2250 - Computer Applications  Credits: 3 hours
  OR
- CIS 1020 - Introduction to Business Computing  Credits: 3 hours

Electives
As needed for graduation total of 122 hours.

Baccalaureate-Level Writing Requirement
Students in the Secondary Education in Business will satisfy the Baccalaureate-Level Writing requirement by taking WFED 3050: Career and Employability Skills.

**Business Education Group Major**

The Business Education Group Major is designed to prepare teachers for non-vocational business education subjects in the middle, junior, and senior high schools. The student must complete the Business Education Group Major plus an additional 12 credit hours. There is no minor required with this major.

1. Minimum hours required for this curriculum (122 hours)

2. General Education Requirements (37 hours)

3. Teaching Major from the following courses (36 hours)

   ACTY 2100 - Principles of Accounting I  Credits: 3 hours  
   ACTY 2110 - Principles of Accounting II  Credits: 3 hours  
   BUS 1750 - Business Enterprise  Credits: 3 hours  
   BUS 2200 - Introduction to Global Business  Credits: 3 hours  
   ECON 2010 - Principles of Microeconomics  Credits: 3 hours  
   FCS 2090 - Family Resource Management  Credits: 3 hours  
   FIN 2420 - Entrepreneurial Finance  Credits: 3 hours  
   LAW 3800 - Legal Environment  Credits: 3 hours  
   MGMT 2500 - Organizational Behavior  Credits: 3 hours  
   MGMT 2800 - Introduction to Supply Management  Credits: 3 hours  
   MKTG 2500 - Marketing Principles  Credits: 3 hours

Select either:

   FCS 2250 - Computer Applications  Credits: 3 hours  
   CIS 1020 - Introduction to Business Computing  Credits: 3 hours

4. Additional Group Major courses (12 hours)

   CIS 2700 - Business-Driven Information Technology  Credits: 3 hours  
   ECON 2020 - Principles of Macroeconomics  Credits: 3 hours  
   MGMT 2140 - Exploring Entrepreneurship  Credits: 3 hours

One course selected from the following:

   ECON 3040 - The Organization of Industries  Credits: 3 hours  
   ECON 3090 - Women and the Economy  Credits: 3 hours  
   ECON 3100 - Labor Economics  Credits: 3 hours  
   ECON 3150 - Sports Economics  Credits: 3 hours  
   ECON 3180 - The Economics of Medical Care  Credits: 3 hours  
   ECON 3190 - Environmental Economics  Credits: 3 hours  
   ECON 3800 - International Economics  Credits: 3 hours  
   ECON 3870 - Studies in Asian Economies  Credits: 3 hours  
   ECON 3880 - African Economies  Credits: 3 hours  
   ECON 3890 - Latin American Economies  Credits: 3 hours

5. Professional Education Courses (24 hours)

   WFED 3050 - Career and Employability Skills  Credits: 3 hours  
   WFED 3480 - Student Assessment and Management  Credits: 3 hours  
   WFED 5100 - Special Populations in Workforce Education and Development  Credits: 3 hours  
   WFED 5120 - Principles of Workforce Education and Development  Credits: 3 hours  
   WFED 5130 - Teaching Methods in Workforce Education and Development  Credits: 3 hours  
   WFED 5420 - Curriculum Development in Workforce Education and Development  Credits: 3
LS 3050 - K-12 Content Area Literacy  Credits: 3 hours

Select either:
ED 2500 - Human Development: Applications in Education  Credits: 3 hours
FCS 2140 - Child Development  Credits: 3 hours

6. Directed Internship (12 hours)
WFED 4100 - Seminar in Education  Credits: 2 hours
WFED 4750 - Teaching in Workforce Education and Development  Credits: 10 hours

**Fashion Merchandising and Design**

The Fashion Merchandising and Design major has two emphases: The Merchandising Emphasis and the Design and Development Emphasis. The **merchandising emphasis** is designed to prepare students for careers in retailing and related fields. The four-year program includes studies in merchandising, marketing, and management. A minor is optional, though many students select a general business, marketing or management minor. Other related fields can also be selected as minor studies, e.g., communication, journalism, or world language.

Students who graduate with a merchandising emphasis may pursue a career in retail management, buying or marketing. Career opportunities also exist in the apparel and textile wholesaling fields.

The **design and development emphasis** prepares students for careers in the design and manufacturing production cycle of the apparel/softlines industry, careers including design, pattern drafting, and quality control, or with textile-producing companies as technicians or fashion analysts. Individuals interested in the Design and Development option may complete up to 18 hours of design study at the Fashion Institute of Technology in New York City, Regent's University in London, England, or Florence University of the Arts in Florence, Italy during their junior or senior year. A minor in business, communication, or art is recommended.

**Fashion Merchandising and Design: Merchandising Emphasis**
Candidates for the Bachelor of Science degree with the Merchandising Emphasis must complete the following program of 122 hours.

1. General Education Requirements (37 hours)

2. Required Core Courses (30 hours)
Students in the merchandising emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 3300 Entrepreneurship in FCS.

FCS 1260 - The Fashion Industry  Credits: 3 hours
FCS 1550 - Design Principles  Credits: 3 hours
FCS 2020 - Field Experience  Credits: 1 to 3 hours  Credits: 3 hours required
FCS 2200 - Textiles  Credits: 3 hours
CS 1000 - Fluency with Information Technology  Credits: 3 hours
OR
FCS 2250 - Computer Applications  Credits: 3 hours
FCS 3050 - Professional Job Search Strategies  Credits: 3 hours
FCS 3260 - History of Fashion  Credits: 3 hours
FCS 3300 - Entrepreneurship in Family and Consumer Sciences  Credits: 3 hours
FCS 4220 - Product Development  Credits: 3 hours
FCS 5240 - Socio-Psychological Aspects of Dress  Credits: 3 hours
OR
FCS 5340 - Consumer Behavior in the Fashion Environment  Credits: 3 hours
OR
FCS 5440 - Global Aspects of the Fashion Industry  Credits: 3 hours
3. Required Merchandising Courses (12 hours)
FCS 2260 - Fashion/Retail Buying Credits: 3 hours
FCS 3200 - Visual Merchandising Credits: 3 hours
FCS 3290 - Promotion in the Merchandising Environment Credits: 3 hours
FCS 4300 - Merchandising Seminar Credits: 3 hours

4. Required Related Courses (21 hours)
ACTY 2100 - Principles of Accounting I Credits: 3 hours
BUS 1750 - Business Enterprise Credits: 3 hours
COM 1040 - Public Speaking Credits: 3 hours
OR
COM 1700 - Interpersonal Communication Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MGMT 2520 - Human Resource Management Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 2900 - Introduction to Food and CPG Industries Credits: 3 hours
OR
MKTG 3600 - Professional Selling Credits: 3 hours
OR
MKTG 4750 - International Marketing Credits: 3 hours

5. Related Electives Choose (6 hours)
FCS 2090 - Family Resource Management Credits: 3 hours
FCS 2300 - Computer Aided Design for Fashion Credits: 3 hours
FCS 2530 - Fashion Illustration Credits: 3 hours
FCS 3150 - Global Ecology of the Family Credits: 3 hours
FCS 4050 - Travel/Study Seminar Credits: 1 to 4 hours
FCS 4290 - Internship Credits: 2 to 6 hours Credits: 1 to 3 hours
FCS 5220 - Topics in Family and Consumer Sciences Credits: 1 to 3 hours (TEX related)
FCS 5240 - Socio-Psychological Aspects of Dress Credits: 3 hours
FCS 5340 - Fashion Consumer Behavior Credits: 3 hours
FCS 5440 - Global aspects of Fashion Credits: 3 hours
FCS 5980 - Independent Study in Family and Consumer Sciences Credits: 1 to 6 hours

Note: FCS 5240, 5340 and 5440 can be taken as an elective if not used as a required core course.

Off campus study option:
Up to 18 credit hours may be applied toward the Fashion Merchandising and Design Merchandising major by successful completion of 1-6 courses at one of our approved partner institutions. Students may enroll in pre-approved courses at Regents University Fashion School (London), Florence University of the Arts (Florence) or Fashion Institute of Technology (New York City), usually in the junior or senior year. Off campus study courses must be planned and approved in advance. Tuition and room and board rates of partner institution apply for off campus options. See your academic advisor or program faculty for more information.

6. Electives - As needed for graduation total of 122 hours.

Design And Development Emphasis
Candidates for the Bachelor of Science degree with the Design and Development Emphasis must complete the following program of 122 semester hours.

1. General Education Requirements (37 hours)

2. Required Core Courses (33 hours)
Students in the design and development emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 3300 - Entrepreneurship in FCS.
FCS 1260 - The Fashion Industry Credits: 3 hours
FCS 1550 - Design Principles  Credits: 3 hours  
FCS 2020 - Field Experience Credits: 1 to 3 hours  Credits: 3 hours required  
FCS 2200 - Textiles  Credits: 3 hours  
CIS 1020 - Introduction to Business Computing Credits: 3 hours  
OR  
FCS 2250 - Computer Applications  Credits: 3 hours  
FCS 2260 - Fashion/Retail Buying  Credits: 3 hours  
FCS 3050 - Professional Job Search Strategies  Credits: 3 hours  
FCS 3260 - History of Fashion  Credits: 3 hours  
FCS 3300 - Entrepreneurship in Family and Consumer Sciences  Credits: 3 hours  
FCS 4220 - Product Development  Credits: 3 hours  
FCS 5240 - Socio-Psychological Aspects of Dress  Credits: 3 hours  
OR  
FCS 5340 - Consumer Behavior in the Fashion Environment  Credits: 3 hours  
OR  
FCS 5440 - Global Aspects of the Fashion Industry  Credits: 3 hours  

3. Required Courses (27 hours)  
BUS 1750 – Business Enterprise  Credits: 3 hours  
COM 1040 - Public Speaking  Credits: 3 hours or  
COM 1700 - Interpersonal Communication  Credits: 3 hours  
FCS 1240 - Apparel Construction II  Credits: 3 hours  
FCS 2220 – Fashion Design Studio I  Credits: 3 hours  
FCS 2240 - Apparel Construction II  Credits: 3 hours  
FCS 2300 - Computer Aided Design for Fashion  Credits: 3 hours  
FCS 4240 - Apparel Line Development  Credits: 3 hours  
FCS 2530 - Fashion Illustration  Credits: 3 hours  
FCS 3220 - Fashion Design Studio II  Credits: 3 hours  

4. Related Electives Choose (12 hours)  
FCS 2090 - Family Resource Management  Credits: 3 hours  
FCS 3200 - Visual Merchandising  Credits: 3 hours  
FCS 3150 - Global Ecology of the Family  Credits: 3 hours  
FCS 3290 - Promotion in the Merchandising Environment  Credits: 3 hours  
FCS 4300 - Merchandising Seminar  Credits: 3 hours  
FCS 5240 - Socio-Psychological Aspects of Dress  Credits: 3 hours  
FCS 5340 - Consumer Behavior in the Fashion Environment  Credits: 3 hours  
FCS 5440 - Global Aspects of the Fashion Industry  Credits: 3 hours  
MGMT 2500 - Organizational Behavior  Credits: 3 hours  
MKTG 2500 - Marketing Principles  Credits: 3 hours  

Note: FCS 5240, 5340 and 5440 can be taken as an elective if not used as a required core course.  

5. Related Experiential Electives Choose (3 hours)  
FCS 2050 - Topics in Family and Consumer Sciences  Credits: 1 to 3 hours  
FCS 4290 – Internship  Credits: 2 to 6 hours  
FCS 5220 - Topics in Family and Consumer Sciences  Credits: 1 to 3 hours  
(FMD related)  
FCS 5900 - Project/Problems in Family and Consumer Sciences  Credits: 1 to 4 hours  
FCS 5980 - Independent Study in Family and Consumer Sciences  Credits: 1 to 6 hours  

Off campus study option:  
Up to 18 credit hours may be applied toward the Fashion Merchandising and Design: Design & Development major by successful completion of 1-6 courses at one of our approved partner institutions. Students may enroll in pre-approved courses at Regents University Fashion School (London), Florence University of the Arts (Florence) or Fashion Institute of Technology (New York City), usually in the junior or senior year. Off campus study courses must be planned and approved.
6. Electives - As needed for graduation total of 122 hours.

**Fashion Merchandising Minor**

*Program Requirements*
Candidates for the minor in Fashion Merchandising must complete the following program of 18 hours. Of the 18 hour total, students must complete a minimum of 6 hours at the 3000-level or higher.

1. **Required Courses (12 hours)**
   - FCS 1260 - The Fashion Industry Credits: 3 hours
   - FCS 1550 - Design Principles Credits: 3 hours
   - FCS 2200 - Textiles Credits: 3 hours
   - FCS 2260 - Fashion/Retail Buying Credits: 3 hours

2. **Electives Choose (6 hours)**
   - FCS 3200 - Visual Merchandising Credits: 3 hours
   - FCS 3260 - History of Fashion Credits: 3 hours
   - FCS 3290 - Promotion in the Merchandising Environment Credits: 3 hours
   - FCS 4300 - Merchandising Seminar Credits: 3 hours
   - FCS 5240 - Socio-Psychological Aspects of Dress Credits: 3 hours
   - FCS 5340 - Consumer Behavior in the Fashion Environment Credits: 3 hours
   - FCS 5440 - Global Aspects of the Fashion Industry Credits: 3 hours

**Youth and Community Development**
The BS in Youth and Community Development is a course of professional development for youth workers in afterschool and out-of-school time programs, and informal learning environments. It is based on theoretical perspectives in childhood, adolescent, and family development, best pedagogical practices, and grounded in an ethic of family engagement and social action. It prepares change agents to transform communities through an intentional investment in youth with interdisciplinary coursework and community-based experiences.

The BS program in Youth and Community Development is situated at the intersection of developmental theory, socio-ecological context, and youth worker skills and competencies. This program is rooted in community psychology and the prevention sciences to provide a foundation for studying setting-level interventions and developmental needs. This program invites students to critically examine youth in context of families and communities, root causes, and how individuals and organizations can address social inequalities. Students will study the practice of the youth worker to develop understandings and competencies in organizing effective learning environments and experiences to promote human flourishing.

The undergraduate program will prepare youth development professionals to take roles in diverse youth-serving, family, and community settings. Graduates may pursue careers in afterschool, community service, and youth activism programs; public and private human services organizations and agencies; dropout prevention and alternative education; and juvenile justice. Students may also assume positions in informal learning environments such as museums, nature centers, environmental education, outdoor and adventure programs.

The BS in Youth and Community Development is designed to build the skills and knowledge outlined in the National AfterSchool Association's Core Knowledge and Competencies for AfterSchool and Youth Development Professionals.

Graduates of this program may seek provisional status as a Certified Family Life Educator (CFLE) by the National Council on Family Relations.

All courses are delivered in-person, and many courses are also delivered online or hybrid (online and in-person).
General Education Requirements (37 hours)

Required Core Family Science Courses (36 hours)
Grade of "C" or better is required in Core Family Science Courses.
FCS 1010 - Introduction to Family Science   Credits: 3 hours
FCS 1030 - Lifespan Development   Credits: 3 hours
FCS 2100 - Human Sexuality   Credits: 3 hours
FCS 2170 - Diverse Children, Families, and Communities   Credits: 3 hours
FCS 2190 - Principles of Research in Family Science   Credits: 3 hours
FCS 3170 - Crisis and Resiliency in Families   Credits: 3 hours
FCS 3180 - Intimate Relationships: Friends, Family, and Marriage   Credits: 3 hours
FCS 4120 - Family Policy   Credits: 3 hours
FCS 4150 - Effective Parenting Credits: 3 hours
(Students will satisfy the Baccalaureate-level Writing requirement by successfully completing FCS 4150.)
FCS 4190 - Teaching Family Life Education   Credits: 3 hours
FCS 4290 - Internship   Credits: 2 to 6 hours

Required Youth Development Courses (18 hours)
Grade of "C" or better is required in Youth Development Courses.
FCS 2140 - Child Development   Credits: 3 hours
FCS 2150 - Adolescent Development   Credits: 3 hours
FCS 2660 - Personal Nutrition   Credits: 3 hours
FCS 3110 - Youth Development Foundations   Credits: 3 hours
FCS 3120 - Curriculum and Assessment in Youth Development   Credits: 3 hours
FCS 4110 - Youth Development Skills and Processes   Credits: 3 hours

Required Related Courses (9 hours)
ED 5950 - Experiential Education and Place-Based Learning   Credits: 3 hours
ES 5850 - Social Justice and Community Organizing   Credits: 3 hours

Choose one (3 hours)
COM 1040 - Public Speaking   Credits: 3 hours
WFED 5150 - Grant Writing for Workforce Education and Development   Credits: 3 hours
FCS 2090 - Family Resource Management   Credits: 3 hours
FCS 2250 - Computer Applications   Credits: 3 hours
FCS 5100 - Teaching Sexuality Education   Credits: 3 hours
FCS 5220 - Topics in Family and Consumer Sciences   Credits: 1 to 3 hours
FCS 5250 - The Adolescent in Development   Credits: 3 hours
SPED 5300 - Introduction to Special Education   Credits: 3 hours
FCS 5350 - Communication Skills for Working with Families Across the Lifespan   Credits: 3 hours
FCS 5510 - Families and Hospitalization I   Credits: 3 hours
FCS 5520 - Families and Hospitalization II   Credits: 3 hours
FCS 5680 - Gender, Culture, and Families   Credits: 3 hours
Or other course with approval of an advisor   Credits: 3 hours

Electives
As needed for graduation total of 122 hours.

Workforce Education and Development Minor

This minor will prepare graduates for positions in business, non-profits, and post-secondary education working with adults in a training and development role. This minor aligns well with majors in business, psychology, and communication as well as those with technical degrees that will be teaching community college or training adults.
Program requirements:
Candidates for the minor in Workforce Education and Development must complete the following program of 15 hours.

1. Required Courses (12 hours)
   WFED 3050 - Career and Employability Skills Credits: 3 hours
   WFED 5120 - Principles of Workforce Education and Development Credits: 3 hours
   WFED 4010 - Adult Teaching and Learning Strategies Credits: 3 hours
   OR
   WFED 5130 - Teaching Methods in Workforce Education and Development Credits: 3 hours
   WFED 4030 - Training Systems in Organizations Credits: 3 hours
   OR
   WFED 5420 - Curriculum Development in Workforce Education and Development Credits: 3 hours

2. Elective Courses (choose 3 hours)
   WFED 4020 - Career Assessment and Development Credits: 3 hours
   WFED 5010 - Topics in International Workforce Education and Development Credits: 3 hours
   WFED 5100 - Special Populations in Workforce Education and Development Credits: 3 hours
   WFED 5121 - Career Exploration in Workforce Development Credits: 3 hours
   WFED 5430 - Work-site Based Education Programs Credits: 3 hours

Career and Technical Education Curricula

Non-Vocational Majors

Industrial Technology Education Major

The Industrial Technology Education group major is designed to prepare teachers of industrial technology education (formerly known as industrial technology or industrial arts) for middle, junior, and senior high schools. The student must complete the group major in Industrial Technology Education and an approved teachable minor offered for Secondary Education Curriculum or a vocational minor in Drafting or Graphic Arts. Students who complete the requirements for the vocational minor are eligible for vocational certification.

1. Minimum Hours Required For This Curriculum (135 hours)

2. General Education Requirements (37 hours)

3. Required Cognates (5 hours)
   PHYS 1070 - Elementary Physics Credits: 4 hours
   PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour

4. Industrial Technology Education Teaching Major (37 hours)
   AVS 2800 - Transportation Technology: Policy, Perils, and Promise Credits: 3 hours
   or
   EDMM 1220 - Automobile in Society Credits: 3 hours
   ENGL 1050 - Thought and Writing Credits: 4 hours
   FCS 1490 - Design Communication I: Architectural Drawing Credits: 3 hours
   FCS 2400 - Woodworking Credits: 3 hours
   FCS 3530 - Introduction to the Construction Environment Credits: 3 hours
   EDMM 1420 - Engineering Graphics Credits: 3 hours
   EDMM 1430 - Product Design Fundamentals Credits: 3 hours
   EDMM 1500 - Introduction to Manufacturing Credits: 3 hours
   EDMM 2001 - Applied Electricity/Electronics Credits: 3 hours
   EDMM 2460 - Introduction to Computer-Aided Design Credits: 3 hours
   EDMM 2500 - Plastics Properties and Processing Credits: 3 hours
EDMM 2540 - Machining Processes   Credits: 3 hours

5. Approved Minor for Secondary Education Curriculum (min 20 hours)
Each student must choose a teachable vocational minor or a secondary education non-vocational minor.

Approved vocational minors are Drafting or Graphic Arts and require 4000 of recent (within 6 years of degree completion) and relevant (drafting or graphic arts) work. Vocational minor requirements are listed in the Vocational-Technical Minor" section of the catalog.

Approved non-vocational minors are listed in the "Secondary Education Curriculum" section of the catalog.

6. Professional Education Courses (24 hours)
WFED 3050 - Career and Employability Skills   Credits: 3 hours
WFED 3480 - Student Assessment and Management   Credits: 3 hours
WFED 5100 - Special Populations in Workforce Education and Development   Credits: 3 hours
WFED 5120 - Principles of Workforce Education and Development   Credits: 3 hours
WFED 5130 - Teaching Methods in Workforce Education and Development   Credits: 3 hours
WFED 5420 - Curriculum Development in Workforce Education and Development   Credits: 3 hours
LS 3050 - K-12 Content Area Literacy   Credits: 3 hours

Either
ED 2500 - Human Development: Applications in Education   Credits: 3 hours or
FCS 2140 - Child Development   Credits: 3 hours

7. Directed Internship (12 hours)
WFED 4100 - Seminar in Education   Credits: 2 hours
WFED 4750 - Teaching in Workforce Education and Development   Credits: 10 hours

Non-Vocational Minors

Family Science Minor

Required Minor Courses (24 hours)
FCS 1010 - Introduction to Family Science   Credits: 3 hours
FCS 1030 - Lifespan Development   Credits: 3 hours
FCS 2170 - Diverse Children, Families, and Communities   Credits: 3 hours
FCS 2190 - Principles of Research in Family Science   Credits: 3 hours
FCS 3150 - Global Ecology of the Family   Credits: 3 hours
FCS 3170 - Crisis and Resiliency in Families   Credits: 3 hours
FCS 3180 - Intimate Relationships: Friends, Family, and Marriage   Credits: 3 hours
FCS 4150 - Effective Parenting   Credits: 3 hours
(Baccalaureate writing requirement)

Industrial Technology Education Minor

Required Cognates (5 hours)
PHYS 1070 - Elementary Physics   Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory   Credits: 1 hour

Required Courses (24 hours)
FCS 1490 - Introduction to Architectural Drawing   Credits: 3 hours
FCS 2400 - Woodworking   Credits: 3 hours
FCS 3530 - Introduction to the Construction Environment   Credits: 3 hours
EDMM 1420 - Engineering Graphics   Credits: 3 hours
EDMM 1430 - Product Design Fundamentals   Credits: 3 hours
EDMM 1500 - Introduction to Manufacturing   Credits: 3 hours
EDMM 2001 - Applied Electricity/Electronics   Credits: 3 hours
EDMM 2500 - Plastics Properties and Processing   Credits: 3 hours

**Vocational Majors**

**Family and Consumer Sciences Teacher Education**

The Family and Consumer Sciences Teacher Education major is designed to prepare teachers for family and consumer science-related subjects in middle, junior, and senior high schools. The student must complete the major in Family and Consumer Sciences Teacher Education and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum Hours Required For This Curriculum (126 hours)

2. General Education Requirements (37 hours)

3. Group Major Requirements from the following courses (36 hours)
   WFED 3050 - Career and Employability Skills   Credits: 3 hours
   FCS 1650 - Culinary Skills   Credits: 3 hours
   FCS 2090 - Family Resource Management   Credits: 3 hours
   FCS 2100 - Human Sexuality   Credits: 3 hours
   FCS 2150 - Adolescent Development   Credits: 3 hours
   FCS 2660 - Personal Nutrition   Credits: 3 hours
   FCS 3180 - Intimate Relationships: Friends, Family, and Marriage   Credits: 3 hours
   FCS 4130 - Later Life Family Relationships   Credits: 3 hours
   FCS 4150 - Effective Parenting   Credits: 3 hours
   FCS 5680 - Gender, Culture, and Families   Credits: 3 hours
   HOL 1000 - Choices in Living   Credits: 3 hours
   Select one of the following:
   FCS 1240 - Apparel Construction I   Credits: 3 hours
   FCS 1550 - Design Principles   Credits: 3 hours
   FCS 5240 - Socio-Psychological Aspects of Dress   Credits: 3 hours

4. Approved Minor for Secondary Education Curriculum (20 hours)

5. Career and Technical Education (15 hours)
   WFED 3480 - Student Assessment and Management   Credits: 3 hours
   WFED 5100 - Special Populations in Career and Technical Education   Credits: 3 hours
   WFED 5120 - Principles of Workforce Education and Development   Credits: 3 hours
   WFED 5130 - Teaching Methods in Workforce Education and Development   Credits: 3 hours
   WFED 5420 - Curriculum Development in Workforce Education and Development   Credits: 3 hours

6. Required Education Courses (18 hours)
   Students in the Family and Consumer Sciences Teacher Education major should see the advisor to select a course that will satisfy the Baccalaureate Writing requirement.
   WFED 4100 - Seminar in Education   Credits: 2 hours
   WFED 4750 - Teaching in Workforce Education and Development   Credits: 10 hours
   LS 3050 - K-12 Content Area Literacy   Credits: 3 hours

Select either:
ED 2500 - Human Development: Applications in Education   Credits: 3 hours or
FCS 2140 - Child Development  Credits: 3 hours

7. Related Work Experience
A total of 200 work hours required for this major. The work hours may be voluntary or paid work experience and must be completed in three of the following areas: family services, children/youth services, consumer services, or educational services.

Secondary Education in Marketing (vocational)

The Secondary Education in Marketing group major is designed to prepare teachers for vocational marketing subjects in area technical centers and comprehensive high schools. The student must complete the major in Secondary Education in Marketing and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum Hours Required for this Curriculum (126 hours)

2. General Education Requirements (37 hours)

3. Group Major Requirements from the Following Courses (36 hours)
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
ECON 2010 - Principles of Microeconomics  Credits: 3 hours
FCS 3200 - Visual Merchandising  Credits: 3 hours
MKTG 2500 - Marketing Principles  Credits: 3 hours
MKTG 3600 - Professional Selling  Credits: 3 hours
MKTG 3710 - Marketing Research  Credits: 3 hours
MKTG 3740 - Advertising and Promotion  Credits: 3 hours
MKTG 3760 - Sales Management  Credits: 3 hours or
MKTG 4840 - Marketing Logistics  Credits: 3 hours
WFED 3050 - Career and Employability Skills  Credits: 3 hours

Select Either:
CS 1000 - Fluency with Information Technology  Credits: 3 hours or
FCS 2250 - Computer Applications  Credits: 3 hours

Select Either:
MKTG 3720 - Sourcing and Purchasing  Credits: 3 hours or
MKTG 3760 - Sales Management  Credits: 3 hours

Select Either:
MKTG 3760 - Sales Management  Credits: 3 hours or
MKTG 4760 - Retail Management  Credits: 3 hours

4. Approved Minor for Secondary Education Curriculum (20 hours)

5. Professional Education courses (21 hours)
WFED 3480 - Student Assessment and Management  Credits: 3 hours
WFED 5100 - Special Populations in Workforce Education and Development  Credits: 3 hours
WFED 5120 - Principles of Workforce Education and Development  Credits: 3 hours
WFED 5130 - Teaching Methods in Workforce Education and Development  Credits: 3 hours
WFED 5420 - Curriculum Development in Workforce Education and Development  Credits: 3 hours
LS 3050 - K-12 Content Area Literacy  Credits: 3 hours
FCS 2140 - Child Development  Credits: 3 hours or an approved alternative course

6. Directed Internship (12 hours)
WFED 4100 - Seminar in Education  Credits: 2 hours
WFED 4750 - Teaching in Workforce Education and Development  Credits: 10 hours
7. Related Work Experience
A total of 4000 hours of recent and relevant work experiences is required for Vocational Certification. Up to 2000 hours of the required 4000 can be obtained through university-supervised internship or work experience.

Baccalaureate-Level Writing Requirement
Students in the Secondary Education in Marketing major should see the advisor to select a course that will satisfy the Baccalaureate-Level Writing requirement.

Vocational Minors

Secondary Education in Marketing Minor

1. Required Courses (24 hours)
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
ECON 2010 - Principles of Microeconomics  Credits: 3 hours
FCS 3200 - Visual Merchandising  Credits: 3 hours
MKTG 2500 - Marketing Principles  Credits: 3 hours
MKTG 3600 - Professional Selling  Credits: 3 hours
MKTG 3740 - Advertising and Promotion  Credits: 3 hours
MKTG 3760 - Sales Management  Credits: 3 hours or
MKTG 4760 - Retail Management  Credits: 3 hours

Select Either:
MKTG 3720 - Purchasing Management  Credits: 3 hours or
MKTG 3760 - Sales Management  Credits: 3 hours

2. Related Work Experience
A total of 4000 hours of recent and relevant work experience is required for vocational certification. A total of 2000 of these hours may be completed through university-supervised internship or work experience.

Vocational-Technical Minor

Drafting
1. Required Courses (20 hours)
CS 1021 - Introduction to Engineering Computing I: Spreadsheets  Credits: 1 hour
CS 1023 - Introduction to Engineering Computing III: Computer Programming  Credits: 1 hour
EDMM 1440 - Descriptive Geometry  Credits: 3 hours
EDMM 3440 - Product and Machine Design  Credits: 3 hours
EDMM 3480 - Designing for Production  Credits: 3 hours
EDMM 3540 - Metrology  Credits: 3 hours
EDMM 3580 - Computer-Aided Manufacturing  Credits: 3 hours
EDMM 4460 – Advanced Computer-Aided Design  Credits: 3 hours

2. Related Work Experience
This minor requires an Industrial Technology major plus 4000 clock hours of recent and relevant work experience or 2000 clock hours plus 400 planned hours in FCS 2020 or 6220.

Graphic Arts
1. Required Courses (21 hours)
GPS 1500 - Introduction to Graphic and Printing Science  Credits: 4 hours
GPS 1570 - Imaging Systems  Credits: 3 hours
GPS 2150 - Introduction to Ink  Credits: 4 hours
GPS 2510 - Multimedia Publication and Design  Credits: 3 hours
GPS 2570 - Computer Graphics and Prepress  Credits: 3 hours
GPS 3500 - Offset Lithography  Credits: 4 hours
GPS 3580 – Flexography  Credits: 4 hours

2. Related Work Experience
This minor requires an Industrial Technology major plus 4000 clock hours of recent and relevant work experience or 2000 clock hours plus 400 planned hours in FCS 2020 or 6220.
Human Performance and Health Education

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The Human Performance and Health Education Department offers students the opportunity to pursue career development in six major areas of study and six minors. The professional programs are based on the following concepts: (1) balanced undergraduate preparation enables the student to later specialize at the graduate level, (2) exposure to practical experiences throughout the professional sequence is critical, (3) elective choices enhance professional options, and (4) continual review of curriculum facilitates program effectiveness.

Students who desire specialized professional preparation may select from the following:

**Majors**
1. Athletic Training Professional Program
2. Community Health Education
3. Exercise Science
4. Physical Education – Teacher/Coach (K-12 Certification)
5. Recreation
6. School Health Education (Teacher - K-12 Certification)

**Minors**
1. Coaching
2. Community Health Education
3. Event Management
4. Health Education (6 – 12 teaching certification/endorsement)
5. Physical Education (6 -12 teaching certification/endorsement)
6. Recreation

Students are expected to work closely with the College of Education and Human Development Advising Office.

**Transfer Students**
Transfer credits from four-year schools and community colleges may be included in majors and minors. However, a minimum of one-half of the required semester hours for a major or a minor must be taken at Western Michigan University.

For those seeking teaching certification in Health Education or Physical Education, the following Human Performance and Health Education teaching methods course(s) must be included in the hours at WMU: (1) Health Education (majors and minors): HPHE 3120 and 4120; 3520 (majors only); (2) Physical Education: HPHE 4470 and 4480. Transfer students in
physical education must participate in Human Performance and Health Education entry skill and fitness assessments administered during HPHE 1500. Transfer students should contact the HPHE 1500 course instructor at the beginning of the first semester of work at WMU.

University General Education Requirement
Each student must complete 37 hours of work in approved General Education courses and/or non-professional courses in the College of Arts and Sciences. The student seeking Michigan teacher certification must complete an additional 3 hours in the College of Arts and Sciences. For additional information please refer to the General Education section of this catalog.

Undergraduate Program Admission Policy
Students interested in Recreation or Exercise Science or Community Health may enter the program by declaring their major to a College of Education and Human Development advisor and completing the appropriate introductory course with a grade of “C” or better.

Physical Education and School Health Education students must complete the following requirements prior to application:
1. Completion of 35 credit hours (transfer hours included).
2. Completion of HPHE 1500 or HPHE 1550 (with a grade of "C" or better) and BIOS 1120 for Health, Physical Education Teacher/Coach majors and associated minors.
3. Completion of all cognate courses is required. Physical Education Teacher-Coach majors/minors must complete BIOS 1120, BIOS 2110, BIOS 2400, and HPHE 1110. Health Education (Community or School Emphasis) majors/minors must complete BIOS 1120, BIOS 2110, BIOS 2400, PSY 1000 or PSY 1500, and SOC 2000).
4. Acceptance into the program will proceed throughout the year. Students meeting the qualifications stated above will be admitted into Human Performance and Health Education department programs. Students must be admitted into the department to enroll in courses on the "restricted list." Such courses require the prerequisite work included in the Human Performance and Health Education department Admission Policy.

Prior to admission to Intern Teaching, the following must be met:
- Completion of all required courses.
- Passing scores on Michigan Basic Skills Test.
- Accumulative GPA of 2.5 or above.
- An overall GPA of 2.5 in the professional education sequence and no grade lower than a “C” in any professional education course.
- Completion of methods course(s) in major and/or minor with a minimum grade of “C”.

Athletic Training students are referred to the "Admission Standards" section within the "Athletic Training Professional Program".

General Physical Education
A maximum of eight (8) hours of general activity physical education may be applied toward electives for graduation credit.

All courses are co-ed. Course descriptions may be obtained from the Human Performance and Health Education office.
- PEGN 1000-level courses - are open to all students and emphasize beginning activity skills.
- PEGN 1700-1830 - Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.
- PEGN 2000-level courses - are open to all students who have completed a 1000-level course in the activity or the equivalent. (**Prerequisite 2490 or Red Cross Intermediate Card)
- PEGN 3000-level courses - are open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll.
- PEGN 4000 - A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.
Restricted Course List

HPHE 2200 - Basic Health Concepts   Credits: 3 hours
HPHE 2210 - Basic Health Concepts II   Credits: 4 hours
HPHE 2220 - Basic Health Concepts III   Credits: 3 hours
HPHE 2400 - Human Motor Development and Learning   Credits: 3 hours
HPHE 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities   Credits: 3 hours
HPHE 2900 - Inclusive and Special Recreation   Credits: 3 hours
HPHE 2950 - Functional Anatomy and Biomechanics   Credits: 3 hours
HPHE 2980 - Exercise Physiology   Credits: 3 hours
HPHE 3100 - Event Management Advanced Applications   Credits: 3 hours
HPHE 3110 - Event Marketing   Credits: 3 hours
HPHE 3120 - Planning School Health Programs   Credits: 3 hours
HPHE 3150 – Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education   Credits: 3 hours
HPHE 3160 - Issues in Health Education   Credits: 2 hours
HPHE 3300 - Grant Writing in Health Education   Credits: 3 hours
HPHE 3310 - Community Health Education Planning   Credits: 3 hours
HPHE 3460 - Physical and Health Education Methods: Special Populations   Credits: 3 hours
HPHE 3500 - Modification of Health Behavior   Credits: 2 hours
HPHE 3520 – Teaching Health in Elementary Schools   Credits: 2 hours
HPHE 3540 - Human Sexuality Education   Credits: 4 hours
HPHE 3710 - Practical Recreational Programming and Leadership   Credits: 3 hours
HPHE 3760 - Management of Recreational/Sport   Credits: 3 hours
HPHE 3810 - Instructor First Aid   Credits: 2 hours
HPHE 3825 - Athletic Injury Evaluation of the Lower Extremity   Credits: 3 hours
HPHE 3830 - Athletic Injury Evaluation of the Upper Extremity   Credits: 3 hours
HPHE 3840 - Therapeutic Modalities   Credits: 3 hours
HPHE 3960 – Principles for Strength and Conditioning   Credits: 3 hours
HPHE 3970 – Exercise and Sports Nutrition   Credits: 3 hours
HPHE 3990 - Practicum in Recreation/Sport   Credits: 3 hours
HPHE 4000 - Field Experience/Internship in HPHE   Credits: 1 to 8 hours
HPHE 4100 – HPHE Intern Teaching Seminar   Credits: 2 hours
HPHE 4120 - Teaching Skills and Strategies   Credits: 3 hours
HPHE 4140 – Measurement and Evaluation in Health Education   Credits: 3 hours
HPHE 4199 – Practicum in Event Management   Credits: 3 hours
HPHE 4310 - Community Health Education Interventions: Individual Strategies   Credits: 3 hours
HPHE 4320 - Research and Writing in Recreation/Sport   Credits: 3 hours
HPHE 4440 - Professional Development in Exercise Science   Credits: 3 hours
HPHE 4450 - Exercise Testing and Prescription   Credits: 3 hours
HPHE 4470 - Physical and Health Education: Elementary Methods   Credits: 4 hours
HPHE 4480 - Physical and Health Education: Secondary Methods   Credits: 4 hours
HPHE 4500 - Cultural Dynamics in Health, Physical Education, and Recreation   Credits: 3 hours
HPHE 4690 - Fitness Management   Credits: 3 hours
HPHE 4700 – Facilities and Risk Management   Credits: 3 hours
HPHE 4720 - Recreation for the Aging   Credits: 3 hours
HPHE 4750 – HPHE Intern Teaching   Credits: 5 or 10 hours
HPHE 4800 - Heart Disease and Rehabilitation   Credits: 3 hours
HPHE 4860 - Therapeutic Exercise for Athletic Injuries   Credits: 3 hours
HPHE 4870 - Sports Medicine Seminar   Credits: 3 hours
HPHE 4910 - Exercise Management of Chronic Diseases and Disorders   Credits: 3 hours
HPHE 4960 - Community Health Education Internship   Credits: 4 to 6 hours
HPHE 4970 - Senior Seminar in Recreation/Sport   Credits: 2 hours
HPHE 4980 - Exercise Science Internship   Credits: 6 hours
HPHE 4990 - Recreation/Sport Internship   Credits: 6 hours
Athletic Training Professional Program

The Western Michigan University Department of Human Performance and Health Education offers an entry-level professional program leading to a Bachelor of Science in Athletic Training. This program prepares students for certification by the Board of Certification for the Athletic Trainer. Eligibility requirements for admission to the Athletic Training Professional Program require prospective students to complete the pre-program requirements. Admission into the Athletic Training Professional Program is selective with the annual enrollment limited to approximately 15 students each year. Due to the competitive nature of this program, the criteria for admittance should be regarded as minimum standards for admittance.

The criteria for acceptance will include a minimum 2.5 overall grade point average, a minimum of “C” grade in selected cognate and core requirements, an interview, letters of recommendation, positive clinical instructor evaluations received during the fulfillment of clinical education rotation hours, and a completed application. Students who have transferred from other institutions will be reviewed on a per-case basis.

Accreditation

University developed, the Athletic Training Professional Program is based on accreditation standards by the Commission on Accreditation of Athletic Training Education (CAATE). The program is in compliance with the requirements necessary for CAATE accreditation. Graduates of CAATE accredited programs are eligible to sit for the Board of Certification (BOC) Examination.

Pre-Program Phase

This component of the athletic training program is designed to provide the student with the opportunity to learn more about the athletic training profession by taking HPHE 1530: Introduction to Athletic Training and other cognates that are prerequisites for admittance to the Athletic Training Professional Program. During this time, the athletic training student will be required to obtain a minimum of 75 hours of clinical exposure while being assigned to a preceptor. This experience will be completed in the University's Intercollegiate Athletic Department and approved affiliated sites. Upon completion of the pre-program requirements, the athletic training student must apply and be accepted to the professional program.

Admission Standards

Pre-program Requirements and Criteria for Admission
1. Accepted to Western Michigan University.
2. The completion of an observation period in an environment that provides athletic training services. A certified athletic trainer/preceptor must endorse verification of a total of 75 hours.
3. Submission of completed application for admission to the Athletic Training Professional Program. Applications can be obtained by contacting the ATPP Program Director.
4. Ability to fulfill all of the technical standards that are required of the athletic training student. The technical standards can be found on the ATPP website: www.wmich.edu/humanperformance/athletictraining. Students must also complete a physical with immunization record (including HIV status) and current TB testing.

The criteria listed below should be completed or be in the process of completion at the time of application to be considered for admission to the Athletic Training Professional Program. The selection committee evaluates the candidates and will determine who will be accepted to the Athletic Training Professional Program. The criteria include overall grade point average, minimum of "C" grade in selected core requirements, interview, positive preceptor evaluations received during fulfillment of clinical education observation hours, and a completed application. Students who have transferred from other institutions will be reviewed on a per-case basis. After the interview, each candidate will receive notification from the program director regarding admission status. Students accepted into the professional program will be required to schedule an appointment with their academic advisor and register for the required courses. Matriculation will begin the next semester and will continue for a minimum of four semesters. Candidates not accepted to the ATPP can appeal the decision by submitting a formal response to the program director within thirty days of the notification. Students that are not accepted may apply for readmission during the next admission period.

Minimum criteria for acceptance:
   a) Demonstrated knowledge and interest in the Athletic Training profession.
   b) Experience in the health care field. Seventy-five clock hours of observation are required under the supervision of and preceptor.
c) Grade point average. A minimum overall grade point average of 2.5 and a minimum grade of “C” in each of the required courses.
d) Space available in the Athletic Training Professional Program.
e) Special considerations i.e. transfer student from another program.
f) Meet all pre-program requirements.

BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
HPHE 1100 - Athletic Taping and Bracing Technique Credits: 1 hour
HPHE 1490 - Computer Applications in HPHE Credits: 3 hours
HPHE 1530 - Introduction to Athletic Training Credits: 3 hours
HPHE 1810 - First Aid Credits: 2 hours
HPHE 2530 - Injury/Illness Survey and Management Credits: 3 hours
PSY 1000 - General Psychology Credits: 3 hours

Select Either
HOL 1000 - Choices in Living Credits: 3 hours or
HPHE 1110 - Healthy Living Credits: 2 hours

Note: Potential applicants are advised that they will need to submit to a criminal background check and drug screening prior to certain clinical rotations. Failure of either of these screenings can be grounds for dismissal from the program.

Professional Program Requirements
The Athletic Training Professional Program consists of core courses taken in a prescribed sequence over a continuous four-semester process that takes a minimum of two years to complete. Upon admission to the ATPP, the student is required to adhere to all technical standards. The technical standards form is included in the application packet. During each semester the student is required to register for the corresponding Athletic Training Field Experience course (HPHE 4010, HPHE 4020, HPHE 4030, and HPHE 4040). To complete the required clinical competencies for Athletic Training Field Experience courses, each student will be required to obtain clinical rotation hours for each semester. Graduation requirements are consistent with the University standards for graduation with the following exceptions: 1) a 2.5 overall grade point average; 2) a minimum of “C” grade in each core course; and 3) completion of the following course work:

HPHE 2400 – Human Motor Development and Learning Credits: 3 hours
HPHE 2530 – Injury/Illness Survey and Management Credits: 3 hours
HPHE 2540 – Medical Conditions in Athletic Training Credits: 3 hours
HPHE 2950 – Functional Anatomy and Biomechanics Credits: 3 hours
HPHE 2980 – Exercise Physiology Credits: 3 hours
HPHE 3150 – Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education Credits: 3 hours
HPHE 3825 – Athletic Injury Evaluation of the Lower Extremity Credits: 3 hours
HPHE 3830 – Athletic Injury Evaluation of the Upper Extremity Credits: 3 hours
HPHE 3840 – Therapeutic Modalities Credits: 3 hours
HPHE 3960 – Principles for Strength and Conditioning Credits: 3 hours
HPHE 3970 – Exercise and Sports Nutrition Credits: 3 hours
HPHE 4010 – Athletic Training Field Experience I Credits: 3 hours
HPHE 4020 – Athletic Training Field Experience II Credits: 3 hours
HPHE 4030 – Athletic Training Field Experience III Credits: 3 hours
HPHE 4040 – Athletic Training Field Experience IV Credits: 3 hours
HPHE 4430 - Professional Development in Athletic Training Credits: 3 hours
HPHE 4860 – Therapeutic Exercise for Athletic Injuries Credits: 3 hours
HPHE 4870 – Sports Medicine Seminar Credits: 3 hours

Additional Requirements
Students can repeat a course only once in order to obtain the minimum of a "C" grade. Should a student fail to pass satisfactorily an athletic training course at the end of a second enrollment s/he will be dropped from the program. Students who wish to continue in the program must notify the Program Director in writing. Students whose cumulative grade point
average falls below 2.5 will also be placed on probation and removed from the program. These students will not be allowed to progress in the athletic training course work until the grade point average is raised to 2.5. The return to the program is contingent upon availability of space in the athletic training professional program. Students who return to the program must comply with all requirements in effect at that time. Students can appeal decisions by submission of a formal response to the program director within thirty (30) days of the notification of the formal action.

Exercise Science Professional Program (126 hours)

The Exercise Science Professional Program is a scientifically-based curriculum which includes coursework in the basic sciences, the physiology and biomechanics of exercise, fitness assessment and exercise testing, exercise prescription and training, behavior modification, and the clinical aspects of exercise.

The Exercise Science program integrates classroom study with hands-on practical experiences in order to provide the student with a comprehensive level of academic preparation. Many courses include laboratory or field work experiences and all students complete a 450 hour internship in order to gain experience in their chosen career path.

The Exercise Science program prepares students for careers in: Personal Training, Health and Fitness Promotion, Corporate Wellness, Cardiac Rehabilitation, and Strength and Conditioning. The Exercise Science program is also appropriate for students interested in pursuing advanced or professional degrees in: Physical Therapy, Occupational Therapy, Medicine or Chiropractic, Exercise Physiology or Biomechanics.

Baccalaureate-Level Writing Requirement
Students who have chosen the Exercise Science Professional Program will satisfy the Baccalaureate-Level Writing requirement by successfully completing HPHE 4440: Professional Development in Exercise Science.

General Education
A list of approved General Education courses can be found in the "Graduation and Academic Advising" section earlier in this catalog.

Required Cognates (14 hours)
BIOS 1100 – Biological Sciences Laboratory Credits: 1 hour
AND
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
PSY 1000 – General Psychology Credits: 3 hours

CHEM 1100/1110 AND CHEM 1120/1130 – General Chemistry I and II Credits: 8 hours
OR
CHEM 1000 – Introduction to Chemistry Credits: 3 hours

PHYS 1130/1140 AND PHYS 1150/1160 – General Physics I and II Credits: 10 hours
OR
PHYS 1070/1080 – Elementary Physics and Laboratory Credits: 5 hours

HPHE 1110 – Healthy Living Credits: 2 hours
OR
HOL 1000 – Choices in Living Credits: 3 hours

Required Courses (37 - 38 hours)
HPHE 1520 - Foundations of Exercise Science Credits: 3 hours
HPHE 2950 – Functional Anatomy and Biomechanics Credits: 3 hours
HPHE 2980 - Exercise Physiology Credits: 3 hours
HPHE 3150 – Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education Credits: 3 hours
HPHE 3960 – Principles for Strength and Conditioning Credits: 3 hours
HPHE 3970 – Exercise and Sports Nutrition  Credits: 3 hours
HPHE 4440 - Professional Development in Exercise Science  Credits: 3 hours
HPHE 4450 - Exercise Testing and Prescription  Credits: 3 hours
HPHE 4690 - Fitness Management  Credits: 3 hours
HPHE 4910 - Exercise Management of Chronic Diseases and Disorders  Credits: 3 hours
HPHE 4980 - Exercise Science Internship  Credits: 6 hours
HPHE 3500 - Modification of Health Behavior Credits: 2 hours
OR
PSY 4630 – Health Psychology  Credits: 3 hours
HPHE 1810 – First Aid  Credits: 2 hours
OR
HPHE 3810 – Instructor First Aid  Credits: 2 hours

Personal Option Program (Minimum 20 hours)
Students must earn a minimum of 20 credit hours from the following list of courses:
BIOS 2500 - Genetics  Credits: 4 hours
BIOS 3500 - Human Physiology for Majors  Credits: 5 hours
BIOS 5310 - Biology of Aging  Credits: 3 hours
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours
AND
CHEM 3560 - Introductory Biochemistry Laboratory  Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry  Credits: 3 hours
AND
CHEM 3710 - Introduction to Organic Chemistry Lab  Credits: 1 hour
CHEM 3750 - Organic Chemistry I  Credits: 3 hours
AND
CHEM 3760 - Organic Chemistry Lab I  Credits: 1 hour
CHEM 3770 - Organic Chemistry II  Credits: 3 hours
AND
CHEM 3780 - Organic Chemistry Lab II  Credits: 1 hour
FCS 2600 - Nutrition  Credits: 3 hours
FCS 2660 - Personal Nutrition  Credits: 3 hours
FCS 3600 - Lifespan Nutrition  Credits: 3 hours
FCS 4620 - Community Nutrition  Credits: 3 hours
HOL 5310 - Introduction to Holistic Health  Credits: 3 hours
HOL 5350 - Holistic Approaches to Stress  Credits: 3 hours
HOL 5520 - Healing through Movement  Credits: 3 hours
HOL 5550 - Successful Aging-Holistic Perspectives  Credits: 3 hours
HPHE 4690 - Fitness Management  Credits: 3 hours
HPHE 4800 - Heart Disease and Rehabilitation  Credits: 3 hours
MDSC 2010 - Medical Terminology  Credits: 1 hour
PHIL 3340 - Biomedical Ethics  Credits: 4 hours
PHIL 3550 - Philosophy of Science  Credits: 3 hours

Health Education Major
*Please note the emphasis “Health Education – Community Emphasis” is no longer accepting admissions.*

The major in health education allows students to choose one of two professional preparation options:
1. School emphasis (HET), 39 hours
2. Community emphasis (CHE), 45 hours

Successful completion of the school emphasis makes the candidate eligible for K-12 teacher licensure in Michigan. Successful completion of the community emphasis prepares candidates to assume careers in non-school settings such as
community health agencies and private health-related organization. Students completing the community emphasis are not eligible for a teaching license.

Students must complete the education sequence required by the Department of Teaching, Learning, and Educational Studies, including the intern teaching experience. Subject area tests of competence administered by the Michigan Department of Education must be passed prior to certification by that agency. In addition, School Health and Community Health majors must serve as a teaching assistant for one semester in a content specific course (i.e., HPHE 1110, 1810, 2200, 2210, 2220, 3160, 3170, 3810). Students must complete HPHE 1550, 2200, 2210, and 2220 prior to application for teaching assistantship. Candidates should obtain teaching assistant applications from the Human Performance and Health Education department office to register for this experience. School Health and Community Health majors are expected to have valid first aid and CPR certificates prior to intern teaching or an internship.

**Baccalaureate-Level Writing Requirement**
Students who choose either the School Health or Community Health emphasis will satisfy the Baccalaureate-Level Writing requirement by successfully completing
HPHE 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours
_Community health education students can substitute another WMU baccalaureate course with Human Performance and Health Education department approval._

**General Education**
School emphasis 39 hours
Community emphasis 37 hours

**Health Education - School Emphasis**

**Required Cognates (17 hours)**
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
PSY 1000 - General Psychology Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours

**Professional Education Sequence (24 hours)**
ED 2500 - Human Development: Applications in Education Credits: 3 hours
HPHE 4100 - Seminar in Education Credits: 1 to 2 hours Credits: 2 hours
HPHE 4750 - Intern Teaching: Middle School/Secondary Credits: 5 or 10 hours Credits: 10 hours
ES 3950 - School and Society Credits: 3 hours
LS 3050 - K-12 Content Area Literacy Credits: 3 hours
SPED 4290 - Learners with Disabilities in Secondary Education Programs Credits: 3 hours

**Professional Preparation (39 hours)**
HPHE 1550 - Foundations of Health Education Credits: 3 hours
HPHE 2200 - Basic Health Concepts Credits: 3 hours
HPHE 2210 - Basic Health Concepts II Credits: 4 hours
HPHE 2220 - Basic Health Concepts III Credits: 3 hours
HPHE 3120 - Planning School Health Programs Credits: 3 hours
HPHE 3160 - Issues in Health Education Credits: 2 hours
HPHE 3500 - Modification of Health Behavior Credits: 2 hours
HPHE 3520 - Teaching Health in the Elementary School Credits: 2 hours
HPHE 3540 - Human Sexuality Education Credits: 4 hours
HPHE 3810 - Instructor First Aid Credits: 2 hours
HPHE 4120 - Teaching Skills and Strategies Credits: 3 hours
HPHE 4140 - Measurement and Evaluation in Health Education Credits: 3 hours
HPHE 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours

**Electives (4 hours)**
Elective courses recommended for Health Education-School Emphasis students may be selected from the following:

Required Teaching Assistant
FCS 2600 - Nutrition Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
HPHE 3000 - Seminar Series Credits: 1 to 4 hours
HPHE 3160 - Issues in Health Education Credits: 2 hours
HPHE 5160 - Issues in Health Education Credits: 1 to 3 hours
SOC 4120 - Child Abuse Credits: 3 hours

Health Education - Community Emphasis
Please note the emphasis “Health Education – Community Emphasis” is no longer accepting admissions.

Required Cognates (17 hours)
BIOS 1120 - Principles of Biology Credits: 3 hours
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
PSY 1000 - General Psychology Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours

Required Courses (37-39 hours)
HPHE 1550 - Foundations of Health Education Credits: 3 hours
HPHE 2200 - Basic Health Concepts Credits: 3 hours
HPHE 2210 - Basic Health Concepts II Credits: 4 hours
HPHE 2220 - Basic Health Concepts III Credits: 3 hours
HPHE 3160 - Issues in Health Education Credits: 2 hours
HPHE 3300 - Grant Writing in Health Education Credits: 3 hours
HPHE 3310 - Community Health Education Planning Credits: 3 hours
HPHE 3500 - Modification of Health Behavior Credits: 2 hours
HPHE 3810 - Instructor First Aid Credits: 2 hours
HPHE 4140 - Measurement and Evaluation in Health Education Credits: 3 hours
HPHE 4310 – Community Health Education Interventions: Individual Strategies Credits: 3 hours
HPHE 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours
HPHE 4960 - Community Health Education Internship Credits: 4 to 6 hours

Electives (6 - 8 hours)
Elective courses required for Community Health Education majors will be fulfilled by selecting appropriate courses from the list below with the consent of a department advisor. The department from which the electives are selected should differ from the student’s minor course of study.
FCS 2100 - Human Sexuality Credits: 3 hours
FCS 2600 - Nutrition Credits: 3 hours
FCS 2660 - Personal Nutrition Credits: 3 hours
HPHE 3000 - Seminar Series Credits: 1 to 4 hours Topic: Health Competencies
HPHE 3160 - Issues in Health Education Credits: 2 hours (Any HPHE 3160 offered)
HPHE 5160 - Issues in Health Education Credits: 1 to 3 hours Credits: 1 to 4 hours
Other WMU courses accepted with approval of the CHE faculty.

Physical Education: Teacher/Coach Major (130 hours)

Successful completion of the Physical Education – Teacher/Coach major makes a student eligible for K-12 certification for the teaching of physical education in Michigan. Students must complete the education sequence required by the Department of Education and Professional Development including the intern teaching experience. Physical Education major and minor students must serve as a teaching assistant for one semester in a general physical education course during their first 60 hours at Western Michigan University. Students should obtain teaching assistant applications from the Human Performance and Health Education department office to register for this experience. In addition, students must complete a minimum of 60
clock hours of observation and participation in both elementary and secondary public schools as well as an extensive lab experience with exceptional children.

To complete the coaching requirements of this major, students are required to engage in course work leading to MHSAA Coaches Advancement Program Beginning Certification, fulfill extensive field work in coaching special populations and successfully complete a seasonal field internship in a youth sport activity.

Baccalaureate-Level Writing Requirement
Students who have chosen the Physical Education - Teacher/Coach major will satisfy the Baccalaureate-Level Writing requirement by successfully completing:
HPHE 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours

General Education
A list of approved General Education courses can be found in “Graduation Requirements and Academic Advising” section earlier in this catalog.

Physical Education: Teacher/Coach Major (42 hours)

K-12 State Provisional Certificate

Required Cognates (14 hours)
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours
HPHE 1110 - Healthy Living Credits: 2 hours

Required Professional Theory Courses (17 hours)
HPHE 1500 - Foundations of Physical and Health Education Credits: 3 hours
HPHE 2950 – Functional Anatomy and Biomechanics Credits: 3 hours
HPHE 2980 - Exercise Physiology Credits: 3 hours
HPHE 3150 – Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education Credits: 3 hours
HPHE 3810 - Instructor First Aid Credits: 2 hours
HPHE 4500 - Cultural Dynamics in Health, Physical Education, and Recreation Credits: 3 hours

Required Coaching Theory/Techniques Courses (9 hours)
HPHE 2350 - Theory of Coaching Credits: 2 hours
HPHE 4000 - Field Experience/Internship in HPHE Credits: 1 to 8 hours

Required Professional Content Courses (13 hours)
Select two hours of PEGN Aquatics Credits: 2 hours

Professional Pedagogical Sequence (21 hours)
ES 3950 - School and Society Credits: 3 hours
HPHE 2400 - Human Motor Development and Learning Credits: 3 hours
HPHE 2430 - Physical Education Methods: Early Elementary Movement/Physical Activities Credits: 3 hours
HPHE 3460 - Physical and Health Education Methods: Special Populations Credits: 3 hours
HPHE 4100 - Intern Teaching Seminar in HPHE Credits: 1 or 2 hours Credits: 2 hours
HPHE 4470 - Physical and Health Education: Elementary Methods Credits: 4 hours
HPHE 4480 - Physical and Health Education: Secondary Methods Credits: 4 hours
HPHE 4750 - Intern Teaching in HPHE Credits: 5 or 10 hours Credits: 10 hours
LS 3050 - K-12 Content Area Literacy Credits: 3 hours

Required Teaching Assistant

Recreation/Sport Management Major (122 hours)
The Recreation/Sport Management Curriculum is designed to allow students to concentrate on either Recreation Management or Sport Management. The Recreation Management Concentration prepares students for leadership/administrative roles in public, non-profit, commercial, and recreational sport organizations. The Sport Management Concentration prepares students for roles in sport organizations on the interscholastic, intercollegiate, professional and recreational levels. The electives in this program allow for student flexibility in preparing for employment in any of the different areas in the fields of recreation and sport. Students in both concentrations will complete a supervised internship experience.

General Education (37 hours)
A list of approved General Education courses can be found in “Graduation Requirements and Academic Advising” section of this catalog.

Baccalaureate Writing Requirement
Students who have chosen the Recreation/Sport Management major will satisfy the Baccalaureate Writing Requirement by successfully completing the following course:
HPHE 4320 - Research and Writing in Recreation/Sport Credits: 3 hours

Recreation Management Concentration (70 hours)

Required Cognates (17 hours)
BUS 1750 - Business Enterprise Credits: 3 hours
COM 1000 - Communication and Community Engagement Credits: 3 hours
CORP 2560 - Introduction to Community and Regional Planning Credits: 3 hours
GEOG 2440 - Economic Geography Credits: 3 hours
HPHE 1110 - Healthy Living Credits: 2 hours
HPHE 1490 - Computer Applications in HPHE Credits: 3 hours

Required Recreation Management Courses (38 hours)
HPHE 1700 - Introduction to Recreation/Sport Management Credits: 3 hours
HPHE 2100 - Event Strategic Planning for Special Events Credits: 3 hours
HPHE 2720 - Administration of Recreational Sports Credits: 3 hours
HPHE 2900 - Inclusive and Special Recreation Credits: 3 hours
HPHE 3710 - Practical Recreational Programming and Leadership Credits: 3 hours
HPHE 4320 - Research and Writing in Recreation/Sport Credits: 3 hours
HPHE 3760 - Management of Recreational/Sport Credits: 3 hours
HPHE 3990 - Practicum in Recreation/Sport Credits: 3 hours
HPHE 4700 - Facilities and Risk Management Credits: 3 hours
HPHE 4720 - Recreation for the Aging Credits: 3 hours
HPHE 4970 - Senior Seminar in Recreation/Sport Credits: 2 hours
HPHE 4990 - Recreation/Sport Internship Credits: 6 hours

Recreation Management Electives (Choose 15 hours)
ACTY 2100 - Principles of Accounting I Credits: 3 hours
BLS 3050 - Introduction to Adults with Disabilities Credits: 3 hours
COM 1040 - Public Speaking Credits: 3 hours
CORP 5540 - Outdoor Recreation: Resources and Planning Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
ECON 3090 - Women and the Economy Credits: 3 hours
ECON 3150 - Sports Economics Credits: 3 hours
ENGL 3060 - Rhetoric, Writing, and Culture Credits: 3 hours
FIN 2420 - Entrepreneurial Finance Credits: 3 hours
GEOG 2050 - Human Geography Credits: 3 hours
GEOG 4260 - Natural Disasters and Risk Management Credits: 3 hours
GEOS 3120 - Geology of the National Parks and Monuments Credits: 3 hours
GRN 1000 - Introduction to Aging Studies Credits: 3 hours
HIST 2120 - American Culture Credits: 3 hours
HIST 2125 - Sport in American Culture Credits: 3 hours
HPHE 1810 - First Aid Credits: 2 hours
HPHE 2350 - Theory of Coaching Credits: 2 hours
HPHE 3810 - Instructor First Aid Credits: 2 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
PHIL 2010 - Introduction to Ethics Credits: 4 hours

Choose one from the following:
STAT 1600 - Statistics and Data Analysis Credits: 3 hours
OR
STAT 3660 - Data Analysis for Biosciences Credits: 4 hours

**Sport Management Concentration (70-86 hours)**

**Required Cognates (14 hours)**
BUS 1750 - Business Enterprise Credits: 3 hours
COM 1000 - Communication and Community Engagement Credits: 3 hours
GEOG 2440 - Economic Geography Credits: 3 hours
HPHE 1110 - Healthy Living Credits: 2 hours
HPHE 1490 - Computer Applications in HPHE Credits: 3 hours

**Required HPHE Courses (32 hours)**
HPHE 1700 - Introduction to Recreation/Sport Management Credits: 3 hours
HPHE 2720 - Administration of Recreational Sports Credits: 3 hours
HPHE 3710 - Practical Recreational Programming and Leadership Credits: 3 hours
HPHE 3980 - Sport Media Credits: 3 hours
HPHE 4320 - Research and Writing in Recreation/Sport Credits: 3 hours
HPHE 3760 - Management of Recreational/Sport Credits: 3 hours
HPHE 4700 - Facilities and Risk Management Credits: 3 hours
HPHE 5610 - Legal Issues in Sport Credits: 3 hours
HPHE 4970 - Senior Seminar in Recreation/Sport Credits: 2 hours
HPHE 4990 - Recreation/Sport Internship Credits: 6 hours

**Required Electives (Choose 9 hours)**
ACTY 2100 - Principles of Accounting I Credits: 3 hours
CIS 2700 - Business-Driven Information Technology Credits: 3 hours
COM 1040 - Public Speaking Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
ECON 3150 - Sports Economics Credits: 3 hours
FIN 2420 - Entrepreneurial Finance Credits: 3 hours
FIN 3200 - Business Finance Credits: 3 hours
HIST 2125 - Sport in American Culture Credits: 3 hours
HPHE 1810 - First Aid Credits: 2 hours
HPHE 2350 - Theory of Coaching Credits: 2 hours
HPHE 3810 - Instructor First Aid Credits: 2 hours
LAW 3800 - Legal Environment Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3800 - Sport Marketing Credits: 3 hours
PHIL 2010 - Introduction to Ethics Credits: 4 hours

Choose one from the following:
STAT 1600 - Statistics and Data Analysis Credits: 3 hours
OR
Required minor (15-31 hours)
Choose one of the approved minors listed below:

- Coaching Minor (Non-Teaching) (31 hours)
- Event Management Minor (15 hours)

Minors in the School of Communication (Must meet School of Communication requirements) (see the COM advisor for more information)
- Communication Minor (18 hours)
- Journalism Minor (18 hours)

Minor in the Haworth College of Business (Must meet College of Business requirements) (see the HCoB advisor for more information)
- General Business Minor (18 hours)

Students can also petition the Sport Management Program Coordinator to approve another minor.

Event Management Minor (15 hours)

The Event Management minor offers students the opportunity to learn the management techniques needed to successfully plan, implement and evaluate meetings, festivals and special events. Course materials will provide theory and applications that will prepare students for careers event planning in the commercial, non-profit and governmental sectors. The program consists of 15 hours of required courses and the completion of HPHE 1700 as a cognate.

Required Courses
- HPHE 2100 - Event Strategic Planning for Special Events Credits: 3 hours
- HPHE 3100 - Event Management Advanced Applications Credits: 3 hours
- HPHE 3110 - Event Marketing Credits: 3 hours
- HPHE 4199 - Practicum in Event Management Credits: 3 hours
- FIN 2420 - Entrepreneurial Finance Credits: 3 hours

Required Cognate
- HPHE 1700 - Introduction to Recreation/Sport Management Credits: 3 hours

Health Education Minor

Two minors in health education are offered: School Emphasis or Community Education Emphasis. The school emphasis is especially appropriate for those specializing in middle/junior high school education, in special education, and in secondary education with majors in such areas as physical education, biology, English, math, and family and consumer science. Candidates also must pass subject area tests of competence administered by the Michigan Department of Education prior to certification by that office. School health minors are expected to have valid first aid and CPR certificates prior to teaching. Students completing requirements are eligible for certification to teach health education in grades 6-12 in Michigan. The Community Education emphasis prepares students to assume careers in non-school settings such as community health agencies and private health-oriented organizations. Students completing the community emphasis minor are not eligible for a teaching license.

Cognates (17 hours)
- BIOS 1120 - Principles of Biology Credits: 3 hours
- BIOS 2110 - Human Anatomy Credits: 4 hours
- BIOS 2400 - Human Physiology Credits: 4 hours
PSY 1000 - General Psychology  Credits: 3 hours
SOC 2000 - Principles of Sociology  Credits: 3 hours

Health Education - School Emphasis (28 hours)
HPHE 1550 - Foundations of Health Education  Credits: 3 hours
HPHE 2200 - Basic Health Concepts I  Credits: 3 hours
HPHE 2210 - Basic Health Concepts II  Credits: 4 hours
HPHE 2220 - Basic Health Concepts III  Credits: 3 hours
HPHE 3120 - Planning School Health Programs  Credits: 3 hours
HPHE 3540 - Human Sexuality Education  Credits: 4 hours
HPHE 3810 - Instructor First Aid  Credits: 2 hours
HPHE 4120 - Teaching Skills and Strategies  Credits: 3 hours
HPHE 4140 - Measurement and Evaluation in Health Education  Credits: 3 hours

Health Education - Community Education Emphasis (26 hours)
HPHE 1550 - Foundations of Health Education  Credits: 3 hours
HPHE 2200 - Basic Health Concepts I  Credits: 3 hours
HPHE 2210 - Basic Health Concepts II  Credits: 4 hours
HPHE 2220 - Basic Health Concepts III  Credits: 3 hours
HPHE 3160 - Issues in Health Education  Credits: 2 hours
HPHE 3310 - Community Health Education Planning  Credits: 3 hours
HPHE 3500 - Modification of Health Behavior  Credits: 2 hours
HPHE 4140 - Measurement and Evaluation in Health Education  Credits: 3 hours
HPHE 4310 - Community Health Education Interventions: Individual Strategies  Credits: 3 hours

Secondary Physical Education Minor

Hours Required for this minor (24 hours)

Cognates (11 hours)
BIOS 1120 - Principles of Biology  Credits: 3 hours
BIOS 2110 - Human Anatomy  Credits: 4 hours
BIOS 2400 - Human Physiology  Credits: 4 hours

Required Professional Courses (19 hours)
HPHE 1500 - Foundations of Physical and Health Education  Credits: 3 hours
HPHE 1810 - First Aid  Credits: 2 hours
HPHE 2400 - Human Motor Development and Learning  Credits: 3 hours
HPHE 3460 - Physical and Health Education Methods: Special Populations  Credits: 3 hours
HPHE 4470 - Physical and Health Education: Elementary Methods  Credits: 4 hours
HPHE 4480 - Physical and Health Education: Secondary Methods  Credits: 4 hours

Required Teaching Assistant Experience

Coaching Minor (Non-Teaching) (31 hours)

This minor does not certify a student to teach physical education. The coaching minor will provide instruction leading to the MHSAA Coaches Advancement Program Intermediate Level Certification. Students fulfill extensive field work in coaching special populations and successfully complete a seasonal field internship in a youth sport activity. The coaching minor is not a teachable minor.

Required Cognates (12 hours)

391
BIOS 1120 - Principles of Biology Credits: 3 hours (The course satisfies General Education Area VI: Natural Science with Laboratory if taken with BIOS 1100.)
BIOS 2110 - Human Anatomy Credits: 4 hours
BIOS 2400 - Human Physiology Credits: 4 hours

Required Courses (14 hours)
HPHE 2350 - Theory of Coaching Credits: 2 hours
HPHE 2950 – Functional Anatomy and Biomechanics Credits: 3 hours
HPHE 2980 - Exercise Physiology Credits: 3 hours
HPHE 3350 - Advanced Theory of Coaching Credits: 2 hours
HPHE 4000 - Field Experience/Internship in HPHE Credits: 1 to 8 hours Credits: 2 hours needed
And either:
HPHE 3810 - Instructor First Aid Credits: 2 hours or
HPHE 1810 - First Aid Credits: 2 hours

Activity Courses (3 hours)
Select one:
HPHE 1610 - Skills and Instruction of Invasion Games Credits: 3 hours
HPHE 1620 - Skills and Instruction of Net/Wall Games Credits: 3 hours
HPHE 1630 - Skills and Instruction of Target/Striking/Fielding Games Credits: 3 hours
HPHE 1640 - Skills and Instruction of Early Elementary and Rhythmic Movements Credits: 3 hours
HPHE 1650 - Skills and Instruction of Fitness Activities Credits: 3 hours

Officiating (2 hours)

Recreation Minor

The recreation minor is designed to prepare students to assume leadership roles in public, non-profit, private, or commercial recreation agencies and organizations.

Please note in course descriptions when courses are offered and the suggested sequence of course work.

Hours Required for this minor (24)

Required Courses (24 hours)
HPHE 1700 - Introduction to Recreation/Sport Management Credits: 3 hours
HPHE 2900 - Inclusive and Special Recreation Credits: 3 hours
HPHE 3710 - Practical Recreational Programming and Leadership Credits: 3 hours
HPHE 3760 - Management of Recreational/Sport Credits: 3 hours
HPHE 4700 – Facilities and Risk Management Credits: 3 hours
HPHE 4720 - Recreation for the Aging Credits: 3 hours

Courses By Topic – Human Performance and Health Education

Athletic Training Courses

HPHE 1100 – Athletic Taping and Bracing Techniques Credits: 1 hour
HPHE 1110 – Health Living Credits: 2 hours
HPHE 1490 – Computer Applications for HPHE Credits: 3 hours
HPHE 1530 – Introduction to Athletic Training Credits: 3 hours
HPHE 1810 – First Aid Credits: 2 hours
HPHE 2400 – Human Motor Development and Learning Credits: 3 hours
HPHE 2530 – Injury/Illness Survey and Management Credits: 3 hours
HPHE 2540 – Medical Conditions in Athletic Training  Credits: 3 hours
HPHE 2950 – Functional Anatomy and Biomechanics  Credits: 3 hours
HPHE 2980 – Exercise Physiology  Credits: 3 hours
HPHE 3150 – Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education  Credits: 3 hours
HPHE 3810 – Instructor First Aid  Credits: 2 hours
HPHE 3825 – Athletic Injury Evaluation of the Lower Extremity  Credits: 3 hours
HPHE 3830 – Athletic Injury Evaluation of the Upper Extremity  Credits: 3 hours
HPHE 3840 – Therapeutic Modalities  Credits: 3 hours
HPHE 3960 – Principles for Strength and Conditioning  Credits: 3 hours
HPHE 3970 – Exercise and Sports Nutrition  Credits: 3 hours
HPHE 4010 - Athletic Training Field Experience I  Credits: 2 hours
HPHE 4020 - Athletic Training Field Experience II  Credits: 2 hours
HPHE 4030 - Athletic Training Field Experience III  Credits: 2 hours
HPHE 4040 - Athletic Training Field Experience IV  Credits: 2 hours
HPHE 4500 – Cultural Dynamics of Human Performance and Health Education  Credits: 3 hours
HPHE 4860 – Therapeutic Exercise for Athletic Injuries  Credits: 3 hours
HPHE 4870 – Sports Medicine Seminar  Credits: 3 hours

Exercise Science Courses

HPHE 1520 – Foundation of Exercise Science  Credits: 3 hours
HPHE 2950 – Functional Anatomy and Biomechanics  Credits: 3 hours
HPHE 2980 – Exercise Physiology  Credits: 3 hours
HPHE 3150 – Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education  Credits: 3 hours
HPHE 3500 – Modifications of Health Behavior  Credits: 2 hours
HPHE 3960 – Principles for Strength and Conditioning  Credits: 3 hours
HPHE 3970 – Exercise and Sports Nutrition  Credits: 3 hours
HPHE 4440 – Professional Development in Exercise Science  Credits: 3 hours
HPHE 4450 – Exercise Testing and Prescription  Credits: 3 hours
HPHE 4960 – Fitness Management  Credits: 2 hours

Health Education Academic Courses

HPHE 1550 - Foundations of Health Education  Credits: 3 hours
HPHE 1810 - First Aid  Credits: 2 hours
HPHE 2200 - Basic Health Concepts I  Credits: 3 hours
HPHE 2210 - Basic Health Concepts II  Credits: 4 hours
HPHE 2220 - Basic Health Concepts III  Credits: 3 hours
HPHE 3120 - Planning School Health Programs  Credits: 3 hours
HPHE 3160 - Issues in Health Education  Credits: 2 hours
HPHE 3310 - Community Health Education Planning  Credits: 3 hours
HPHE 3500 – Modification of Health Behavior  Credits: 2 hours
HPHE 3520 – Teaching Health in Elementary Schools  Credits: 2 hours
HPHE 3540 – Human Sexuality in Education  Credits: 4 hours
HPHE 3810 – Instructor First Aid  Credits: 2 hours
HPHE 4120 - Teaching Skills and Strategies  Credits: 3 hours
HPHE 4140 – Measurement and Evaluation in Health Education  Credits: 3 hours
HPHE 4310 - Community Health Education Interventions: Individual Strategies  Credits: 3 hours
HPHE 4960 – Community Health Education Internship  Credits: 4 to 6 hours
HPHE 5160 - Issues in Health Education  Credits: 1 to 3 hours

Physical Education Academic Courses

HPHE 1500 - Foundations of Physical and Health Education  Credits: 3 hours
HPHE 1520 - Foundations of Exercise Science  Credits: 3 hours
HPHE 1810 - First Aid  Credits: 2 hours
<table>
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<td>Theory of Coaching</td>
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<td>Human Motor Development and Learning</td>
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<td>HPHE 2430</td>
<td>Physical Education Methods: Early Elementary Movement/Physical Activities</td>
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<td>Functional Anatomy and Biomechanics</td>
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<td>HPHE 2980</td>
<td>Exercise Physiology</td>
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<td>HPHE 3000</td>
<td>Seminar Series</td>
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<td>HPHE 3150</td>
<td>Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education</td>
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<td>HPHE 3350</td>
<td>Advanced Theory of Coaching</td>
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<td>Physical and Health Education Methods: Special Populations</td>
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<td>HPHE 4440</td>
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<td>Exercise Testing and Prescription</td>
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<td>HPHE 4470</td>
<td>Physical and Health Education: Elementary Methods</td>
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<td>Physical Education Methods: Teaching Skills</td>
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<td>HPHE 4500</td>
<td>Cultural Dynamics in Health, Physical Education, and Recreation</td>
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<td>HPHE 4800</td>
<td>Heart Disease and Rehabilitation</td>
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<tr>
<td>HPHE 4980</td>
<td>Exercise Science Internship</td>
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**Recreation Courses**

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<td>Introduction to Recreation/Sport Management</td>
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<td>HPHE 2100</td>
<td>Event Strategic Planning for Special Events</td>
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<td>HPHE 2900</td>
<td>Inclusive and Special Recreation</td>
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<td>HPHE 3100</td>
<td>Event Management Advanced Applications</td>
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<td>HPHE 3110</td>
<td>Event Marketing</td>
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<td>HPHE 3710</td>
<td>Practical Recreational Programming and Leadership</td>
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<td>Management of Recreational/Sport</td>
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<td>Practicum in Recreation/Sport</td>
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<td>HPHE 4000</td>
<td>Field Experience/Internship in HPHE</td>
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<td>HPHE 4320</td>
<td>Research and Writing in Recreation/Sport</td>
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<td>HPHE 4700</td>
<td>Facilities and Risk Management</td>
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<td>HPHE 4720</td>
<td>Recreation for the Aging</td>
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<td>HPHE 4199</td>
<td>Practicum in Event Management</td>
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<td>HPHE 4970</td>
<td>Senior Seminar in Recreation/Sport</td>
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<td>HPHE 4990</td>
<td>Recreation/Sport Internship</td>
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**Open To Upperclass And Graduate Students**

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<td>HPHE 5160</td>
<td>Issues in Health Education</td>
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<td>HPHE 5910</td>
<td>Evaluation in Health, Physical Education, and Recreation</td>
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<tr>
<td>HPHE 5980</td>
<td>Readings in Health, Physical Education and Recreation</td>
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</tbody>
</table>
Special Education and Literacy Studies

Regena Fails Nelson, Interim Chair
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Kristal Ehrhardt
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Elizabeth Whitten

The Department of Special Education and Literacy Studies (SPLS) offers undergraduate and graduate programs focused on preparation of educational professionals with expertise in meeting the needs of K-12 students with diverse abilities. Special education faculty offer a number of program options at the undergraduate, masters, and doctoral levels with an emphasis on the application of research-generated practices to improve students' educational and post-school outcomes. Literacy studies faculty offer a master's program that leads to the Reading Specialist Endorsement K-12, oversee the language arts major for elementary education program, and provide an English as a Second Language (ESL) graduate certificate program. This instruction integrates teaching literacy and language development throughout the curriculum and across the educational continuum. Within each program area, faculty are engaged in research initiatives that enhance student learning and school/community engagement.

Special Education

Admission
Students who desire to major in Special Education will be admitted to the pre-education curriculum of the College of Education and Human Development. This status, however, does not assure admission to the Professional Education Curriculum of the department. The selection of students to the Professional Education Curriculum in Special Education occurs in February each year after review of all applications by a departmental faculty committee.

Each year the Special Education program establishes the maximum number of new students who can be admitted to the special education curricula for the following year. The minimum criteria for admission consideration include:

1. Completion of the Western Michigan University College of Education and Human Development Pre-Education Curriculum or equivalent transfer.
2. Attainment of junior status (at least 56 semester hours completed by commencement of the program).
3. Attainment of a minimum 3.0 grade point average.
4. Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) - Professional Readiness Exam.
5. Completion of a letter of intent for admission into the program including professional goals and explaining why a special education degree is sought.
6. Submission of an application for admission to the Special Education Professional Education Curriculum by the announced date.
7. Completion of Criminal background check.

All completed applications will be evaluated using the following specific criteria:
1. Grade point average at the time of application
2. Semester hours completed
3. Letter of intent
4. Personal interview with faculty
5. Writing sample taken at the interview
Students selected for admission will comprise a cohort which will begin taking courses in the Special Education sequence the following fall semester. Courses must be taken in the prescribed sequence. Six semesters (course work plus intern teaching) are required to complete the Professional Curriculum in Special Education.

Further information regarding admission requirements and procedures may be obtained by directly contacting the department.

Advising
The College of Education and Human Development staff advisors and Special Education faculty provide advising to all students who wish to major in Special Education, whether or not they are currently enrolled in the department's curricula. Students are expected to meet with College of Education and Human Development advisors and Special Education advisors early in their college careers.

Intern Teaching
Students complete internships in General (Elementary) Education, Learning Disabilities, and Emotional Impairments. Special Education Intern teaching placement is made only within prescribed areas in Southwest Michigan or in Europe. Intern Teaching placement in or near home school districts should not be anticipated or expected.

Special Education Curricula

Bachelor of Science
State Elementary Provisional Certificate
Minimum Hours Required 151-152 hours

Baccalaureate Writing Requirement
Students who have chosen the Special Education Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing SPED 3300- Foundations of Special Education, which is included in the curriculum requirements for each of the special education endorsements.

Endorsement Areas
Students who have chosen the Special Education curriculum will complete an endorsement in Learning Disabilities and in Emotional Impairments.

Special Education and Elementary Education: Learning Disabilities and Emotional Impairments K-12

Elementary Education Content Area Requirements (49-50 hours)
ART 1480 - Direct Encounter with the Arts Credits: 4 hours
Or
MUS 1480 - Direct Encounter with the Arts Credits: 4 hours
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers Credits: 4 hours
ENGL 3820 - Literature for the Young Child Credits: 4 hours
ECON 1000 - Economics for Elementary Education Credits: 3 hours
GEOG 1900 - Exploring Earth Science: The Atmosphere Credits: 3 hours
GEOG 1020 - World Geography through Media and Maps Credits: 3 hours
HIST 2100 - American History to 1877 Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours
Or
HIST 3290 - Michigan History Credits: 3 hours
PSCI 2000 - National Government Credits: 3 hours
BIOS 1700 - Life Science for Non-Majors Credits: 3 hours
PHYS 1800 - Physics: Inquiry and Insights Credits: 3 hours
PHYS 1800 - Physics: Inquiry and Insights Credits: 3 hours
CHEM 2800 - Active Chemistry  Credits: 3 hours
HOL 1000 - Choices in Living  Credits: 3 hours
Or
HPHE 1110 - Healthy Living  Credits: 2 hours
ED 2500 - Human Development: Applications in Education  Credits: 3 hours
(Requires grade of "CB" or better)
SPED 4350 - Evidence-Based Instruction II: Focus on 6-12 Language Arts, Math, Science and Social Studies  Credits: 3 hours
SPED 4810 - Field Experience in Special Education III: Strategic Interventions for Learners with High Incidence Disabilities  Credits: 3 hour

Professional Level Elementary Education Requirements (50 hours)
Students must meet Elementary Education admissions requirements or be accepted into the Special Education professional program in order to take the Professional Level Elementary Education classes listed below.

A minimum grade of "CB" must be earned in all Professional Level Elementary Education courses.

LS 3770 - Literacy I: Early Literacy and Language Acquisition  Credits: 3 hours
LS 3780 - Literacy II: Literacy/Language Arts across Disciplines  Credits: 3 hours
ENGL 3690 - Writing in the Elementary School  Credits: 4 hours
HPHE 3400 - Physical Education for the Elementary Classroom Teacher  Credits: 2 hours
HPHE 3520 - Teaching Health in the Elementary School  Credits: 2 hours
MATH 3520 - Teaching of Elementary/Middle School Mathematics  Credits: 3 hours
EDT 3470 - Technology for Elementary Education  Credits: 3 hours
SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs  Credits: 3 hours
ED 4010 - Teaching Elementary School Science  Credits: 3 hours
ED 4070 - Teaching Elementary Social Studies  Credits: 3 hours
ED 4300 - Creativity in the Elementary Classroom  Credits: 3 hours
ED 3710 - Elementary Classroom Organization and Management  Credits: 3 hours
ED 4500 - Pre-Internship in Elementary Education  Credits: 3 hours
ED 4710 - Intern Teaching: Elementary/Middle School  Credits: 5, 8, or 10 hours
ED 4100 - Seminar in Education  Credits: 1 to 2 hours

Course Requirements in Learning Disabilities (32 hours)
Students must be accepted into the Special Education professional program in order to take the Special Education classes listed below.

A minimum grade of "CB" must be earned in all Special Education classes.

Note: Students must see a department advisor regarding the sequence in which the courses must be completed.

SPED 3300 - Foundations of Special Education  Credits: 3 hours
SPED 3380 - Prevention and Intervention Techniques for Establishing Positive School Environments  Credits: 3 hours
SPED 4330 - Assessment and Data-Based Decision Making in Special Education  Credits: 3 hours
SPED 4340 - Evidence-Based Instruction I: Focus on K-5 Foundations of Reading, Written Language, and Content Areas  Credits: 3 hours
SPED 4040 - Field Experience in Special Education II: Data-Based Decision Making and Effective Instruction  Credits: 3 hours
SPED 3390 - Collaboration and Communication in Special Education  Credits: 3 hours
SPED 4350 - Evidence-Based Instruction II: Focus on 6-12 Language Arts, Math, Science and Social Studies  Credits: 3 hours
SPED 4810 - Field Experience in Special Education III: Strategic Interventions for Learners with High Incidence Disabilities  Credits: 3 hour
SPED 4100 - Seminar in Special Education  Credits: 2 hours
SPED 4760 - Intern Teaching in Special Education: Learning Disabilities  Credits: 6 hours
Course Requirements in Emotional Impairments (20 hours)
SPED 3310 - Field Experience in Special Education I: Effective Instruction  Credits: 3 hour
SPED 3700 - Introduction to Emotional Impairments  Credits: 3 hours
SPED 3710 - Field Experience in Emotional Impairments  Credits: 3 hour
SPED 3750 - Strategic Interventions for Social and Academic Behaviors  Credits: 3 hours
SPED 4100 - Seminar in Special Education  Credits: 2 hours
SPED 4750 - Intern Teaching in Special Education: Emotional Impairments  Credits: 6 hours
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The Department of Teaching, Learning, and Educational Studies offers undergraduate programs focused on preparation of educational professionals with expertise in Early Childhood Education, Elementary Education, and Secondary Education. Programs of study are designed to assist students in meeting state teacher certification requirements.

Students must contact the College of Education and Human Development Office of Admissions and Advising, 2421 Sangren Hall, to be admitted to the teacher education curriculum. Once admitted, the student will be assigned an advisor who will assist the student in program planning and scheduling the sequence of courses, including an internship.

Early Childhood Elementary Education (129 hours)

Michigan Elementary Provisional Certificate plus the Early Childhood: General and Special Education (ZS) endorsement. The Elementary Education Curriculum is designed to prepare students to assume teaching responsibilities in K-5 all subjects, and in self-contained classrooms in grades K-8 all subjects. The Early Childhood General and Special Education (ZS) endorsement prepares students to assume teaching responsibilities in birth to age 8 settings.

Additional information may be obtained from the CEHD Office of Admissions and Advising, 2421 Sangren Hall.

University General Education Requirement (40 hours)
The University General Education Requirement is 37 hours. An additional three hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) are required for Michigan certification. All of the student's University General Education Requirements will be met by options within the professional education program and the approved minors. (Two courses at the 3000-4000 level are required.) Successful completion of BIOS 1700, PHYS 1800, and GEOG 1900 will satisfy General Education Area VI for students who complete the Early Childhood Elementary Education program.

I. Admission to the Professional Curriculum
All education students are coded Pre-Education upon admission to the University.

Candidates may apply for advancement to the Early Childhood Elementary Education professional curriculum after earning 35 credits toward their degree. A minimum cumulative grade point average of 3.0* must be attained for advancement from the Pre-Education curriculum to the Early Childhood Elementary Education professional curriculum. Pre-Education students
are not permitted to enroll in upper-level professional education courses until admission requirements are met and application is approved. See “College of Education and Human Development Office of Admissions and Advising” for all admission requirements.

*Candidates with a cumulative GPA between 2.75 and 2.99 can be granted provisional admission to the Early Childhood Elementary Education professional curriculum. Candidates admitted under "Provisional Admission" can continue in their program provided they receive a "CB" or above in all professional education coursework.

II. Admission to Intern Teaching
A minimum cumulative grade point average of 3.0** must be attained for enrollment in Intern Teaching and for a recommendation for the teaching certificate.

**Candidates with a cumulative GPA below 3.0 may submit an appeal to complete their intern teaching and the request will be considered by an appeals committee. Decisions of the appeals committee are final.

III. Other Program Requirements
An overall grade point average of 3.0 is required in the professional education sequence of courses, and no grade lower than a "CB" may be earned in any professional education courses.

Students may retake professional education courses only one time for a total of two times taking the course.

Professional Education courses are: ED 3090, ED 3500, ED 3690, ED 3710, ED 4010, ED 4070, ED 4090, ED 4100, ED 4300, ED 4500, ED 4700, ED 5750, ES 3950, EDT 3470, ENGL 3690, HPHE 3400, HPHE 3520, LS 3770, LS 3780, MATH 3520, SPED 4270.

Elementary Education Content Area Requirements (52-53 hours)
ART 1480 - Direct Encounter with the Arts Credits: 4 hours
OR
MUS 1480 - Direct Encounter with the Arts Credits: 4 hours
MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers Credits: 4 hours
ENGL 3820 - Literature for the Young Child Credits: 4 hours
ECON 1000 - Economics for Elementary Education Credits: 3 hours
GEOG 1020 - World Geography through Media and Maps Credits: 3 hours
HIST 2100 - American History to 1877 Credits: 3 hours
HIST 3020 - World History to 1500 Credits: 3 hours
PSCI 2000 - National Government Credits: 3 hours
BIOS 1700 - Life Science for Non-Majors Credits: 3 hours
PHYS 1800 - Physics: Inquiry and Insights Credits: 3 hours
GEOG 1900 - Exploring Earth Science: The Atmosphere Credits: 3 hours
CHEM 2800 - Active Chemistry Credits: 3 hours
HOL 1000 - Choices in Living Credits: 3 hours
OR
HPHE 1110 - Healthy Living Credits: 2 hours
ED 2500 - Human Development: Applications in Education Credits: 3 hours
(Requires a grade of "CB" or better)

Professional Level Elementary Education Requirements (50 hours)
Students must meet requirements for Admission to the Professional Curriculum (see above) in order to take the Professional Level Elementary Education classes listed below.

A minimum grade of "CB" must be earned in all Professional Level Elementary Education courses. Students may retake professional education courses only one time for a total of two times taking the course.

LS 3770 - Literacy I: Early Literacy and Language Acquisition Credits: 3 hours
LS 3780 - Literacy II: Literacy/Language Arts across Disciplines  Credits: 3 hours
ENGL 3690 - Writing in the Elementary School  Credits: 4 hours
HPHE 3400 - Physical Education for the Elementary Classroom Teacher  Credits: 2 hours
HPHE 3520 - Teaching Health in the Elementary School  Credits: 2 hours
MATH 3520 - Teaching of Elementary/Middle School Mathematics  Credits: 3 hours
EDT 3470 - Technology for Elementary Education  Credits: 3 hours
SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs  Credits: 3 hours
ED 4010 - Teaching Elementary School Science  Credits: 3 hours
ED 4070 - Teaching Elementary Social Studies  Credits: 3 hours
ED 4300 - Creativity in the Elementary Classroom  Credits: 3 hours
ED 3710 - Elementary Classroom Organization and Management  Credits: 3 hours
ED 4500 - Pre-Internship in Elementary Education  Credits: 3 hours
ED 4710 - Intern Teaching: Elementary/Middle School  Credits: 5, 8, or 10 hours
(Credits: 10 hours needed)
ED 4100 - Seminar in Education  Credits: 1 to 2 hours
(Credits: 2 hours needed)

Early Childhood Courses (24 hours)
Students must meet requirements for Admission to the Professional Curriculum (see above) in order to take the 3000 and 4000-level Early Childhood classes listed below.

A minimum grade of "CB" must be earned in all Professional Level Early Childhood courses. Students may retake professional education courses only one time for a total of two times taking the course.

ED 2900 - K-8 Teaching as a Profession  Credits: 3 hours
ED 3090 - Assessment and Instruction in Early Childhood Inclusive Education  Credits: 3 hours
ED 3500 - Young Children, Their Families, and Their Society  Credits: 3 hours
ED 3690 - Early Childhood Classroom Organization and Management  Credits: 3 hours
ED 4090 - Seminar in Early Childhood Education  Credits: 1 hour
ED 4700 - Intern Teaching: Early Childhood  Credits: 5 hours
ED 5750 - Administration of Child Development Centers  Credits: 3 hours
ES 3950 - School and Society  Credits: 3 hours

Other Requirements
The college-level writing may be met by completing ENGL 1050 - thought and Writing or an equivalent with a minimum grade of "C" or better.

The baccalaureate-level writing requirement is met by completing ES 3950 - School and Society.

Elementary Education Curriculum (129 hours)

Michigan Elementary Provisional Certificate
The Elementary Education Curriculum is designed to prepare students to assume teaching responsibilities in K-5 all subjects, and in self-contained classrooms in grades K-8 all subjects. Content area majors and minors prepare students to assume teaching responsibilities in single-subject classrooms grades 6-8.

Additional information may be obtained from the CEHD Office of Admissions and Advising, 2421 Sangren Hall.

University General Education Requirement (40 hours)
The University General Education Requirement is 37 hours. An additional three hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) are required for Michigan certification. The majority of the student's University General Education Requirements will be met by options within the professional education program and the approved minors. (Two courses at the 3000-4000 level are required.) Successful completion of BIOS 1700, PHYS 1800, and GEOG 1900 will satisfy General Education Area VI for students who complete the Elementary Education program.
I. Admission to the Professional Curriculum
All education students are coded Pre-Education upon admission to the University. Candidates may apply for advancement to the Elementary Education professional curriculum after earning 35 credits toward their degree. A minimum cumulative grade point average of 3.0* must be attained for advancement from the Pre-Education curriculum to the Elementary Education professional curriculum. Pre-Education students are not permitted to enroll in upper-level professional education courses until admission requirements are met and application is approved. See “College of Education and Human Development Office of Admissions and Advising” for admission requirements.

*Candidates with a cumulative GPA between 2.75 and 2.99 can be granted provisional admission to the Elementary Education professional curriculum. Candidates admitted under "Provisional Admission" can continue in their program provided they receive a "CB" or above in all professional education coursework.

II. Admission to Intern Teaching
A minimum cumulative grade point average of 3.0** must be attained for enrollment in Intern Teaching and for a recommendation for the teaching certificate.

**Candidates with a cumulative GPA below 3.0 may submit an appeal to complete their intern teaching and the request will be considered by an appeals committee. Decisions of the appeals committee are final.

III. Other Program Requirements
An overall grade point average of 3.0 is required in the professional education sequence and no grade lower than a "CB" may be earned in any professional education courses.

Students may retake professional education courses only one time for a total of two times taking the course.

Professional Elementary Education courses are: ED 3100, ED 3710, ED 4010, ED 4070, ED 4100, ED 4300, ED 4500, ED/FCS 5750, ES 3950, EDT 3470, ENGL 3690, HPHE 3400, HPHE 3520, LS 3770, LS 3780, MATH 3520, SPED 4270.

Elementary Education Curriculum Requirements

Students who would like to become elementary teachers are required to complete:
- Core Elementary Education content courses outside of chosen major or minor area(s).
- Professional Level Elementary Education Courses
- A minimum of one subject area major* chosen from Mathematics, Integrated Science, Language Arts, or Social Studies.

Note: *In addition to selecting one or more subject area majors, students may also choose an additional subject area minor in Mathematics, Integrated Science, or Language Arts.

Requirements and approval for the required minors and majors are available in the CEHD Office of Admissions and Advising.

1. Core Elementary Education Content Courses (43-61 hours)
   Required for all Elementary Education students

Students must complete all content courses below that are not a part of their subject area major or minors with a minimum grade of "C" or better.

MATH 1500 - Number Concepts for Elementary/Middle School Teachers  Credits: 4 hours
MATH 1510 - Geometry for Elementary/Middle School Teachers  Credits: 4 hours
MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers  Credits: 4 hours
BIOS 1700 - Life Science for Non-Majors  Credits: 4 hours
CHEM 2800 - Active Chemistry  Credits: 3 hours
GEOG 1900 - Exploring Earth Science: The Atmosphere  Credits: 3 hours
GEOS 2900 - Earth Systems: Issues and Applications  Credits: 3 hours
PHYS 1800 - Physics: Inquiry and Insights  Credits: 3 hours
ENGL 3820 - Literature for the Young Child  Credits: 4 hours
ANTH 1200 - Peoples of the World  Credits: 3 hours
ECON 1000 - Economics for Elementary Education  Credits: 3 hours
GEOG 1020 - World Geography through Media and Maps  Credits: 3 hours
HIST 2100 - American History to 1877  Credits: 3 hours
OR
HIST 3100 - Topics in History  Credits: 1 to 3 hours
(Topic: History as Mystery  Credits: 3 hours)
HIST 2110 - American History since 1877  Credits: 3 hours
OR
HIST 3103 - The United States in the Nineteenth Century to the Gilded Age (WI)  Credits: 3 hours
HIST 3020 - World History to 1500  Credits: 3 hours
PSCI 2000 - National Government  Credits: 3 hours
ART 1480 - Direct Encounter with the Arts  Credits: 4 hours
OR
MUS 1480 - Direct Encounter with the Arts  Credits: 4 hours
DANC 2900 - Dance in the Elementary School  Credits: 3 hours
OR
MUS 2400 - Music for the Classroom Teacher  Credits: 3 hours
HPHE 1110 - Healthy Living  Credits: 2 hours

2. Professional Level Elementary Education Courses (56 hours)
Required for all Elementary Education students

An overall grade point average of 3.0 is required in the professional education sequence and no grade lower than a "CB" may be earned in any professional education courses. Students may retake professional education courses only one time for a total of two times taking the course. Students must be accepted into the Elementary Education Professional program to take 3000, 4000, and 5000 level courses.

ED 2500 - Human Development: Applications in Education  Credits: 3 hours
ED 2900 - K-8 Teaching as a Profession  Credits: 3 hours
ED 3100 - Educational Psychology of Childhood  Credits: 3 hours
ED 3710 - Elementary Classroom Organization and Management  Credits: 3 hours
ED 4010 - Teaching Elementary School Science  Credits: 3 hours
ED 4070 - Teaching Elementary Social Studies  Credits: 3 hours
ED 4300 - Creativity in the Elementary Classroom  Credits: 3 hours
ED 4500 - Pre-Internship in Elementary Education  Credits: 3 hours
EDT 3470 - Technology for Elementary Education  Credits: 3 hours
ES 3950 - School and Society  Credits: 3 hours
ENGL 3690 - Writing in the Elementary School  Credits: 4 hours
HPHE 3400 - Physical Education for the Elementary Classroom Teacher C  credits: 2 hours
HPHE 3520 - Teaching Health in the Elementary School  Credits: 2 hours
LS 3770 - Literacy I: Early Literacy and Language Acquisition  Credits: 3 hours
LS 3780 - Literacy II: Literacy/Language Arts across Disciplines  Credits: 3 hours
MATH 3520 - Teaching of Elementary/Middle School Mathematics  Credits: 3 hours
SPED 4270 - Learners with Disabilities in Elementary and Middle School Programs  Credits: 3 hours
ED 4100 - Seminar in Education  Credits: 1 to 2 hours
(Credits: 2 hours needed)
ED 4710 - Intern Teaching: Elementary/Middle School  Credits: 5, 8, or 10 hours
(Credits: 10 hours needed)

3. Other Requirements For all Elementary Education Students
The college-level writing may be met by completing ENGL 1050 or an equivalent with a minimum grade of "C" or better. The baccalaureate-level writing requirement is met by completing ES 3950.

Subject area major* chosen from Mathematics, Integrated Science, Language Arts, or Social Studies.

Note: *In addition to selecting one or more subject area majors, students may also choose an additional subject area minor in Mathematics, Integrated Science, or Language Arts.

Content Requirements for Elementary/Middle School Math Major and Minor

**Elementary/Middle School Math Major Courses (32 hours)**
A minimum grade of "B" or better is required in MATH 1500, MATH 1510, MATH 2650, and MATH 3520. A grade of "C" or better is required in MATH 5531, 5540, 5550, and MATH 5501. A Minimum GPA of 2.5 must be obtained in the major. Students must be accepted into the Elementary Education Professional program to take 3000 and 5000 level courses.

- MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers Credits: 4 hours
- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers Credits: 4 hours
- MATH 3520 - Teaching of Elementary/Middle School Mathematics Credits: 3 hours
- MATH 5531 - Number Systems and Proportional Reasoning for Middle Grades Teachers Credits: 4 hours
- MATH 5540 - Functions and Modeling for Middle Grades Teachers Credits: 4 hours
- MATH 5550 - Concepts of Calculus for Middle Grades Teachers Credits: 4 hours
- MATH 5501 - Teaching of Middle School Mathematics Credits: 3 hours
- MATH 5511 - Computing Technology in Middle School Mathematics Credits: 3 hours

**Elementary/Middle School Math Minor Courses (23 hours)**
A minimum grade of "B" or better is required in MATH 1500, MATH 1510, MATH 2650, and MATH 3520. A grade of "C" or better is required in MATH 5531, 5540. A Minimum GPA of 2.5 must be obtained in the minor. Students must be accepted into the Elementary Education Professional program to take 3000 and 5000 level courses.

- MATH 1500 - Number Concepts for Elementary/Middle School Teachers Credits: 4 hours
- MATH 1510 - Geometry for Elementary/Middle School Teachers Credits: 4 hours
- MATH 2650 - Probability and Statistics for Elementary/Middle School Teachers Credits: 4 hours
- MATH 3520 - Teaching of Elementary/Middle School Mathematics Credits: 3 hours
- MATH 5531 - Number Systems and Proportional Reasoning for Middle Grades Teachers Credits: 4 hours
- MATH 5540 - Functions and Modeling for Middle Grades Teachers Credits: 4 hours

**Content Requirements for Elementary/Middle School Integrated Science Major and Minor**

**Elementary/Middle School Integrated Science Major Courses (40 hours)**
A "C" grade or better in each content course and a grade of "CB" or better in ED 4010 must be attained to satisfy the requirements of this subject area major.

- BIOS 1700 - Life Science for Non-Majors Credits: 3 hours
- BIOS 2700 - Everyday Biology: Cells Credits: 3 hours
- CHEM 1100 - General Chemistry I Credits: 3 hours
- CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
- CHEM 2800 - Active Chemistry Credits: 3 hours
- GEOG 1900 - Exploring Earth Science: The Atmosphere Credits: 3 hours
- GEOS 2900 - Earth Systems: Issues and Applications Credits: 3 hours
- GEOS 3220 - Ocean Systems Credits: 3 hours
- PHYS 1000 - How Things Work Credits: 4 hours
- PHYS 1030 - Sky and Solar System Laboratory Credits: 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System Credits: 3 hours
- PHYS 1800 - Physics: Inquiry and Insights Credits: 3 hours
ED 4010 - Teaching Elementary School Science   Credits: 3 hours

**Elementary/Middle School Integrated Science Minor Courses (29 hours)**

A "C" grade or better in each content course and a grade of "CB" or better in ED 4010 must be attained to satisfy the requirements of this subject area minor.

- BIOS 1700 - Life Science for Non-Majors   Credits: 3 hours
- BIOS 2700 - Everyday Biology: Cells   Credits: 3 hours
- CHEM 1100 - General Chemistry I   Credits: 3 hours
- CHEM 1110 - General Chemistry Laboratory I   Credits: 1 hour
- CHEM 2800 - Active Chemistry   Credits: 3 hours
- GEOG 1900 - Exploring Earth Science: The Atmosphere   Credits: 3 hours
- GEOS 2900 - Earth Systems: Issues and Applications   Credits: 3 hours
- PHYS 1030 - Sky and Solar System Laboratory   Credits: 1 hour
- PHYS 1040 - Introduction to the Sky and Solar System   Credits: 3 hours
- PHYS 1800 - Physics: Inquiry and Insights   Credits: 3 hours
- ED 4010 - Teaching Elementary School Science   Credits: 3 hours

Content Requirements for Elementary/Middle School Social Studies Major

**Elementary/Middle School Social Studies Major Courses (37 hours)**

A "C" grade or better in each content course and a grade of "CB" or better in ED 4070 must be attained to satisfy the requirements of this subject area major.

- ANTH 1200 - Peoples of the World   Credits: 3 hours
- ECON 1000 - Economics for Elementary Education   Credits: 3 hours
- GEOG 1020 - World Geography through Media and Maps   Credits: 3 hours
- GEOG 2440 - Economic Geography   Credits: 3 hours
- HIST 2100 - American History to 1877   Credits: 3 hours
  OR
- HIST 2110 - American History since 1877   Credits: 3 hours
  (Topic: History as Mystery   Credits: 3 hours)
- HIST 2103 - The United States in the Nineteenth Century to the Gilded Age (WI)   Credits: 3 hours
- HIST 3020 - World History to 1500   Credits: 3 hours
- HIST 3030 - World History since 1500   Credits: 3 hours
- HIST 3290 - Michigan History   Credits: 3 hours
  OR
- GEOG 3110 - Geography of Michigan   Credits: 3 hours
- PSCI 2000 - National Government   Credits: 3 hours
- PSCI 2020 - State and Local Government   Credits: 4 hours
  OR
- SOC 3040 - Nonwestern World   Credits: 4 hours
- ED 4070 - Teaching Elementary Social Studies   Credits: 3 hours

Content Requirements for Elementary/Middle School Language Arts Major and Minor

**Elementary/Middle School Language Arts Major Courses (31-33 hours)**

A "C" grade or better in each content course must be attained to satisfy the requirements of this subject area major. Students must be accepted into the Elementary Education Professional Program to take LS 5100, 5160, TEL 5200, and ENGL 4800.

- ENGL 1100 - Literary Interpretation   Credits: 4 hours
- ENGL 3820 - Literature for the Young Child   Credits: 4 hours
- ENGL 3830 - Literature for the Intermediate Reader   Credits: 4 hours
- ENGL 4790 - Writing in the Secondary School   Credits: 4 hours
ENGL 4800 - Teaching Literature in the Secondary Schools Credits: 4 hours
LS 5100 - Diversity in Language, Literacy, and Learning Credits: 3 hours
LS 5160 - Professional Symposium in Reading Credits: 3 hours

Choose one from the following:
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
ENGL 2230 - African American Literature Credits: 4 hours
ENGL 4840 - Multi-Cultural American Literature for Children Credits: 4 hours
SPAN 2750 - Latino Writing/Latino Culture Credits: 3 hours

Choose one from the following:
ENGL 3740 - Language in the Elementary School Credits: 3 hours
ENGL 3770 - Language and Learning in Multilingual Classrooms Credits: 3 hours
ENGL 4720 - Language Variation in American English Credits: 4 hours
TEL 5200 - Linguistic Principles for ESL and Bilingual Education Credits: 3 hours

Content Requirements for Elementary/Middle School Language Arts Minor

Elementary/Middle School Language Arts Minor Courses (32 hours)
A "C" grade or better in each content course must be attained to satisfy the requirements of this subject area minor. Students must be accepted into the Elementary Education Professional Program to take LS 3770, LS 3780, ENGL 3690, ED 4300, and TEL 5200. A "CB" grade or better is required in LS 3770, LS 3780, ENGL 3690, and ED 4300.

ENGL 1100 - Literary Interpretation Credits: 4 hours
ENGL 3820 - Literature for the Young Child Credits: 4 hours
ENGL 3830 - Literature for the Intermediate Reader Credits: 4 hours
LS 3770 - Literacy I: Early Literacy and Language Acquisition Credits: 3 hours
LS 3780 - Literacy II: Literacy/Language Arts across Disciplines Credits: 3 hours
ENGL 3690 - Writing in the Elementary School Credits: 4 hours
ED 4300 - Creativity in the Elementary Classroom Credits: 3 hours

Choose one from the following:
ENGL 2220 - Literatures and Cultures of the United States Credits: 4 hours
ENGL 2230 - African American Literature Credits: 4 hours
ENGL 4840 - Multi-Cultural American Literature for Children Credits: 4 hours

Choose one from the following:
TEL 5200 - Linguistic Principles for ESL and Bilingual Education Credits: 3 hours
ENGL 3770 - Language and Learning in Multilingual Classrooms Credits: 3 hours
ENGL 4720 - Language Variation in American English Credits: 4 hours

Secondary Education Curriculum (122 hours)

State Secondary Provisional Certificate
(For the preparation of teachers in Grades 6-12 or K-12 with group minor)

Minimum hours required (122 hours)
This curriculum may require more than 122 credit hours.

Candidates may apply for advancement to the Secondary Education curriculum after 60 hours earned toward their secondary education degree. A minimum grade point average of 3.0* must be attained for advancement from the Pre-Education curriculum to the Secondary Education curriculum. Pre-Education curriculum students are not permitted to enroll in upper-level professional education courses until admission requirements are met and application is approved.
A minimum grade point average of 3.0** must be attained and maintained for admission and continued enrollment in Intern Teaching and passage of appropriate MTTC content test in major is required for recommendation for the teaching certificate.

*Candidates with a GPA between 2.75 and 2.99 may be granted provisional admission. Candidates with a GPA that falls between 2.50 and 2.75 may appeal and request provisional admission. Candidates admitted under "Provisional Admission" can continue in their program provided they receive a CB or above in all Professional Education Coursework.

**Candidates with a GPA below this threshold may appeal the decision and the request will be considered by an advisory committee.

University General Education Requirement (Minimum 37 hours)
The University General Education Requirement is 37 hours, not including baccalaureate-level writing course.

Professional Education Program (38 - 55 hours)
Minimum grade of “CB” required in each of these courses and a grade point average of 2.75 maintained in all courses after admission to teacher education.

Secondary Education for students with majors in the College of Arts and Sciences.

A “methods of teaching” course in either the major or minor Credits: 3 to 17 hours
(both, if required by the respective major and minor departments.)
ES 2000 - Introduction to American Education Credits: 3 hours
ED 3000 - Adolescent Development and School Learning Credits: 3 hours
LS 4050 - Secondary Content Literacy Credits: 3 hours
ED 4060 – Instructional Design and Methodology in Secondary Education Credits: 3 hours
ED 4065 - Secondary Pre-Internship Credits: 1 hour (must be taken twice for a total of 2 credit hours)
ED 4085 - Organizing Learning Environments Credits: 3 hours
ED 4086 - Classroom Environments Pre-Internship Credits: 1 hour
ES 3950 - School and Society Credits: 3 hours
SPED 4290 - Learners with Disabilities in Secondary Education Programs Credits: 1 to 2 hours
ED 4100 - Seminar in Education Credits: 1 to 2 hours Credits: 2 hours
ED 4750 - Intern Teaching: Middle School/Secondary Credits: 5 or 10 hours Credits: 10 hours (Secondary)

Notes
ED 4060 and ED 4065 must be taken concurrently.
ED 4085 and ED 4086 must be taken concurrently.
ED 4750 and ED 4100 comprise the "intern teaching semester".

Candidates may retake ED 3000, LS 4050, ED 4060, ED 4065, ED 4085, ED 4086, ES 3950, SPED 4290 and content area "methods of teaching" courses only one time for a total of two times taking these courses.

Major/Minor Requirements
A minimum of one major (at least 30 semester hours, or 36 for a group major, or 50 hours for a comprehensive major) plus a minimum of one minor (at least 20 semester hours or 24 for a group minor) must be selected from the list below of Approved Majors and Minors for the Secondary Education Curriculum.

Electives
Elective credit may be used as needed to complete minimum graduation requirements and/or credits that do not qualify in the above categories. The candidate must satisfy the requirements for the B.A. or B.S. degree.

Approved Majors and Minors for the Secondary Education Curriculum.
Only programs listed below are acceptable for secondary education.

Majors-At least 30 semester hours. Choose one.
See catalog entry or advisor for information about major requirements.
Art Education (AEFJ)
Biology (BYSJ)
Chemistry (CHSJ)
Earth Science (ERSJ)
English (ENSJ)
Family and Consumer Sciences Teacher Education (FCSJ)
French (FHSJ)
German (GRSJ)
Health Education, School (HESJ)
History (HYSJ)
Industrial Technology Education (TNSJ)
Latin (LTSJ)
Mathematics (MHSJ)
Music Education: Instrumental: Secondary Education (MISJ)
Music Education: Choral/General: Secondary Education (MCSJ)
Physical Education: Teacher/Coach: Secondary (PDEJ)
Physics (PHSJ)
Political Science (PSSJ)
Secondary Education in Business (SUSJ)
Secondary Education in Business - group major (SGSJ)
Secondary Integrated Science Education (ISSJ)
Social Studies: Secondary Education (with specific minors) (SLSJ)
Spanish (SPSJ)

Minors—At least 20 semester hours. Choose one.
See catalog entry or advisor for information about minor requirements.
Arabic (ARSN)
Biology (BYSN)
Chemistry (CHSN)
Chinese (CISN)
English (ENSN)
French (FHSN)
German (GRSN)
Health Education (HESN)
History (HYSN)
Industrial Technology Education (ITEN)
Japanese (JPSN)
Latin (LTSN)
Mathematics (MHSN)
Physical Education (PESN)
Physics (PHSN)
Political Science (POSN)

Baccalaureate-Level Writing Requirement
Students who have chosen the Secondary Curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing:
ES 3950 – School and Society  Credits: 3 hours

Notes:
Professional Education Program for Art and Music majors—See the School of Art and the School of Music in this catalog.
Professional Education Program for Physical Education: Teacher/Coach: Secondary and Health Education—See the Department of Human Performance and Health Education in this catalog.

College of Engineering and Applied Sciences

Houssam Toutanji
Dean

Edmund Tsang
Associate Dean for Undergraduate Programs and Assessment

Andrew Kline
Associate Dean for Research and Graduate Education

College Vision
To be the college of choice for tomorrow's engineers through excellence in education, discovery, and service.

Mission
Our mission is to
- Educate: develop career-ready engineering and applied science graduates for success in the global market;
- Discover: advance knowledge and innovation through high-quality research, teaching, and student engagement;
- Inspire: prepare our learning community for lifelong excellence, ethical behavior, and professional leadership;
- Transform: cultivate an inclusive learning environment, contributing to diversity in the engineering workforce; and
- Respond: answer challenges in our local and global communities to improve the well-being of society.

Academic Units:
Chemical and Paper Engineering
Computer Science
Civil and Construction Engineering
Electrical and Computer Engineering
Engineering Design, Manufacturing, and Management Systems
Industrial and Entrepreneurial Engineering & Engineering Management
Mechanical and Aerospace Engineering

Programs
The College of Engineering and Applied Sciences offers undergraduate programs in several curricula and majors that prepare graduates for productive careers in a wide variety of fields. Students should refer to the programs listed throughout the College section of this Catalog for specific information relative to the academic program of interest.

The College also offers graduate programs leading to master's degrees in Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, Engineering Management, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, and Paper and Printing Science, and Ph.D. degrees in Computer Science, Electrical and Computer Engineering, Industrial Engineering, Mechanical Engineering, Paper and Printing Science, and in Engineering and Applied Sciences. Students interested in a graduate program should see the WMU Graduate Catalog for more information.

Computer Aided Engineering Center
Chris Rand, Director

Serving both WMU faculty and students as well as regional business and industry is the Computer Aided Engineering Center. The Center employs state-of-the-art CAD/CAM (Computer Aided Design/Computer Aided Manufacturing) equipment that enhances technical educational programs and provides training for regional industrial personnel.

Academic Advising
A central advising office is maintained for the convenience of College of Engineering and Applied Sciences students. Because prerequisites are strictly enforced and it is essential to follow the program plans that appear in the curricula descriptions, students must contact their academic advisor in the first semester of enrollment at Western Michigan University. Failure to meet with the advisor on a regular basis may result in difficulty receiving requested class schedules and/or in delayed graduation.

Advisors are available to assist in program planning, to recommend electives appropriate to the student's educational objectives, to discuss employment opportunities, and to help with general academic problems. Transfer credit and all course substitutions must be recommended by the advisor and approved by the appropriate department curriculum committee.

**Prerequisites**
Prerequisites are designed both to increase the probabilities of successful completion of the course and to insure the proper conduct of the course. Therefore, prerequisites will be strictly enforced in all departmental courses. Exceptions must be approved by the department no later than the end of the "add" period of the semester or session.

**Credit Hour Definition for the College of Engineering and Applied Sciences**
An undergraduate credit hour is a unit of academic measurement nominally equivalent to 3 hours of work per week on the part of the student. Thus, for a course in which 3 credits are earned, a student can expect to work 9 hours per week (4 credits, 12 hours per week, etc.) in various combinations of lecture hours (50 minutes), laboratory hours, and home study.

**Standard of Academic Honesty**
All courses offered by the College will be conducted in concert with the high standards of the University as stated in the Student Guide to Academic Honesty. Each student is expected to support these standards by neither giving nor accepting assistance on tests, and by submitting only his or her own work for credit. Violations of the standard of academic honesty will result in appropriate disciplinary action. Such disciplinary action may include a failing grade in the course, reassignment of work, dismissal from the curriculum, probation, or dismissal from the University.

**Computer Use in College Programs**
Most degree programs offered in the College of Engineering and Applied Sciences require extensive use of computers. Although Western Michigan University and the College provide adequate computer facilities for student use, many students find it advantageous to have their own laptop computer (computer science majors are required to have their own laptop computers). The University maintains special marketing arrangements with several major computer manufacturers and is therefore able to offer substantial discounts to students and faculty for the purchase of micro-computers and software. Interested students may obtain current information about the purchase of computing equipment from the College of Engineering and Applied Sciences Advising Office (Room E102, Floyd Hall) or from their academic advisor.

**Professional and Honorary Societies**
The College and each department have student branches of professional and honorary societies whose purpose is to provide opportunities for students to become more directly involved with specific activities in their areas of interest. Students interested in enhancing their understanding of the professional field in which they intend to work are encouraged to participate in one of these societies. Students may obtain further information by contacting their academic advisor or department chair.

A majority of engineering technology and applied science students are involved in one or more of the several professional organizations that have student chapters on campus. Such involvement enhances the "textbook learning" by providing students with opportunities to interact with other students having similar interests, to gain a closer look at the profession they have chosen to enter, and to plan and direct programs and projects.

**Scholarships**
Many scholarships are available to both first-year and upper-level students in the College of Engineering and Applied Sciences. The majority of these scholarships available specifically for students in the College are administered by the individual departments of the College. For the most current and accurate information on each of these many scholarship opportunities, call the individual department office or visit the website of the Office of Student Financial Aid and Scholarships at [www.wmich.edu/finaid](http://www.wmich.edu/finaid).

**Engineering and Applied Sciences Students**
Four common characteristics are prevalent among students who are attracted to engineering and applied sciences. First, engineering and applied sciences students possess a strong desire to make a difference in the world and to shape the future. Second, all show an interest in problem-solving - not only to know how something works, but why. Third, engineering and applied sciences students possess a degree of technical aptitude - the ability to think in mathematical and scientific terms - which, fourth, is coupled with a strong interest in mathematics and the sciences.

**Graduates**

Undergraduate programs offered by the College of Engineering and Applied Sciences prepare graduates for immediately productive careers and for continued professional practice in industry. A survey of graduates indicated WMU alumni held positions of president, vice president, owner, plant manager, chief engineer, senior design engineer, sales manager, lawyer, and doctor.

Students interested in advanced studies in engineering may pursue at WMU a Master of Science in Computer Science, Engineering Management, Manufacturing Engineering, or Paper and Printing Science; or a Master of Science in Engineering in Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering. Additionally, the College of Engineering offers the Doctor of Philosophy in Computer Science, Electrical and Computer Engineering, Evaluation, Industrial Engineering, Mechanical Engineering, Paper and Printing Science, and in Engineering and Applied Sciences.

**Graduation Requirements - Bachelor of Science in Engineering**

The baccalaureate programs in engineering are designed to be completed in four consecutive years. A student must meet all the requirements listed in any one of the catalogs in effect during the four-year period immediately prior to the date of graduation.

**Graduation Requirements - Bachelor of Science in Computer Science**

Students interested in an undergraduate degree in computer science will complete the computer science program and receive a B.S. in Computer Science. The program can be completed in four consecutive years.

Graduate students interested in computer science may pursue a Master of Science in Computer Science or a Ph.D. in Computer Science.

Students interested in degrees in computer science should read about the specifics of undergraduate computer science programs elsewhere in this undergraduate catalog or refer to computer science in the graduate catalog.

**Professional Registration**

Graduates of engineering programs are encouraged to seek professional registration. Eligibility requirements in Michigan are established by the State Board of Professional Engineers. In general, only graduates of EAC/ABET (www.abet.org) accredited engineering programs are eligible to be licensed in Michigan. Students interested in professional registration should consult with their department advisor.

**Repeated Courses in the College of Engineering and Applied Sciences**

Students in the College of Engineering and Applied Sciences may enroll in a course that is required in their curriculum only three times. Any additional enrollments require prior written approval of their department chair. This is consistent with the University Repeated Course Policy as stated elsewhere in this catalog.

**Appeal Procedure for Dismissal from a CEAS Program**

This procedure applies when a student wants to appeal the decision to dismiss the student from a CEAS program. For a detailed explanation of the process of appeal, see Course Grade and Program Dismissal Appeals in the section entitled Students Rights and Responsibilities in Academic Policies.

**Admission To Engineering Programs**

**Admission to Pre-Engineering, Pre-Engineering Technology, and Pre-Computer Science Curriculum**
All students admitted to the University and planning to pursue one of the following curricula will be enrolled in the Pre-Engineering curriculum:

Aerospace Engineering
Chemical Engineering
Civil Engineering
Computer Engineering
Construction Engineering
Electrical Engineering
Industrial and Entrepreneurial Engineering
Mechanical Engineering
Paper Engineering

All students admitted to the University and planning to pursue one of the following curricula will be enrolled in the Pre-Engineering Technology curriculum:

Engineering Design Technology
Engineering Management Technology
Manufacturing Engineering Technology

For high school students interested in pursuing a bachelor's degree in engineering or engineering technology, to be eligible for admission to the Pre-Engineering or Pre-Engineering Technology curriculum, the student must have an ACT-MATH score of 25 or higher (SAT-MATH 600 or higher), in addition to meeting the admissions requirement to Western Michigan University. Students admitted to the Pre-Engineering or Pre-Engineering Technology curriculum should have appropriate academic preparation.

High school students interested in pursuing a bachelor's degree in engineering, engineering technology or computer science with an ACT-MATH score of 20 to 24 (SAT-MATH 520-599) will be admitted to CEAS Exploratory.

Students in CEAS Exploratory who have accumulated 12-16 (or more) credit hours and with a grade point average (GPA) of 3.00 or higher in MATH 1110 in no more than two attempts, may apply and be admitted into Pre-xxxxEngineering/Pre-xxxxEngineering Technology/Computer Science. If unsuccessful at the first attempt in MATH 1110, students must have a GPA of 2.00 or higher in MATH 1110 to be given a second attempt to achieve a GPA of 3.00 or higher in MATH 1110.

High school students interested in pursuing a bachelor's degree in engineering, engineering technology, or computer science with an ACT-MATH score of less than 20 (SAT-MATH less than 520) will be admitted to Exploratory Advising. A student may apply for admission to Pre-xxxxEngineering/Pre-xxxxEngineering Technology/Computer Science if the student has a grade point average (GPA) of 3.0 or higher in MATH 1100 and MATH 1110. Students have two (2) chances to achieve a GPA of 3.00 or higher in MATH 1100 and MATH 1110.

For current WMU students, transfer students, and second degree students, their admission to the Pre-Engineering, Pre-Engineering Technology, or Computer Science curriculum will follow the same criteria described above, and it will be based on the last, highest-level mathematics course completed.

Academic Advising
All students enrolled in the Pre-engineering curriculum will receive academic advising by the College of Engineering and Applied Sciences.

Enrollment Restrictions
Pre-Engineering and Pre-Engineering Technology students will not be permitted to enroll in any course offered by the College of Engineering and Applied Sciences at the 3000-level or above that is required in any of the engineering curricula.

Pre-Engineering Curriculum Requirements
Displayed below are the courses required in the Pre-engineering curriculum for all students planning to pursue one of the engineering curricula listed above. See the respective department catalog entry for full degree requirements.
Common Requirements For All Curricula
MATH 1220 or 1700, 1230 or 1710, and 2720 12 hours
CHEM 1100 and 1110 4 hours
General Education AREA I, II, III, IV, or V 6-8 hours

Additional Courses Required By Curricula

Aerospace Engineering CS 1022 or 1023; ECE 2100; IEE 1020; ME 2320 and 2560; PHYS 2050 and 2060; PHYS 2070 and 2080; and PHYS 3090 or CHEM 1120. See the Department of Mechanical and Aerospace Engineering for complete Aerospace Engineering curriculum requirements.

Chemical Engineering CHEM 1120 and CHEM 1130; CHEG 1010, CHEG 1810, CHEG 2810; IEE 1020; and PHYS 2050 and PHYS 2060. See the Department of Chemical and Paper Engineering for complete Chemical Engineering curriculum requirements.

Civil Engineering CCE 1001 and CCE 1002; EDMM 1420; CS 1022 and 1023; IEE 1020; ME 2560 and ME 2570; PHYS 2050 and PHYS 2060; and PHYS 2070 and PHYS 2080. See the Department of Civil and Construction Engineering for complete Civil Engineering curriculum requirements.

Computer Engineering CS 1110; ECE 2100; ECE 2500; IEE 1020; PHYS 2050 and PHYS 2060; and PHYS 2070 and PHYS 2080. See the Department of Electrical and Computer Engineering for complete Computer Engineering curriculum requirements.

Construction Engineering CCE 1001 and CCE 1002; EDMM 1420; CS 1022 and 1023; IEE 1020; IEE 2610; ME 2560; ME 2570; PHYS 2050 and 2060; PHYS 2070 and 2080. See the Department of Civil and Construction Engineering for complete Construction Engineering curriculum requirements.

Electrical Engineering CS 1200; ECE 2100; ECE 2500; IEE 1020; PHYS 2050 and PHYS 2060; PHYS 2070 and PHYS 2080. See the Department of Electrical and Computer Engineering for complete Electrical Engineering curriculum requirements.

Industrial and Entrepreneurial Engineering IEE 1020; IEE 2010; and PHYS 2050 and PHYS 2060. See the Department of Industrial and Entrepreneurial Engineering and Engineering Management for complete Industrial and Entrepreneurial Engineering curriculum requirements.

Mechanical Engineering CS 1022 or 1023; IEE 1020; ECE 2100; ME 2320; ME 2560; PHYS 2050 and PHYS 2060; PHYS 2070 and PHYS 2080. See the Department of Mechanical and Aerospace Engineering for complete Mechanical Engineering curriculum requirements.

Paper Engineering CHEG 1810; CHEG 2611; CHEM 1120 and CHEM 1130; IEE 1020; PHYS 2050 and PHYS 2060; and PAPR 2040. See the Department of Chemical and Paper Engineering for complete Paper Engineering curriculum requirements.

Admission to an Engineering Curriculum
The student seeking a baccalaureate degree in Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Construction Engineering, Electrical Engineering, Industrial and Entrepreneurial Engineering, Mechanical Engineering, or Paper Engineering may apply for formal admission to one of these engineering curricula after successfully completing the pre-engineering curricular requirements. Only students who have demonstrated the potential for success will be admitted to an engineering curriculum.

1. All students seeking admission to a degree-granting engineering curriculum must submit an application, following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. The College of Engineering and Applied Sciences processes admission applications to engineering curricula and makes admission decisions to these programs.
2. Admission to an engineering curriculum is dependent on successful completion of all required courses or approved alternatives in the Pre-engineering curriculum with no grade less than "C." Only students in good academic standing as defined by the University are eligible for consideration for admission to an engineering curriculum.

3. There are currently no established enrollment limits for admission to engineering curricula.

**General Programs**

General programs in the College of Engineering and Applied Sciences are designed to meet specific student needs not satisfied by any other curricula in the college.

**Pre-Engineering Curriculum**

Non-engineering students who have not decided on a particular program in the College of Engineering and Applied Sciences may initially enroll in the Pre-Engineering Curriculum.

Written permission of the academic advisor is required to enroll in this curriculum beyond the second year.

**Related Academic Programs**

**Practicum**

Students enrolled in engineering and related degree curricula may gain experience and knowledge about a professional field of interest by enrolling in the practicum program. Additional information may be obtained from the Advising Office in Room E-102 Floyd Hall.

While on the job, students can enroll in a practicum course in their disciplines. During their employment periods, students are paid an appropriate salary by their employer. Single semester practicum work experiences are also available.

Practicum students work in such areas as manufacturing, assembly, research, design, quality control, and safety. They may perform tests, prepare engineering drawings, collect and record data, design tools and fixtures, and assist in supervision. The student's practicum program is supervised by a college coordinator.

**Foundry Program**

Any student enrolled in an engineering or related curriculum and interested in a career in the metal casting industry may be admitted into the Foundry Program. While engaged in this special program, the student must also meet the requirements for a B.S. degree offered by the College of Engineering and Applied Sciences. The Foundry Program is designed to allow the student an opportunity to elect various specific interest courses while earning a degree in any standard curriculum.

Foundry Program students must join the student chapter of the American Foundrymen's Society and register with the Foundry Educational Foundation. Upon reaching the sophomore year, it is recommended that all students apply for the Cooperative Education Program by contacting the Advising Office in agreement with many sponsoring industries.

Students following the Foundry Program are eligible to be considered for scholarship awards made available each semester by the Foundry Educational Foundation.
Chemical and Paper Engineering
Kecheng Li, Chair
Main Office: A-217 Floyd Hall (Parkview Campus)
Telephone: (269) 276-3500
Fax: (269) 276-3501

Said AbuBakr
Raja G. Aravamuthan
Paul D. Fleming
Andrew Kline
Lois Lemon
Andro Mondala
Alexandra Pekarovicova
Kalyana C. Pingali
Dewei Qi
James Springstead
Qingliu Wu
Qiang Yang
Brian Young

The Department of Chemical and Paper Engineering offers three B.S. programs (chemical engineering, paper engineering, and graphic and printing science), as well as an M.S. program, and a Ph.D. program in Paper and Printing Science. The department also offers an M.S. program in Chemical Engineering and a Ph.D. program in Engineering. These programs provide extensive scientific and technical education and prepare graduates for professional employment in research and development, manufacturing, process engineering, marketing, and management. The paper program focuses on pulp, paper, environmental, and allied fields. The graphic and printing science program emphasizes printing science, prepress operations, inks, and related fields. The chemical engineering program focuses on the chemical process industries, with emphasis on energy management, life sciences, pollution prevention, pulp and paper, and related fields.

Accelerated Graduate Degree Program
The Department of Chemical and Paper Engineering offers two M.S. degrees as part of the Accelerated Graduate Degree Program (AGDP). The M.S. in Paper and Printing Science (Accelerated) and the M.S. in Engineering (Chemical - Accelerated) allows undergraduate students an opportunity to complete the requirements for both the bachelor's and master's degrees at an accelerated pace. Undergraduate students may count up to 12 (but not less than 6) credit hours of 5000/6000-level courses taken during their undergraduate studies at WMU toward a Master of Science in Paper and Printing Science within 24 months of completing their bachelor's degree in paper engineering (emphasis in paper engineering); chemical engineering (emphasis in pulp & paper) or graphic and printing science. Undergraduate students may count up to 12 (but not less than 6) credit hours of 5000/6000-level courses taken during their undergraduate studies at WMU toward a Master of Science in Engineering (Chemical) within 24 months of completing their bachelor's degree in chemical engineering. Students enrolled in AGDP in the Department of Chemical and Paper Engineering may choose either the thesis option or the non-thesis option, which will allow them to complete an AGDP degree by completing combined graduate and undergraduate credit hours.

Academic Advising
Students should contact the Chemical and Paper Engineering academic advisors as early as possible. An advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor. The academic advisor for Chemical Engineering, Paper Engineering, and Graphic and Printing Science is Lindsay Gove, located in the College of Engineering and Applied Sciences Advising Office. Academic advising appointments may be made by calling (269) 276-3270 or by accessing the web at www.ceas.wmich.edu/west.

Work Experience
Industrial experience is encouraged through employment by paper, chemical processing, printing, or related companies for at least one of the three summers, as well as through employment in WMU’s outstanding pilot plants. The pilot plants and laboratory facilities are among the best in the world. In addition, co-op experience through a contiguous academic semester is
encouraged. The department assists the students in obtaining summer internships as it is a required curricular component in two of the three programs. Industrial internship is a required part of the curriculum in Paper Engineering, and Graphic and Printing Science programs. It is provided with elective credits in the Chemical Engineering program.

Additional Information
General information regarding advising, scholarships, and special programs of interest to students in this department may be found in the beginning of the College of Engineering and Applied Sciences' section of this catalog.

Students graduating with a major or minor in any of the departmental programs, must earn a grade of "C" or better in all CHEG and GPS and PAPR prefixed prerequisite courses or their equivalents.

Chemical Engineering


Program Educational Objectives: Our graduates are expected within a few years of graduation to attain the following in the areas of career growth, professional development, innovation, and service:

1. Career Growth: graduates are expected to attain: proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression or job advancement.
2. Professional Development: graduates are expected to attain: pursuit of additional educational activities, professional certifications or leadership opportunities.
3. Service. graduates are expected to have involvement in the local community, professional societies, K-12 education, industry or humanitarian endeavors.
4. Innovation and entrepreneurship: graduates are expected to attain: expertise in problem solving, new process, or methods development, in device or patent creation or in founding a business.

(For up-to-date educational objectives and learning outcomes, see the program's web page at http://wmich.edu/pci/academics/chemical.html)

Admission
1. To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section of this catalog.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students should complete an application prior to their first semester of enrollment. Only students in good academic standing, as defined by the University, will be admitted to this curriculum.

Baccalaureate-Level Writing Requirement
Students who have chosen the Chemical Engineering major will satisfy the Baccalaureate-Level Writing requirement by successfully completing CHEG 4870: Senior Design Project.

Requirements
Candidates for the Bachelor of Science in Engineering (Chemical) must satisfy the following requirements in addition to those required by Western Michigan University:

1. The requirement of departmental prefixed prerequisite will not be fulfilled with a grade less than "C". Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office). If an exception is granted, the policy requires that the less than “C” grade be replaced within two regular semesters.
2. No more than two grades of “D” or "DC" may be presented for graduation.
3. The Chemical Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements. Chemical Engineering majors are required to take ECON 2010 for Area V.
4. Students must complete the following program of 135 semester credit hours, which includes the courses in one of the Emphasis Areas presented below at the end of the 8-semester example schedule. One emphasis area must be selected and taken in its entirety. The schedules below are examples leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.

First Semester (17 hours)
General Education Area I: Fine Arts* Credits: 3 hours

The following courses are pre-engineering requirements.
CHEG 1010 - Introduction to Chemical Engineering Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
IEE 1020 - Technical Communication Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Second Semester (18 hours)
General Education Area III: The United States: Cultures and Issues* Credits: 3 hours

The following courses are pre-engineering requirements.
CHEG 1810 - Introduction to Chemical Engineering Computation Credits: 2 hours
CHEM 1120 - General Chemistry II Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PHYS 2050 – University Physics I Credits: 4 hours
PHYS 2060 – University Physics I Laboratory Credits: 1 hour

Third Semester (17 hours)
Approved Elective Credits: 4 hours
CHEG 2810 - Data Acquisition and Handling Credits: 1 hour Pre-engineering requirement
IEE 2610 - Engineering Statistics Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
PHYS 2070 – University Physics II Credits: 4 hours
PHYS 2080 – University Physics II Laboratory Credits: 1 hour

Fourth Semester (19 hours)
Approved Elective Credits: 4 hours
BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
CHEG 2611 - Environmental Engineering I Credits: 3 hours
CHEG 2960 - Material and Energy Balance Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours

Fifth Semester (15 hours)
General Education Area VIII: Health and Well-being Credits: 2 hours
CHEG 3110 - Unit Operations in Chemical Engineering I Credits: 3 hours
CHEG 3200 - Chemical Engineering Thermodynamics Credits: 3 hours
CHEG 3810 - Computer Modeling and Simulation - Chemical Processes Credits: 1 hour
CHEM 4300 - Physical Chemistry I Credits: 3 hours
ECON 2010 – Principles of Microeconomics Credits: 3 hours (AREA V – Social & Behavioral Sciences)

Sixth Semester (16 hours)
General Education Area II: Humanities* Credits: 3 hours
CHEG 3120 - Unit Operations in Chemical Engineering II Credits: 3 hours
CHEG 3300 - Mass Transfer Credits: 3 hours
CHEG 3550 – Bioprocess Engineering  Credits: 3 hours
CHEM 3750 - Organic Chemistry I  Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I  Credits: 1 hour

Seventh Semester (17 hours)
Approved Elective  Credits: 3 hours
CHEG 4100 - Chemical Reaction Engineering  Credits: 3 hours
CHEG 4600 - Plant Economics and Project Design  Credits: 3 hours
CHEG 4830 - Process Control I  Credits: 4 hours
CHEM 3770 - Organic Chemistry II  Credits: 3 hours
CHEM 3780 - Organic Chemistry Lab II  Credits: 1 hour

Eighth Semester (16 hours)
Approved Elective  Credits: 6 hours
General Education Area IV: Other Cultures and Civilizations*  Credits: 4 hours
CHEG 4400 - Safety and Hazards Management in Chemical Processes  Credits: 1 hour
CHEG 4810 – Unit Operations Lab: Fluid Flow, Heat and Mass Transfer  Credits: 2 hours
CHEG 4870 - Senior Design Project  Credits: 3 hours

Emphasis Areas

Emphasis in Energy Management (17 hours minimum)
Required Courses:
CHEG 4440 - Energy Management Engineering  Credits: 3 hours
CHEG 4840 - Process Control for Energy Management  Credits: 4 hours

Elective Courses (choose 10 hours minimum):
CHEG 5950 - Topics in Chemical Engineering  Credits: 1 to 3 hours
CHP 3100 - Work Experience/Co-op  Credits: 1 hour
ECE 2100 - Circuit Analysis  Credits: 4 hours
ECE 2110 - Machines and Electronic Circuits  Credits: 3 hours
EDMM 1420 - Engineering Graphics  Credits: 3 hours
ME 4320 - Thermodynamics II  Credits: 3 hours
ME 4330 - Environmental Systems Design in Buildings  Credits: 3 hours
ME 4390 - Design of Thermal Systems  Credits: 3 hours

Emphasis in Life Sciences (17 hours minimum)
Including at least one 3000-level course (not including CHP 3100):
BIOS 1620 - Ecology and Evolution  Credits: 4 hours
BIOS 2110 - Human Anatomy  Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours
BIOS 2400 - Human Physiology  Credits: 4 hours
BIOS 2500 - Genetics  Credits: 4 hours
BIOS 3500 - Human Physiology for Majors  Credits: 5 hours
BIOS 5970 - Topics in Biological Sciences  Credits: 3 to 4 hours
CHEG 4950 - Topics in Chemical Engineering  Credits: 1 to 3 hours
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours
CHP 3100 - Work Experience/Co-op  Credits: 1 hour

Emphasis in Pollution Prevention and Sustainability (17 hours minimum)
Required Courses (9 credit hours)
CHEG 3611 - Advanced Topics in Environmental Engineering  Credits: 3 hours
CHEG 4440 - Energy Management Engineering  Credits: 3 hours
CHEG 4611 - Sustainable Chemical Process Development  Credits: 3 hours
Elective Courses (8 credit hours minimum)
CHEG 5950 - Topics in Chemical Engineering Credits: 1 to 3 hours
CHP 3100 - Work Experience/Co-op Credits: 1 hour
PAPR 3531 - Wastewater Treatment Credits: 3 hours
ECON 3190 - Environmental Economics Credits: 3 hours
BIOS 2320 - Microbiology and Infectious Diseases Credits: 4 hours
CHEM 2250 - Quantitative Analysis Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory Credits: 1 hour
CHEM 3550 - Introductory Biochemistry Credits: 3 hours
CHEM 3560 - Introductory Biochemistry Laboratory Credits: 1 hour
IEE 3100 - Engineering Economy Credits: 3 hours

Emphasis in Pulp and Paper (17 hours minimum)
CHP 3100 - Work Experience/Co-op Credits: 1 hour
PAPR 1040 - Introduction to Paper Industry and Technology Credits: 1 hour
PAPR 2040 - Stock Preparation and Papermaking Credits: 4 hours
PAPR 2550 – Paper Physics Fundamentals Credits: 4 hours
PAPR 3030 - Pulping and Bleaching Credits: 4 hours
PAPR 4300 - Surface and Wet End Science Credits: 3 hours

Graphic and Printing Science
Accredited by ACCGC

Program Educational Objectives: Our graduates are expected within a few years of graduation to attain the following in the areas of career growth, professional development, innovation, and service:

1. Career Growth: as measured by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.
2. Professional Development: as measured by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
3. Service: as measured by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
4. Innovation and entrepreneurship: as measured by metrics such as the development of new processes, devices, methods, patents, and/or founding a business.

Requirements

1. Candidates for the Bachelor of Science in Graphic and Printing Science must satisfy all of the requirements of 124 hours and select one of the three emphasis areas (Business, multimedia or packaging). This includes 50 hours in Graphic and Printing Science core, 37 hours in a selected area of emphasis and 37 hours in General Education.
2. The requirement of departmental prefixed prerequisite will not be fulfilled with a grade less than "C". Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office). If an exception is granted, the policy requires that the less than "C" grade be replaced within two regular semesters.
3. No more than two grades of "D" or "DC" may be presented for graduation.
4. At least two of the General Education courses must be at the 3000/4000 level.

Baccalaureate-Level Writing Requirement
Students who have chosen the Graphic and Printing Science major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing GPS 4850: Research Design.

Graphic and Printing Science Core (50 hours)
CHP 3100 - Work Experience/Co-op Credits: 1 hour
PAPR 1000 - Introduction to Pulp and Paper Manufacture  Credits: 3 hours
GPS 1500 - Introduction to Graphic and Printing Science  Credits: 4 hours
GPS 1570 - Imaging Systems  Credits: 3 hours
GPS 2150 - Introduction to Ink  Credits: 4 hours
GPS 2510 - Multimedia Publication and Design  Credits: 3 hours
GPS 2570 - Computer Graphics and Prepress  Credits: 3 hours
GPS 3500 - Offset Lithography  Credits: 4 hours
GPS 3570 - Color Management  Credits: 3 hours
GPS 3580 - Flexography  Credits: 4 hours
GPS 3590 - Rotogravure  Credits: 4 hours
GPS 4400 - Seminar  Credits: 1 hour
GPS 4580 - Digital Printing and Workflow  Credits: 3 hours
GPS 4620 - Print Estimating  Credits: 4 hours
GPS 4630 - Finishing and Converting  Credits: 3 hours
GPS 4850 - Research Design  Credits: 3 hours

General Education Requirements (37 hours must be met)
AREA I: Fine Arts  Credits: 3 or 4 hours
AREA II: Humanities  Credits: 3 or 4 hours
AREA III: The United States: Cultures and Issues  Credits: 3 or 4 hours
AREA IV: Other Cultures and Civilizations  Credits: 3 or 4 hours
AREA V: Social and Behavioral Sciences (ECON 2010 and ECON 2020)  Credits: 6 hours
AREA VI: Natural Science with Laboratory (CHEM 1100, CHEM 1110)  Credits: 4 hours
AREA VII: Natural Science and Technology (PAPR 1600)  Credits: 3 hours
AREA VIII: Health and Well-Being  Credits: 2 hours

Proficiency 1: College-Level Writing (IEE 1020)  Credits: 3 hours
Proficiency 3: College-Level Mathematics (MATH 1180)  Credits: 4 hours
Proficiency 4: Develop a Proficiency (STAT 2160 or IEE 2610)  Credits: 3 hours

Areas of Emphasis

Emphasis in Business (37 hours minimum)
Required Courses (18 hours)
BUS 1750 - Business Enterprise  Credits: 3 hours
CIS 2700 - Business-Driven Information Technology  Credits: 3 hours
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
MGMT 2500 - Organizational Behavior  Credits: 3 hours
MKTG 2500 - Marketing Principles  Credits: 3 hours
FIN 3200 - Business Finance  Credits: 3 hours

Elective Courses (19 hours)
CHP 3100 - Work Experience/Co-op  Credits: 1 hour
GPS 2550 - Fundamentals of Packaging  Credits: 4 hours
GPS 4570 - Advanced Multimedia  Credits: 3 hours
GPS 4660 - Systems in Printing Management  Credits: 3 hours
GPS 5100 - Printability Analysis  Credits: 3 hours
PAPR 2420 - Coating  Credits: 4 hours
PAPR 4860 - Independent Research  Credits: 3 hours
PAPR 4950 - Topics in Paper and Printing  Credits: 1 to 4 hours
PAPR 4990 - Independent Studies  Credits: 1 to 6 hours
MGMT 2520 - Human Resource Management  Credits: 3 hours
MKTG 3710 - Marketing Research  Credits: 3 hours
MKTG 3740 - Advertising and Promotion  Credits: 3 hours
LAW 3500 - Computer Law  Credits: 3 hours
LAW 3800 - Legal Environment  Credits: 3 hours
EDMM 1500 - Introduction to Manufacturing  Credits: 3 hours
EDMM 2500 - Plastics Properties and Processing  Credits: 3 hours
EDMM 3050 - Work Analysis  Credits: 3 hours
EDMM 3260 - Operations Planning and Control  Credits: 3 hours
EDMM 3280 - Quality Assurance and Control  Credits: 3 hours
MATH 1220 - Calculus I  Credits: 4 hours
OR
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours
MATH 2000 - Calculus with Applications  Credits: 4 hours
MATH 1230 - Calculus II  Credits: 4 hours
OR
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours

**Emphasis in Multimedia (37 hours minimum)**

Required Courses (18 hours)

- COM 1000 - Communication and Community Engagement  Credits: 3 hours
- COM 1040 - Public Speaking  Credits: 3 hours
- COM 2000 - Human Communication Theory  Credits: 3 hours
- COM 2400 - Introduction to Media and Telecommunications  Credits: 3 hours
- COM 2410 - Film Communication  Credits: 3 hours
- COM 2560 - Digital Media: Planning and Operations  Credits: 3 hours

Elective Courses (19 hours)

- CHP 3100 - Work Experience/Co-op  Credits: 1 hour
- GPS 2550 - Fundamentals of Packaging  Credits: 4 hours
- GPS 4570 - Advanced Multimedia  Credits: 3 hours
- GPS 4660 - Systems in Printing Management  Credits: 3 hours
- GPS 5100 - Printability Analysis  Credits: 3 hours
- PAPR 2420 - Coating  Credits: 4 hours
- PAPR 4860 - Independent Research  Credits: 3 hours
- PAPR 4950 - Topics in Paper and Printing  Credits: 1 to 4 hours
- PAPR 4990 - Independent Studies  Credits: 1 to 6 hours
- COM 1700 - Interpersonal Communication  Credits: 3 hours
- COM 2570 - Introduction to Audio Production  Credits: 3 hours
- COM 3070 - Freedom of Expression  Credits: 3 hours
- COM 3410 - Film Modes and Genres  Credits: 3 hours
- COM 3420 - The International Film Industry  Credits: 3 hours
- COM 3430 - American Film History  Credits: 3 hours
- COM 3540 - Web Design and Digital Communication  Credits: 3 hours
- COM 4410 - Documentary in Film and Television  Credits: 3 hours
- COM 4430 - Media and Social Change  Credits: 3 hours
- COM 4440 - Mass Communication, News, and Public Affairs  Credits: 3 hours
- COM 4450 - Media Criticism  Credits: 3 hours
- MATH 1220 - Calculus I  Credits: 4 hours
OR
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours
MATH 2000 - Calculus with Applications  Credits: 4 hours
MATH 1230 - Calculus II  Credits: 4 hours
OR
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours
EDMM 3260 - Operations Planning and Control  Credits: 3 hours

**Emphasis in Packaging (37 hours minimum)**

Required Courses (18 hours)

- GPS 2550 - Fundamentals of Packaging  Credits: 4 hours
PAPR 2040 - Stock Preparation and Papermaking Credits: 4 hours
PAPR 2420 - Coating  Credits: 4 hours
MKTG 2900 - Introduction to Food and CPG Industries  Credits: 3 hours
EDMM 1420 - Engineering Graphics  Credits: 3 hours

Elective Courses (19 hours)
CHP 3100 - Work Experience/Co-op  Credits: 1 hour
GPS 4570 - Advanced Multimedia  Credits: 3 hours
GPS 4660 - Systems in Printing Management  Credits: 3 hours
GPS 5100 - Printability Analysis  Credits: 3 hours
PAPR 2550 - Paper Physics Fundamentals  Credits: 4 hours
PAPR 4860 - Independent Research  Credits: 3 hours
PAPR 4950 - Topics in Paper and Printing  Credits: 1 to 4 hours
PAPR 4990 - Independent Studies  Credits: 1 to 6 hours
CHEM 1120 - General Chemistry II  Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
EDMM 1500 - Introduction to Manufacturing  Credits: 3 hours
EDMM 2460 - Introduction to Computer-Aided Design  Credits: 3 hours
EDMM 2500 - Plastics Properties and Processing  Credits: 3 hours
EDMM 3260 - Operations Planning and Control  Credits: 3 hours
MATH 1220 - Calculus I  Credits: 4 hours
OR
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours
MATH 1230 - Calculus II  Credits: 4 hours
OR
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours

Paper Engineering

Accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

Program Educational Objectives: Our graduates are expected within a few years of graduation to attain the following in the areas of career growth, professional development, innovation, and service:

1. Career Growth: as measured by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.
2. Professional Development: as measured by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
3. Service: as measured by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
4. Innovation and entrepreneurship: as measured by metrics such as the development of new processes, devices, methods, patents, and/or founding a business.

(For up-to-date educational objectives and learning outcomes, see the Department's web page at [wmich.edu/chemical-paper/academics/paper](http://wmich.edu/chemical-paper/academics/paper))

Admission

1. To be admitted to this engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section of this catalog.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students should complete an application prior to their first semester of enrollment. Only students in good academic standing as, defined by the University, will be admitted to this curriculum.
Baccalaureate-Level Writing Requirement
Students who have chosen the Paper Engineering major will satisfy the Baccalaureate-Level Writing requirement by successfully completing PAPR 4850: Research Design.

Requirements
Candidates for the Bachelor of Science in Engineering (Paper) must satisfy the following requirements in addition to those required by Western Michigan University:

1. The requirement of departmental prefixed prerequisite will not be fulfilled with a grade less than a "C". Requests for exceptions to this policy must follow the departmental appeal policy (available in the department office). If an exception is granted, the policy requires that the less than "C" grade be replaced within two regular semesters.
2. No more than two grades of "D" or "DC" may be presented for graduation.
3. Students must complete the following program of 135 semester credit hours, which includes the courses in one of the following emphasis areas: Process Engineering or Environmental Engineering and Sustainable Processes. One emphasis area must be elected and taken in its entirety. The schedules below are examples leading to graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the program can take more than eight semesters.
4. The Paper Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements. Paper Engineering majors are required to take ECON 2010 for Area V.

Paper Engineering

First Semester (17 hours)
General Education Credits: 3 hours Pre-engineering requirement
CHEM 1100 - General Chemistry I Credits: 3 hours Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
IEE 1020 - Technical Communication Credits: 3 hours Pre-engineering requirement
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement
PAPR 1000 - Introduction to Pulp and Paper Manufacture Credits: 3 hours

Second Semester (16 hours)
General Education Credits: 2 hours
CHEG 1810 - Introduction to Chemical Engineering Computation Credits: 2 hours Pre-engineering requirement
CHEM 1120 - General Chemistry II Credits: 3 hours Pre-engineering requirement
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour Pre-engineering requirement
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours Pre-engineering requirement
PAPR 2040 - Stock Preparation and Paper Manufacture Credits: 4 hours Pre-engineering requirement

Third Semester (19 hours)
CHEM 3750 - Organic Chemistry I Credits: 3 hours
CHEM 3760 - Organic Chemistry Lab I Credits: 1 hour
ECON 2010 - Principles of Microeconomics Credits: 3 hours Pre-engineering requirement
IEE 2610 - Engineering Statistics Credits: 3 hours
MATH 2250 - Paper Physics Fundamentals Credits: 4 hours
PAPR 2550 - Paper Physics Fundamentals Credits: 4 hours Pre-engineering requirement
PHYS 2050 - University Physics I Credits: 4 hours Pre-engineering requirement
PHYS 2060 - University Physics I Laboratory Credits: 1 hour Pre-engineering requirement

Fourth Semester (20 hours)
Elective Credits: 4 hours
CHEG 2611 - Environmental Engineering I Credits: 3 hours Pre-engineering requirement
CHEG 2960 - Material and Energy Balance Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
PHYS 2070 - University Physics II Credits: 4 hours
PHYS 2080 - University Physics II Laboratory   Credits: 1 hour

Fifth Semester (18 hours)
General Education   Credits: 4 hours
General Education   Credits: 3 hours
Elective   Credits: 4 hours
CHEG 3110 - Unit Operations in Chemical Engineering I   Credits: 3 hours
PAPR 3030 - Pulping and Bleaching   Credits: 4 hours

Sixth Semester (16 hours)
General Education   Credits: 3 hours
Elective   Credits: 3 hours
CHEG 3120 - Unit Operations in Chemical Engineering II   Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra   Credits: 4 hours
PAPR 3330 - Carbohydrate and Lignin Chemistry   Credits: 3 hours

Seventh Semester (15 hours)
CHEG 4830 - Process Control I   Credits: 4 hours
CHEM 4300 - Physical Chemistry I   Credits: 3 hours
CHP 3100 - Work Experience/Co-op   Credits: 1 hour
PAPR 4400 - Seminar   Credits: 1 hour
PAPR 4600 - Plant Economics and Project Design   Credits: 3 hours
PAPR 4850 - Research Design   Credits: 3 hours

Eighth Semester (14 hours)
Elective   Credits: 3 hours   (See the Electives Core below)
Elective   Credits: 3 hours   (See the Electives Core below)
CHEG 4811 – Unit Operations Lab: Fluid Flow and Heat Transfer   Credits: 1 hour
PAPR 4300 - Surface and Wet End Science   Credits: 3 hours
PAPR 4400 - Seminar   Credits: 1 hour
PAPR 4860 - Independent Research   Credits: 3 hours

Areas of Emphasis

**Emphasis in Paper Engineering (17 hours minimum)**
Required Electives (4 hours)
PAPR 2420 - Coating   Credits: 4 hours

Elective Courses (choose 13 hours minimum):
CHEG 3200 - Chemical Engineering Thermodynamics   Credits: 3 hours
CHEG 3810 - Computer Modeling and Simulation - Chemical Processes   Credits: 1 hour
Preferred Elective
CHEG 4100 - Chemical Reaction Engineering   Credits: 3 hours
CHP 3100 - Work Experience/Co-op   Credits: 1 hour
ECE 2100 - Circuit Analysis   Credits: 4 hours
GPS 5100 - Printability Analysis   Credits: 3 hours
IEE 3100 - Engineering Economy   Credits: 3 hours
(Another course in IEE, MGMT, or COM can be substituted for IEE 3100 with approval of the advisor.)
PAPR 4840 - Process Control II   Credits: 4 hours
STAT 5670 - Statistical Design and Analysis of Experiments   Credits: 4 hours
Preferred Elective

**Emphasis in Environmental Engineering and Sustainable Processes (17 hours minimum)**
Required Electives (9 hours)
CHEG 3611 - Advanced Topics in Environmental Engineering   Credits: 3 hours
CHEG 4611 - Sustainable Chemical Process Development   Credits: 3 hours
Elective Courses (choose 8 hours minimum):
CHP 3100 - Work Experience/Co-op  Credits: 1 hour
PAPR 2420 - Coating  Credits: 4 hours
PAPR 3531 - Wastewater Treatment Systems  Credits: 3 hours
ECON 3190 - Environmental Economics  Credits: 3 hours
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours
CHEG 3200 - Chemical Engineering Thermodynamics  Credits: 3 hours
CHEG 4100 - Chemical Reaction Engineering  Credits: 3 hours
CHEG 4440 - Energy Management Engineering  Credits: 3 hours
CHEM 2250 - Quantitative Analysis  Credits: 3 hours
CHEM 2260 - Quantitative Analysis Laboratory  Credits: 1 hour
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours
CHEM 3560 - Introductory Biochemistry Laboratory  Credits: 1 hour
IEE 3100 - Engineering Economy  Credits: 3 hours

Undergraduate Certificate Program in Paper Engineering

The program will consist of 23 credits in Paper Engineering—virtually all the lecture/lab courses that a Paper Engineering major is currently taking in the BSE program.

The courses and the credits are provided below. It should be noted that the student should meet all the prerequisites and corequisites to enroll in a particular course.

List of Courses
PAPR 1000 - Introduction to Pulp and Paper Manufacture  Credits: 3 hours
PAPR 2040 - Stock Preparation and Papermaking  Credits: 4 hours
PAPR 2420 – Coating  Credits: 4 hours
PAPR 2550 - Paper Physics Fundamentals  Credits: 4 hours
PAPR 3030 - Pulping and Bleaching  Credits: 4 hours
PAPR 3100 - Work Experience / Co-op  Credits: 1 to 3 hours
PAPR 4300 - Surface and Wet End Science  Credits: 3 hours

Chemical Engineering Minor

Requirements
A minor in Chemical Engineering may be earned by completing the following 20 semester hours of Chemical Engineering courses:
CHEG 1010 - Introduction to Chemical Engineering  Credits: 3 hours
CHEG 2810 - Data Acquisition and Handling  Credits: 1 hour
CHEG 2960 - Material and Energy Balance  Credits: 4 hours
CHEG 3110 - Unit Operations in Chemical Engineering I  Credits: 3 hours
CHEG 3120 - Unit Operations in Chemical Engineering II  Credits: 3 hours
CHEG 3300 - Mass Transfer  Credits: 3 hours
CHEG 4100 - Chemical Reaction Engineering  Credits: 3 hours

Prerequisites
In addition, students would complete the following as prerequisites for CHEG 4100.
CHEM 1120 - General Chemistry II  Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
CHEM 4300 - Physical Chemistry I  Credits: 3 hours

Additional Information
The minor is most suitable for other engineering graduates, as well as physics and chemistry graduates, as they will have most of the prerequisites for the CHEG courses required for the minor.

**Graphic and Printing Science Minor**

**Program requirements**
A minor in Graphic and Printing Science may be earned by completing satisfactorily the following eighteen hours of departmental courses:

- GPS 1500 - Introduction to Graphic and Printing Science  
  Credits: 4 hours
- GPS 1570 - Imaging Systems  
  Credits: 3 hours
- GPS 2510 - Multimedia Publication and Design  
  Credits: 3 hours

And at least eight hours elected from among:

- GPS 2150 - Introduction to Ink  
  Credits: 4 hours
- GPS 2570 - Computer Graphics and Prepress  
  Credits: 3 hours
- GPS 3500 - Offset Lithography  
  Credits: 4 hours
- GPS 3570 - Color Management  
  Credits: 3 hours
- GPS 3580 - Flexography  
  Credits: 4 hours
- GPS 3590 – Rotogravure  
  Credits: 4 hours
- GPS 4570 - Advanced Multimedia  
  Credits: 3 hours
- GPS 4580 - Digital Printing and Workflow  
  Credits: 3 hours

**Paper Engineering Minor (20 hours)**

**Program Requirements**
A minor in paper engineering may be earned by completing a minimum of 20 semester hours from the following departmental courses.

**Required Courses**
- PAPR 2040 - Stock Preparation and Papermaking  
  Credits: 4 hours
- PAPR 1000 - Introduction to Pulp and Paper Manufacture  
  Credits: 3 hours

OR

- PAPR 1040 - Introduction to Paper Industry and Technology  
  Credits: 1 hour

**Electives**
The remainder of the 20 hours to be chosen from the following:

- PAPR 2420 - Coating Credits: 4 hours
- PAPR 2550 - Paper Physics Fundamentals Credits: 4 hours
- PAPR 3030 - Pulping and Bleaching Credits: 4 hours
- PAPR 3100 - Work Experience / Co-op Credits: 1 to 3 hours
- PAPR 4300 - Surface and Wet End Science Credits: 3 hours
- PAPR 4400 - Seminar Credits: 1 hour

**Additional Information**
The minor is suitable for other engineering majors, imaging majors in substrates track, and physics and chemistry majors, as they will have most of the prerequisites for these courses.
The Department of Civil and Construction Engineering offers the following curricula:

Construction Engineering - B.S.E.
Civil Engineering - B.S.E.
Civil Engineering - M.S.E.

These programs are designed to provide graduates with the background necessary to successfully assume a variety of positions in a wide variety of industries. The combination of specialized and general education is intended to allow employment flexibility, although most graduates are placed in industries closely related to their field of study.

The department offers the opportunity that allows for an Accelerated Master’s degree. Details of the degree can be found on the department website (http://www.wmich.edu/cce/academic-programs/accelerated-degree.html).

Academic Advising
Students should contact their advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the advisor, the curriculum committee, and the department chair. The academic advisor is located in Room E-102 Floyd Hall, phone (269) 276-3270. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

Approved Electives
Electives must be approved by the department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual's program. Non-related courses will not normally be approved.

Lists of appropriate electives are available from the academic advising office.

Civil Engineering

The Civil Engineering curriculum prepares students for entry level positions in the civil engineering profession. It was developed to provide students with knowledge in the areas of structural engineering, construction engineering, geotechnical engineering, transportation engineering, and water resources engineering. Technical, communication, and human relation skills are developed throughout the curriculum. Design is emphasized from the beginning of the curriculum.


For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/civil-construction/academics/abet/outcomes.

Baccalaureate-Level Writing Requirement
Students who have chosen the Civil or Construction Engineering curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing CCE 4830: Project Design and Control and CCE 4850: Senior Project.

Requirements
Candidates for the Bachelor of Science in Engineering (Civil) must complete the following program of 126 semester credit hours as well as University requirements stated elsewhere in this catalog.
1. A "C" or better must be earned in all courses with a CCE, IEE, EDMM or ME prefix.
2. A student is required to earn a grade of "C" or better in the prerequisite courses for all CCE courses before enrollment is permitted in the next sequence course.
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. Complete the following program of 126 semester hours. The schedule below is an example of one leading to graduation in eight semesters. Pre-engineering requirements are indicated.
5. The Civil Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements. Civil Engineering majors are required to take PHIL 3160 for Area II and ECON 2010 for Area V.

First Semester (15 hours)
The following courses are Pre-engineering requirements.
CCE 1001 - Introduction to Engineering Design Credits: 1 hour
GEOS 1300 – Physical Geology Credits: 4 hours
IEE 1020 - Technical Communication Credits: 3 hours
(Provides General Education Proficiency 1)
EDMM 1420 - Engineering Graphics Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours

Second Semester (16 hours)
The following courses are Pre-engineering requirements.
CCE 1002 - Introduction to Engineering Analysis Credits: 1 hour
CHEM 1100 - General Chemistry I Credits: 3 hours
(Provides General Education Area VI)
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
(Provides General Education Area VI)
CS 1022 - Introduction to Engineering Computing 2: Mathematical Software Credits: 1 hour
CS 1023 - Introduction to Engineering Computing 3: Computer Programming Credits: 1 hour
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PHYS 2050 – University Physics I Credits: 4 hours
(Provides General Education Area VI)
PHYS 2060 – University Physics I Laboratory Credits: 1 hour
(Provides General Education Area VI)

Third Semester (18 hours)
CCE 2360 - Geomatics Credits: 3 hours
IEE 2610 – Engineering Statistics Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours (Pre-engineering requirement)
ME 2560 - Statics Credits: 3 hours (Pre-engineering requirement)
PHYS 2070 – University Physics II Credits: 4 hours (Pre-engineering requirement)
PHYS 2080 – University Physics II Laboratory Credits: 1 hour

Fourth Semester (16 hours)
General Education Area I: Fine Arts Credits: 3 hours
CHEG 2611 - Environmental Engineering I Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
ME 2570 - Mechanics of Materials Credits: 3 hours (Pre-engineering requirement)
ME 2580 – Dynamics  Credits: 3 hours

Fifth Semester (15 hours)
CCE 3360 - Soil Mechanics  Credits: 3 hours
ECON 2010 – Microeconomics  Credits: 3 hours
(Satisfies General Education Area V)
IEE 3100 - Engineering Economy  Credits: 3 hours
ME 3560 - Fluid Mechanics  Credits: 3 hours
PHIL 3160 – Ethics  Credits: 3 hours
(Satisfies General Education Area II)

Sixth Semester (16 hours)
General Education Area IV: Other Cultures  Credits: 4 hours
CCE 3080 – Civil and Construction Engineering Materials  Credits: 3 hours
CCE 3300 - Transportation Engineering  Credits: 3 hours
CCE 3330 - Construction Codes, Specifications, and Contracts  Credits: 3 hours
CCE 3860 - Structural Analysis  Credits: 3 hours

Seventh Semester (16 hours)
CCE Construction Engineering Elective  Credits: 3 hours
CCE Elective  Credits: 3 hours
CCE 4300 - Traffic Design  Credits: 3 hours
CCE 4400 - Introduction to Structural Design  Credits: 3 hours
CCE 4561 - Foundation and Earth Retaining Structure Design  Credits: 3 hours
CCE 4830 - Project Design and Control  Credits: 1 hour

Eighth Semester (14 hours)
CCE Structural Engineering Design Elective  Credits: 3 hours
CCE Elective  Credits: 3 hours
General Education Area III: U.S. Cultures and Issues  Credits: 3 hours
General Education Area VIII: Health and Well-Being  Credits: 2 hours
CCE 4850 - Senior Project  Credits: 3 hours
(Satisfies General Education Proficiency 2)

Construction Engineering

The Construction Engineering curriculum prepares students for entry-level positions in construction planning, management, or development. Technical, business, and human relations knowledge and skills are developed in classroom settings and on residential and commercial construction job sites.

Accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

For up-to-date educational objectives and learning outcomes, see department web page at [www.wmich.edu/civil-construction/academics/abet/outcomes](http://www.wmich.edu/civil-construction/academics/abet/outcomes).

Baccalaureate-Level Writing Requirement

Students who have chosen the Civil or Construction Engineering curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing CCE 4830: Project Design and Control and CCE 4850: Senior Project.

Requirements

Candidates for the Bachelor of Science in Engineering (Construction) must complete the following program of 126 semester credit hours as well as University requirements stated elsewhere in this catalog.

1. A "C" or better must be earned in all courses with a CCE, IEE, EDMM or ME prefix.
2. A student is required to earn a grade of "C" or better in the prerequisite courses for all CCE courses before enrollment is permitted in the next sequence course.
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. Complete the following program of 126 semester hours. The schedule below is an example of one leading to graduation in eight semesters. Pre-engineering requirements are indicated.
5. The Construction Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements. Construction Engineering majors are required to take PHIL 3160 for Area II and ECON 2010 for Area V.

First Semester (15 hours)
The following courses are Pre-engineering requirements.
CCE 1001 - Introduction to Engineering Design Credits: 1 hour
IEE 1020 - Technical Communication Credits: 3 hours
(Satisfies General Education Proficiency 1)
EDMM 1420 - Engineering Graphics Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
GEOS 1300 – Physical Geology Credits: 4 hours

Second Semester (16 hours)
The following courses are Pre-engineering requirements.
CCE 1002 - Introduction to Engineering Analyses Credits: 1 hour
CHEM 1100 - General Chemistry I Credits: 3 hours
(Satisfies General Education Area VI)
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
(Satisfies General Education Area VI)
CS 1022 - Introduction to Engineering Computing 2: Mathematical Software Credits: 1 hour
CS 1023 - Introduction to Engineering Computing 3: Computer Programming Credits: 1 hour
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
PHYS 2050 - University Physics I Credits: 4 hours
(Satisfies General Education Area VI)
PHYS 2060 – University Physics I Laboratory Credits: 1 hour
(Satisfies General Education Area VI)

Third Semester (18 hours)
CCE 2360 - Geomatics Credits: 3 hours
IEE 2610 - Engineering Statistics Credits: 3 hours (Pre-engineering requirement)
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours (Pre-engineering requirement)
ME 2560 - Statics Credits: 3 hours (Pre-engineering requirement)
ME 2570 - Mechanics of Materials Credits: 3 hours (Pre-engineering requirement)
ME 2580 - Dynamics Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours

Fourth Semester (16 hours)
General Education Area I: Fine Arts Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours (Pre-engineering requirement)
ME 2570 - Mechanics of Materials Credits: 3 hours (Pre-engineering requirement)
ME 2580 - Dynamics Credits: 3 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours

Fifth Semester (15 hours)
CCE 3200 - Fluids and Water Resources Engineering Credits: 3 hours
CCE 3360 - Soil Mechanics Credits: 3 hours
ECON 2010 – Microeconomics Credits: 3 hours
(Satisfies General Education Economics Area V)
IEE 3100 - Engineering Economy  Credits: 3 hours
ME 3560 - Fluid Mechanics  Credits: 3 hours
PHIL 3160 – Ethics  Credits: 3 hours
(Satisfies General Education Area II)

Sixth Semester (15 hours)
Engineering Science or Design Elective  Credits: 3 hours
Engineering Science or Design Elective  Credits: 3 hours
CCE 3080 – Civil and Construction Engineering Materials  Credits: 3 hours
CCE 3330 - Construction Codes, Specifications, and Contracts  Credits: 3 hours
CCE 3860 - Structural Analysis  Credits: 3 hours

Seventh Semester (16 hours)
General Education Area III: US Cultures and Issues  Credits: 3 hours
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
CCE 4310 - Construction Planning and Scheduling  Credits: 3 hours
CCE 4360 - Construction Estimating, Bidding, and Cost Control  Credits: 3 hours
CCE 4400 - Introduction to Structural Design  Credits: 3 hours
CCE 4830 - Project Design and Control  Credits: 1 hour

Eighth Semester (15 hours)
General Education Area IV: Other Cultures  Credits: 4 hours
General Education Area VIII: Health and Well-Being  Credits: 2 hours
CCE 4380 - Construction Project Management  Credits: 3 hours
CCE 4850 - Senior Project  Credits: 3 hours
FIN 3200 - Business Finance  Credits: 3 hours
Computer Science
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Ala Al-Fuqaha
Seung-Hee Bae
Elise de Doncker
Alvis Fong
Ajay Gupta, Director of Graduate Programs
Jason Johnson
Donna Kaminski, Director of Undergraduate Programs
John Kapenga
Leszek Lilien
Ronald Miller
Fahad Saeed
Wuwei Shen
Robert Trenary
Li Yang
Zijiang Yang

The Department of Computer Science offers a Bachelor of Science program and a minor for undergraduates. The department also offers a master's program and a doctoral program for graduate students. All programs, both undergraduate and graduate, are in computer science. Also, the Statistics Department together with the computer Science Department jointly offer an undergraduate data sciences major program.

The accelerated graduate degree program gives an opportunity to undergraduate students in the Computer Science Department to complete the requirements for the master's degree at an accelerated pace. These undergraduate students may count up to 12 (but not fewer than 6) credit hours of 5000-level CS courses taken during their undergraduate studies toward a master's degree in computer science within 24 months after the completion of their bachelor's degree in computer science.

Computer science is the science of abstraction. Computer scientists focus on creating a model for a problem and developing techniques for solving it using software implementations on digital computers. Computer science emphasizes the software aspects both in theory and application rather than the physical construction of computers (hardware aspects). The department offers a number of introductory programming courses which may be taken by students in other majors as well as a complete program that provides in-depth focus in computer science.

The undergraduate program described here provides education in the field of computer science to prepare graduates for careers in many kinds of work, including all aspects of software development and maintenance, database and network design and management, consulting, education, and training. Graduate work provides education in both applications and systems areas.

The CS major includes core courses in programming, systems, algorithms, databases, web technologies and software product development. Additionally, elective courses in computer science include: artificial intelligence, distributed computing, graphics, mobile applications, networking, programming languages, software engineering, theory of computing, data sciences, machine learning, and computer and information security.

Additionally, a computer science major will study mathematics and statistics, science, general education subjects, and computer engineering. Mathematics is necessary for the analysis and comparison of computer languages, machines, algorithms, and data structures.

Academic Advising
Students should make an appointment with a computer science academic advisor as early as possible, certainly within the second semester of enrollment in computer science classes. Eligibility requirements for admittance into a major or minor
program are available from the computer science advisor. An advisor is available to assist in individual program planning, to recommend electives appropriate for a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor. Academic advising is available, usually by appointment, through Room E-102 Floyd Hall Advising Office, (269) 276-3270. Advising appointments can be made online at http://www.ceas.wmich.edu/west.

Additional Information
General information regarding counseling and types of degrees may be found under the beginning of the College of Engineering and Applied Sciences section of this catalog.

Students must satisfy prerequisites before enrolling in a course. Those who fail to earn a "C" or better grade in a prerequisite course will be denied permission to enroll in the next course - or unenrolled from that course if registration occurred prior to receiving their grade for the prerequisite course. The student will be responsible for further changes to his or her schedule and may work with the advisor to revise their schedule.

Enrollments in most 5000-level computer science classes will be restricted to upper-level undergraduates and graduate students in computer science.

Computer Science

The Computer Science program has been accredited by the Computing Accreditation Commission of ABET, www.abet.org. The program contains both practical applications and underlying foundations of the discipline.

Program Educational Objectives:
1. Graduates will be employable and successful in a variety of professional computing positions.
2. Graduates will possess backgrounds which qualify them to pursue graduate study in computer science.
3. Graduates will exhibit knowledge and skills sufficient for continued intellectual growth in computing.
4. Graduates will possess an awareness and understanding of social and ethical issues in computing.
5. Graduates will be able to communicate orally and in writing.
6. Graduates will be able to work collaboratively with others.

Student Outcomes:
Students will have:

   a. an ability to apply knowledge of computing and mathematics appropriate to the discipline
   b. an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
   c. an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
   d. an ability to function effectively on teams to accomplish a common goal
   e. an understanding of professional, ethical, legal, security and social issues and responsibilities
   f. an ability to communicate effectively with a range of audiences
   g. an ability to analyze the local and global impact of computing on individuals, organizations, and society
   h. recognition of the need for and an ability to engage in continuing professional development
   i. an ability to use current techniques, skills, and tools necessary for computing practice
   j. an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices
   k. an ability to apply design and development principles in the construction of software systems of varying complexity

Baccalaureate-Level Writing Requirement
Students in this program will satisfy the Baccalaureate-Level Writing Requirement by successfully completing CS 4900: Software Systems Development I: Requirements and Design.

Requirements
Students enrolling in the Computer Science Program are required to own a laptop computer with minimum specifications set by the department. These specifications will be posted on the department website.

Candidates for the Bachelor of Science in Computer Science must satisfy the following requirements in addition to those required by Western Michigan University:

1. Mathematics/Statistics and Laboratory Science
To satisfy CAC/ABET accreditation requirements, all students must complete at least thirty credit hours of mathematics, statistics and laboratory science requirements which must include one approved laboratory science and a minimum of 15 credit hours in mathematics/statistics. Mathematics/statistics course work must include:

- MATH 1220 - Calculus I  Credits: 4 hours
- OR MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours
- MATH 2300 - Elementary Linear Algebra  Credits: 4 hours
- STAT 2600 - Data Analysis Using R  Credits: 4 hours
- CS 1310 - Foundations of Computer Science  Credits: 4 hours

(1 of the CS 1310 credits counts towards the 15 hour Math/Stat minimum)

Students may meet the laboratory science requirement by taking one of the following:
- BIOS 1610 - Molecular and Cellular Biology  Credits: 4 hours
- CHEM 1100 - General Chemistry I  Credits: 3 hours
- AND CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
- GEOS 1300 - Physical Geology  Credits: 4 hours
- PHYS 2050 - University Physics I  Credits: 4 hours
- AND PHYS 2060 - University Physics I Laboratory  Credits: 1 hour

Remaining Mathematics/Statistics and Laboratory Science:
The remaining 10-11 credit hours of Mathematics/Statistics/LabScience courses must be approved by a department advisor.

2. General Education
A list of approved General Education courses can be found in the "Graduation and Academic Advising" section in this catalog.

General Education requirements include one course from each of the distribution areas I, II, III, IV, V, VII, and VIII with no more than two courses in the same department and at least two courses at the 3000-4000 level. A writing course is also required to satisfy Proficiency 1. The required lab science course (CHEM, GEOS and PHYS, though not BIOS) currently also satisfies distribution area VI.

3. Minimum Grades
Students may receive at most two grades below a "C" in the following courses:
- All courses with a CS prefix
- ECE 2500
- Courses used for the Math/Stat/Science 30 credit hour requirement including required Math/Stat courses, the required Science course and any courses included as the Math/Stat/Science electives

4. Complete 122 Semester Credit Hours
The schedule below is an example of one leading to graduation in eight semesters, beginning with the fall semester

First Semester (14 hours)
General Education  Credits: 3 hours
- CS 1110 - Computer Science I  Credits: 4 hours
- IEE 1020 - Technical Communication  Credits: 3 hours
- MATH 1220 - Calculus I  Credits: 4 hours
- OR MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours

Second Semester (15 hours)
General Education  Credits: 4 hours
CS 1120 - Computer Science II Credits: 4 hours
ECE 2500 - Digital Logic Credits: 3 hours
STAT 2600 - Data Analysis Using R Credits: 4 hours

Third Semester (16 hours)
General Education Credits: 3 hours
COM 1040 - Public Speaking Credits: 3 hours
CS 1310 - Foundations of Computer Science Credits: 4 hours
CS 3500 - Introduction to Web Technologies Credits: 3 hours
CS 4430 - Database Management Systems Credits: 3 hours

Fourth Semester (16 hours)
General Education Credits: 3 hours
Free WMU Elective Credits: 3 hours
CS 2230 - Computer Organization and Assembly Language Credits: 3 hours
CS 3310 - Data and File Structures Credits: 3 hours
MATH 2300 - Elementary Linear Algebra Credits: 4 hours

Fifth Semester (16 hours)
General Education Credits: 2 hours
MATH/STAT/SCIENCE Approved Elective Credits: 4 hours
Laboratory Science Requirement (satisfies General Education Area VI) Credits: 4 hours
CS 3240 - System Programming Concepts Credits: 3 hours
CS 4310 - Design and Analysis of Algorithms Credits: 3 hours

Sixth Semester (16 hours)
General Education Credits: 3 hours
MATH/STAT/SCIENCE Approved Elective Credits: 4 hours
Free WMU Elective Credits: 3 hours
Free WMU Elective Credits: 3 hours
CS 4540 - Operating Systems Credits: 3 hours

Seventh Semester (16 hours)
Free WMU Elective Credits: 3 hours
Free WMU Elective Credits: 3 hours
Approved CS Elective Credit: 3 hours
MATH/STAT/SCIENCE Approved Elective Credits: 4 hours
CS 4900 - Software Systems Development I: Requirements and Design Credits: 3 hours

Eighth Semester (13 hours)
Approved CS Elective Credits: 3 hours
Free WMU Elective Credits: 3 hours
Free WMU Elective Credits: 2 hours
General Education Credits: 3 hours
CS 4910 - Software Systems Development II: Implementation and Testing Credits: 2 hours

Approved CS Elective
The two CS Elective courses must be taken from the set of CS 5000-level courses covering specific computing topics described earlier. Students should consult with a departmental advisor before enrolling in one of these courses, as certain 5000-level offerings are not appropriate for undergraduates. No more than one lower-level elective CS course (e.g., CS 2000 or CS 2100) may be included as an elective.

Free WMU Elective
Free Elective means the student may choose without restriction any course offered at the University. That is, the course need not be a General Education course nor a course in computer science. Given the total number of free electives, a student may often be able to concentrate these into one discipline and earn a minor in that department.
Computer Science Minor

Computer Science Core (20 hours)
CS 1110 - Computer Science I  Credits: 4 hours
CS 1120 - Computer Science II  Credits: 4 hours
CS 3310 - Data and File Structures  Credits: 3 hours
Computer Science Electives (Three courses)  Credits: 9 hours

Mathematics Cognate (4 hours)
Select one:
MATH 1220 - Calculus I Credits: 4 hours
OR
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
OR
MATH 2000 - Calculus with Applications Credits: 4 hours

Computer Science Electives for minors
* Electives must be approved by an advisor, as some courses are more appropriate for CS minors in various majors. The set of courses which may be used as electives include CS courses in the CS major (including CS electives).

Programming Language/Technology Electives:
CS 2000 - Programming Language Experience Credits: 1 to 3 hours Credits: 2 hours
CS 2100 - Introductory Topics in Computing Technology Credits: 1 to 3 hours

Computer Science Electives:
CS 2230 - Computer Organization and Assembly Language  Credits: 3 hours
CS 3400 - Graphical User Interface Development  Credits: 3 hours
CS 4310 - Design and Analysis of Algorithms  Credits: 3 hours
CS 4540 - Operating Systems  Credits: 3 hours
CS 4850 - Programming Languages  Credits: 3 hours
CS 4900 - Software Systems Development I: Requirements and Design  Credits: 3 hours
CS 4910 - Software Systems Development II: Implementation and Testing  Credits: 2 hours
CS 5250 - Computer Architecture  Credits: 3 hours
CS 5260 - Parallel Computation I  Credits: 3 hours
CS 5270 - Theory of Computer Graphics  Credits: 3 hours
CS 5300 - Artificial Neural Systems  Credits: 3 hours
CS 5400 - Design of User Interfaces  Credits: 3 hours
CS 5430 - Principles of Database Management Systems  Credits: 3 hours
CS 5550 - Computer Networks and Distributed Systems  Credits: 3 hours
CS 5600 - Software Requirements Analysis and Design  Credits: 3 hours
CS 5700 - Computer Security and Information Assurance  Credits: 3 hours
CS 5800 - Theory of Computation II: Formal Languages  Credits: 3 hours
CS 5810 - Compiler Design and Implementation  Credits: 3 hours
CS 5820 - Artificial Intelligence  Credits: 3 hours
CS 5950 - Advanced Topics in Computer and Information Science  Credits: 1 to 3 hours
CS 5990 - Independent Study in Computer Science  Credits: 1 to 3 hours

Additional Prerequisites
Elective courses requiring additional prerequisites beyond those basic courses required in the minor: CS 2240, 4310, 4540, 4800, 4910, 5180, 5250, 5270, 5400, 5550, 5800, and 5810.

Undergraduate Certificate in Embedded Systems Venture
To serve our students, industry, and the local community through engaging undergraduate students at an early stage in interdisciplinary research that will promote the quality of life and economic development in the local community.

The specific objectives of this venture are as follows:

- Engage undergraduate students from an early stage to gain professional experience with embedded, mobile and real-time system development. Participating students will operate a full-scale consulting and development firm that specializes in embedded, mobile and real-time systems. The firm will offer research, design, development and technical documentation services to real-world clients including for-profit corporations and non-profit organizations.
- To serve our students by providing them with excellent education and practical experience. The venture will also provide our students with hands-on experience, innovative ideas, introduce them to industry trends, and guide them to investigate novel ideas in embedded, mobile and pervasive systems.
- To serve the industry by conducting interdisciplinary research to build innovative solutions that cater to their specific needs (biology, manufacturing, military, etc.)
- To serve the local community by promoting the quality of life and economic development through harnessing the latest development in embedded and mobile technologies.

**Required Courses**
The following courses will be required for student to participate in the Undergraduate Certificate in Embedded Systems Venture.

- CS 2230 - Computer Organization and Assembly Language   Credits: 3 hours
- CS 3240 - System Programming Concepts   Credits: 3 hours
- ECE 2500 - Digital Logic   Credits: 3 hours
- ECE 3510 - Engineering of Real Time Systems   Credits: 3 hours
- CS 3950 - Venture Project   Credits: 1 to 3 hours

(Total of 6 credits. Three credits for each enrollment; enrollment in two consecutive semesters; a grade of "B" or better is required in the first enrollment for the student to be eligible for a second enrollment; enforced by the venture advisor as different ventures might have different requirements.)
Electrical and Computer Engineering
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Daniel Litynski
Damon Miller
Fahad Saeed
Lina Sawalha
Ralph Tanner

The Department of Electrical and Computer Engineering (ECE) offers two different undergraduate degrees; a B.S.E. in Electrical Engineering and a B.S.E. in Computer Engineering. Additionally, the department offers an M.S.E. in Electrical Engineering and an M.S.E. in Computer Engineering, as well as a Ph.D. in Electrical and Computer Engineering. An accelerated degree program allows qualified B.S.E. students to complete classes which count towards their M.S.E. degree while still enrolled as an undergraduate.

The undergraduate programs provide high-quality engineering education in the closely related fields of electrical and computer engineering. Graduates may pursue careers in a wide variety of fields, including design of systems and components, research and development, technical sales, manufacturing, consulting and technical instruction and teaching.

Areas of specialization within Electrical Engineering include electronics, control systems, instrumentation, power generation and transmission, semiconductor device fabrication, signal and imaging processing, and telecommunications. Cross-disciplinary work is becoming increasingly common, with EE's working in biomedical, automotive and computer related fields, for example.

Computer engineers can specialize in the design of reconfigurable digital systems, hardware and software for embedded systems, network design, computer architecture and digital integrated circuits. An increasing number of consumer products incorporate computer technology, linking to the Internet as well as directly to each other. Systems which were once stand-alone electromechanical in nature are now part of a larger system controlled by one or more processors. No longer fixed in place, many modern computing devices are part of mobile platforms, and this trend is expected to continue in the future.

Accelerated Degree Program
The Accelerated Master's Degree Program (AGDP) allows qualified undergraduate students in the Electrical Engineering program or in the Computer Engineering program to complete the requirements for the Master's degree at an accelerated pace. Currently, earning 125 undergraduate credit hours is required to receive a Bachelor's degree in Electrical Engineering; 128 undergraduate credit hours are required to receive a Bachelor's degree in Computer Engineering. The Master's degree requirement is 33 graduate credit hours with the non-thesis option, or 30 hours with the thesis option. In either case, at least 15 hours must be taken at the 6000-level. Having enrolled in the AGDP program students may count up to 12 credit hours of 5000-level courses taken during their undergraduate studies at WMU toward a Master's degree in either Electrical Engineering or in Computer Engineering. Full time students may be able to complete both their Bachelor's and Master's degrees in a five-year period.

Cooperative Education
Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which computer engineers or electrical engineers may be found.

Academic Advising
Students should contact the electrical/ computer engineering academic advisor as early as possible. The advisor is available to assist in individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, curriculum committee, and department chair. The academic advisor is located in Room E-102, Floyd Hall, (269) 276-3260. The department chair's office is located in Room B-236 Floyd Hall, Parkview Campus, (269) 276-3150.

Computer Engineering

Program Educational Objectives

Computer Engineering Graduates, within a few years of graduation, should:

1. Use their understanding of computer engineering fundamentals to solve problems in professional practice while exhibiting rigorous analysis and creative design skills that reflect their technical depth and ability to draw on multiple disciplines;
2. Continue their intellectual development through professional development courses, including online learning opportunities, and/or graduate education; and
3. Practice their career in a manner consistent with a high degree of professional ethics, and participate in their community and professional organizations.

(For up-to-date program educational objectives and learning outcomes, see the Department web page at www.wmich.edu/electrical-computer)

Baccalaureate-Level Writing Requirement
Students who have chosen the Computer Engineering curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing IEE 3160 - Report Preparation Credits: 3 hours.

Requirements
Candidates for the Bachelor of Science in Engineering (Computer) must satisfy the following requirements in addition to those required by Western Michigan University:

1. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IEE, and ME prefixes.
2. Students may enroll in an ECE course only after earning at least a “C” in its prerequisite course(s).
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. The following program of 128 or more semester credit hours must be completed. For transfer students at least 16 credit hours of ECE course work must be completed at WMU. The schedule below is an example of one leading to graduation in eight semesters, beginning with fall. Pre-engineering requirements are indicated.
5. The Computer Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements.

First Semester (16 hours)
General Education Credits: 2 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
Pre-engineering requirement
ECE 2500 - Digital Logic   Credits: 3 hours
Pre-engineering requirement
IEE 1020 - Technical Communication   Credits: 3 hours
Pre-engineering requirement
MATH 1220 - Calculus I   Credits: 4 hours
Pre-engineering requirement
or
MATH 1700 - Calculus I, Science and Engineering   Credits: 4 hours
Pre-engineering requirement

Second Semester (16 hours)
General Education   Credits: 3 hours
CS 1110 - Computer Science I   Credits: 4 hours
Pre-engineering requirement
MATH 1230 - Calculus II   Credits: 4 hours
Pre-engineering requirement
or
MATH 1710 - Calculus II, Science and Engineering   Credits: 4 hours
Pre-engineering requirement
PHYS 2050 - University Physics I   Credits: 4 hours
Pre-engineering requirement
PHYS 2060 - University Physics I Laboratory   Credits: 1 hour
Pre-engineering requirement

Third Semester (17 hours)
CS 1120 - Computer Science II   Credits: 4 hours
ECE 2510 - Introduction to Microprocessors   Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra   Credits: 4 hours
Pre-engineering requirement
PHYS 2070 - University Physics II   Credits: 4 hours
Pre-engineering requirement
PHYS 2080 - University Physics II Laboratory   Credits: 1 hour
Pre-engineering requirement

Fourth Semester (17 hours)
General Education   Credits: 3 hours
ECE 2100 - Circuit Analysis   Credits: 4 hours
Pre-engineering requirement
ECE 3570 - Introduction to Computer Architecture   Credits: 3 hours
MATH 1450 - Discrete Mathematical Structures   Credits: 3 hours
MATH 3740 - Differential Equations and Linear Algebra   Credits: 4 hours

Fifth Semester (17 hours)
CS 3310 - Data and File Structures   Credits: 3 hours
ECE 2210 - Electronics I   Credits: 4 hours
ECE 3100 - Network Analysis   Credits: 3 hours
ECE 3550 - Digital Design   Credits: 4 hours
IEE 3100 - Engineering Economy   Credits: 3 hours

Sixth Semester (16 hours)
General Education   Credits: 3 hours
ECE 3710 - Linear Systems   Credits: 3 hours
ECE 3800 - Probabilistic Methods of Signal and System Analysis   Credits: 3 hours
ECE 4510 - Microcontroller Applications   Credits: 4 hours
IEE 3160 - Report Preparation   Credits: 3 hours
Seventh Semester (14 hours)
General Education Credits: 3 hours
Engineering Science Elective Credits: 3 hours
or
Computer Science Algorithm or OS Elective Credits 3 hours
Electrical and Computer Engineering/Computer Science Elective Group Credits: 3 hours
ECE 4810 - Electrical/Computer Engineering Design I Credits: 2 hours
Permission form required to be signed by ECE advisor and department chair. Must complete ECE 2510, IEE 3160, and either (ECE 3200 or ECE 3300) or (ECE 3550 and ECE 4510).

Eighth Semester (15 hours)
General Education Credits: 3 hours
Engineering Science Elective Credits: 3 hours
or
Computer Science Algorithm or OS Elective Credits 3 hours
Electrical and Computer Engineering Elective Group Credits: 3 hours
Electrical and Computer Engineering Elective Group Credits: 3 hours
ECE 4820 - Electrical/Computer Engineering Design II Credits: 3 hours

Computer Engineering Electives

Engineering Science Electives
Students must complete one elective course (minimum of 3 credit hours).
AE 2610 - Introduction to Aerospace Engineering Credits: 3 hours
AE 3610 - Aerodynamics I Credits: 4 hours
CHEG 1010 - Introduction to Chemical Engineering Credits: 3 hours
CHEG 1810 - Introduction to Chemical Engineering Computation Credits: 2 hours
CHEG 2610 - Environmental Engineering Credits: 3 hours
CHEM 3770 - Organic Chemistry II Credits: 3 hours
PHYS 3090 - Introductory Modern Physics Credits: 4 hours
PHYS 3300 – Thermodynamics Credits: 3 hours
PHYS 4200 - Analytical Mechanics Credits: 3 hours
PHYS 4600 - Quantum Mechanics Credits: 3 hours
ME 2320 - Thermodynamics I Credits: 3 hours
ME 2560 – Statics Credits: 3 hours
ME 2570 - Mechanics of Materials Credits: 3 hours
ME 2580 – Dynamics Credits: 3 hours

Note:
Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor and Department Chair.

Computer Science Elective Group
Students must complete one elective course (minimum of 3 credit hours).
CS 4310 - Design and Analysis of Algorithms Credits: 3 hours
CS 4540 - Operating Systems Credits: 3 hours

Electrical and Computer Engineering/Computer Science Elective Group
Students must complete a total of four elective courses (minimum of 12 credit hours).
It is strongly suggested that one additional CS and either ECE 4500 or ECE 4550 be taken.
CS 3240 - System Programming Concepts Credits: 3 hours
CS 4310 - Design and Analysis of Algorithms Credits: 3 hours
(When not taken as the CS Elective)
CS 4430 - Database Management Systems Credits: 3 hours
CS 4540 - Operating Systems Credits: 3 hours
(When not taken as the CS Elective)
ECE 3510 - Engineering of Real Time Systems Credits: 3 hours
ECE 4500 - Digital Electronics Credits: 4 hours
ECE 4550 - Digital Signal Processing Credits: 3 hours
ECE 4600 - Communication Systems Credits: 3 hours

Note:
Other 4000 or 5000-level Electrical and Computer Engineering or Computer Science courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor and Department Chair.

**Electrical Engineering**
Accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

**Program Educational Objectives**

Electrical Engineering Graduates, within a few years of graduation, should:

1. Use their understanding of electrical engineering fundamentals to solve problems in professional practice while exhibiting rigorous analysis and creative design skills that reflect their technical depth and ability to draw on multiple disciplines;
2. Continue their intellectual development through professional development courses, including online learning opportunities, and/or graduate education; and
3. Practice their career in a manner consistent with a high degree of professional ethics, and participate in their community and professional organizations.

(For up-to-date program educational objectives and learning outcomes, see the Department web page at [www.wmich.edu/electrical-computer](http://www.wmich.edu/electrical-computer))

**Baccalaureate-Level Writing Requirement**
Students who have chosen the Electrical Engineering curriculum will satisfy the Baccalaureate-Level Writing Requirement by successfully completing IEE 3160 - Report Preparation Credits: 3 hours.

**Requirements**
Candidates for the Bachelor of Science in Engineering (Electrical) must satisfy the following requirements in addition to those required by Western Michigan University:

1. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IEE, and ME prefixes.
2. Students may enroll in an ECE course only after earning at least a “C” in its prerequisite course(s).
3. No more than two grades of “D” or "DC" in courses presented for graduation may be counted for graduation.
4. The following program of 125 or more semester credit hours must be completed. For transfer students at least 16 credit hours of ECE course work must be completed at WMU. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are indicated.
5. The Electrical Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area course must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements.

**First Semester (16 hours)**

General Education Credits: 2 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
Pre-engineering requirement
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
Pre-engineering requirement
ECE 2500 - Digital Logic Credits: 3 hours
IEE 1020 - Technical Communication  Credits: 3 hours  
Pre-engineering requirement  
MATH 1220 - Calculus I  Credits: 4 hours  
or  
MATH 1700 - Calculus I, Science and Engineering  Credits: 4 hours  
Pre-engineering requirement  

Second Semester (15-16 hours)  
General Education  Credits: 3 hours  
CS 1110 - Computer Science I  Credits: 4 hours  
or  
CS 1200 - Programming in C for Engineers  Credits: 3 hours  
MATH 1230 - Calculus II  Credits: 4 hours  
or  
MATH 1710 - Calculus II, Science and Engineering  Credits: 4 hours  
Pre-engineering requirement  
PHYS 2050 - University Physics I  Credits: 4 hours  
Pre-engineering requirement  
PHYS 2060 - University Physics I Laboratory  Credits: 1 hour  
Pre-engineering requirement  

Third Semester (16 hours)  
General Education  Credits: 3 hours  
ECE 2510 - Introduction to Microprocessors  Credits: 4 hours  
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours  
Pre-engineering requirement  
PHYS 2070 - University Physics II  Credits: 4 hours  
Pre-engineering requirement  
PHYS 2080 - University Physics II Laboratory  Credits: 1 hour  
Pre-engineering requirement  

Fourth Semester (15-16 hours)  
General Education  Credits: 3 hours  
ECE 2100 - Circuit Analysis  Credits: 4 hours  
Pre-engineering requirement  
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours  
Science Elective  Credits (4 hours)  
Select one of the following:  
CHEM 1120 - General Chemistry II  Credits: 3 hours  
and  
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour  
or  
PHYS 3090 - Introductory Modern Physics  Credits: 4 hours  
and  
PHYS 3100 - Introductory Modern Physics Lab  Credits: 1 hour  

Fifth Semester (17 hours)  
General Education  Credits: 3 hours  
Engineering Science Elective  Credits: 3 hours  
ECE 2210 - Electronics I  Credits: 4 hours  
ECE 3100 - Network Analysis  Credits: 3 hours  
ECE 3610 - Electromagnetic Fields  Credits: 4 hours  

Sixth Semester (16 hours)  
Engineering Science Elective  Credits: 3 hours  
ECE 3200 - Electronics II  Credits: 4 hours
ECE 3710 - Linear Systems Credits: 3 hours
ECE 3800 - Probabilistic Methods of Signal and System Analysis Credits: 3 hours
IEE 3160 - Report Preparation Credits: 3 hours

Seventh Semester (15 hours)
Engineering Science Elective Credits: 3 hours
Electrical and Computer Engineering Elective Group Credits: 3 hours
IEE 3100 - Engineering Economy Credits: 3 hours
ECE 3300 - Electrical Machinery Credits: 4 hours
ECE 4810 - Electrical/Computer Engineering Design I Credits: 2 hours
  Permission form required to be signed by ECE advisor and department chair. Must complete ECE 2510, IEE 3160,
  and either ECE 3200 or ECE 3300.

Eighth Semester (15 hours)
General Education Credits: 3 hours
Engineering Science Elective Credits: 3 hours
Electrical and Computer Engineering Elective Group Credits: 3 hours
Electrical and Computer Engineering Elective Group Credits: 3 hours
ECE 4820 - Electrical/Computer Engineering Design II Credits: 3 hours

Electrical Engineering Electives

Engineering Mathematics and Science Electives
Students must complete a total of four elective courses (minimum of 12 credit hours).
CHEG 2610 - Environmental Engineering Credits: 3 hours
CHEM 3770 - Organic Chemistry II Credits: 3 hours
PHYS 3090 - Introductory Modern Physics Credits: 4 hours
  (if not taken as science elective)
PHYS 3300 - Thermodynamics Credits: 3 hours
PHYS 4200 - Analytical Mechanics Credits: 3 hours
PHYS 4600 - Quantum Mechanics Credits: 3 hours
STAT 3640 - Foundations of Data Analysis Credits: 4 hours
ME 2320 - Thermodynamics I Credits: 3 hours
ME 2560 - Statics Credits: 3 hours
ME 2570 - Mechanics of Materials Credits: 3 hours
ME 2580 - Dynamics Credits: 3 hours
AE 2610 - Introduction to Aerospace Engineering Credits: 3 hours
AE 3610 - Aerodynamics I Credits: 4 hours
Note:
Other courses may be used in place of these courses if PRIOR approval is obtained from the Electrical and Computer
Engineering Advisor and Department Chair.

Electrical and Computer Engineering Elective Group
Students must complete a total of three elective courses (minimum of 9 credit hours).
ECE 4200 - Power Electronics Credits: 3 hours
ECE 4300 - Electrical Power Systems Credits: 3 hours
ECE 4510 - Microcontroller Applications Credits: 4 hours
ECE 4550 - Digital Signal Processing Credits: 3 hours
ECE 4600 - Communication Systems Credits: 3 hours
ECE 4700 - Feedback Systems Credits: 3 hours
ECE 4710 - Motion and Control Credits: 3 hours
Note:
Other 4000 or 5000 level Electrical and Computer Engineering courses may be used in place of these courses if PRIOR
approval is obtained from the Electrical and Computer Engineering Advisor and Department Chair.
The Department of Engineering Design, Manufacturing, and Management Systems offers the following curricula:

- Bachelor of Science - Engineering Design Technology
- Bachelor of Science - Engineering Management Technology
- Bachelor of Science - Manufacturing Engineering Technology

Graduates from these programs are employed in a wide variety of positions in both manufacturing and service industries. Several departmental minors are offered in plastics, automotive, cast metals and manufacturing. Students may also take other approved minors.

Cooperative Education
Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in their area of study, gaining valuable professional experience.

Academic Advising
Students should contact the Engineering Design, Manufacturing, and Management Systems departmental advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help resolve academic problems. Substitutions and transfer credit must be approved by the advisor, curriculum committee, and department chair. The advisor is located in Room E-102 Floyd Hall (269) 276-3260. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

Engineering Technology Curricula
“Engineering Technology” is the profession in which knowledge of the applied mathematical and natural sciences gained by higher education, experience centered on practice, and competence developed in a specific field is devoted to application of engineering principles and the implementation of technological advances for the benefit of humanity through its focus on product improvement, manufacturing, and automation of technological processes and operation functions.

Engineering Design Technology
The Engineering Design Technology curriculum deals with design communication related to product and tooling activities of industry including documentation methods, graphic science, computer-aided design, industrial processes, and materials.

The program prepares students to assume such leadership roles as product designers, documentation and standards supervisors, technical publication specialists, or administrators. They are prepared to enter a variety of jobs such as supervision, quality control, and marketing in manufacturing-related industries.

The educational objectives of the Engineering Design Technology program are:
1. Use technological tools effectively in engineering design.
2. Transfer engineering designs to engineering and manufacturing processes.
3. Plan, design, analyze, implement, and improve cost-effective products and manufacturing/service systems.
4. Communicate effectively in verbal, written, and graphic forms.
5. Practice engineering design as a responsible, global professional.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)

**Baccalaureate-Level Writing Requirement**

Students who have chosen the Engineering Design Technology curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing EDMM 4910: Multidisciplinary Senior Proposal and EDMM 4920: Multidisciplinary Senior Project.

**Requirements**

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, MSE, IEE, and EDMM prefixes.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 124 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
4. Prior to enrollment in 3000/4000-level courses, students must 1) place resume with Career and Student Employment Services; 2) complete the following courses with a grade of "C" or better: CHEM 1100 and CHEM 1110, IEE 1020, EDMM 2460, IEE 2610, PHYS 1150 and PHYS 1160, and (MATH 1230 or MATH 1710). These courses are indicated below.
5. The Engineering Design Technology curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements. Engineering Design Technology majors are required to take EDMM 3020 for Area V.

**First Semester (16 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEE 1020 – Technical Communication</td>
<td>3 hours</td>
<td>See number 4 in Requirements above.</td>
</tr>
<tr>
<td>EDMM 1420 – Engineering Graphics</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>EDMM 1430 – Product Design Fundamentals</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>EDMM 1500 – Introduction to Manufacturing</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>MATH 1220 – Calculus I</td>
<td>4 hours</td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
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<tr>
<td>MATH 1700 – Calculus I, Science and Engineering</td>
<td>4 hours</td>
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</tr>
</tbody>
</table>

**Second Semester (16 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1100 – General Chemistry I</td>
<td>3 hours</td>
<td>See number 4 in Requirements above. (Satisfies General Education Area VI)</td>
</tr>
<tr>
<td>CHEM 1110 – General Chemistry Laboratory I</td>
<td>1 hour</td>
<td>See number 4 in Requirements above. (Satisfies General Education Area VI)</td>
</tr>
<tr>
<td>EDMM 1440 – Descriptive Geometry</td>
<td>3 hours</td>
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<tr>
<td>MATH 1230 – Calculus II</td>
<td>4 hours</td>
<td></td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 1710 – Calculus II, Science and Engineering</td>
<td>4 hours</td>
<td>See number 4 in Requirements above.</td>
</tr>
<tr>
<td>PHYS 1130 – General Physics I</td>
<td>4 hours</td>
<td>See number 4 in Requirements above.</td>
</tr>
</tbody>
</table>
PHYS 1140 – General Physics I Laboratory Credits: 1 hour See number 4 in Requirements above.

Third Semester (16 hours)
CS 1021 – Introduction to Engineering Computing I: Spreadsheets Credits: 1 hour
CS 1023 – Introduction to Engineering Computing III: Computer Programming Credits: 1 hour
EDMM 2460 – Introduction to Computer-Aided Design Credits: 3 hours See number 4 in Requirements above.
EDMM 2540 – Machining Processes Credits: 3 hours
IEE 2610 – Engineering Statistics Credits: 3 hours See number 4 in Requirements above.
PHYS 1150 – General Physics II Credits: 4 hours See number 4 in Requirements above.
PHYS 1160 – General Physics II Laboratory Credits: 1 hour See number 4 in Requirements above.

Fourth Semester (16 hours)
EDMM 2001 – Applied Electricity/Electronics Credits: 3 hours See number 4 in Requirements above.
EDMM 2500 – Plastics Properties and Processing Credits: 3 hours
EDMM 2810 – Statics and Strength of Materials Credits: 4 hours
EDMM 3020 – Engineering Teams: Theory and Practice Credits: 3 hours
(Satisfies General Education Area V)
EDMM 2560 - Properties of Materials Credits: 3 hours
or
ME 2500 – Materials Science for Engineers Credits: 3 hours

Fifth Semester (16 hours)
Approved Elective Credits: 3 hours
General Education Area VIII: Health & Well-Being* Credits: 2 hours
EDMM 2830 – Thermodynamics Credits: 2 hours
EDMM 3460 – Programming for Computer-Aided Design Credits: 3 hours
EDMM 3480 – Designing for Production Credits: 3 hours
EDMM 3540 – Metrology Credits: 3 hours

Sixth Semester (15 hours)
Approved Elective Credits: 3 hours
EDMM 3200 – Engineering Cost Analysis Credits: 3 hours
EDMM 3440 – Product and Machine Design Credits: 3 hours
EDMM 3840 – Fluid Mechanics and Hydraulics Credits: 3 hours
EDMM 4460 – Advanced Computer-Aided Design Credits: 3 hours

Seventh Semester (14 hours)
Approved Elective Credits: 3 hours
*General Education Area I: Fine Arts Credits: 3 hours
EDMM 4480 – Computer-Aided Analysis Credits: 3 hours
EDMM 4490 – Advanced Product and Systems Design Credits: 3 hours
EDMM 4910 – Multidisciplinary Senior Proposal Credits: 2 hours

Eighth Semester (15 hours)
Approved Elective Credits: 3 hours
*General Education Area II: Humanities Credits: 3 hours
*General Education Area III: The United States: Cultures and Issues Credits: 3 hours
*General Education Area IV: Other Cultures and Civilizations Credits: 3 hours
EDMM 4920 – Multidisciplinary Senior Project Credits: 2 hours
EDMM 4930 – Multidisciplinary Senior Project Consultation Credits: 1 hour

*At least two of these courses must be at the 3000-4000 level.

Approved Electives - EDT
EDMM 1220 - Automobile in Society Credits: 3 hours
EDMM 2220 - Mobile Energy Sources and Lubricants Credits: 3 hours

447
EDMM 2990 - Cooperative Education  Credits: 1 to 3 hours
EDMM 3120 - Systems Decision Making  Credits: 3 hours
EDMM 3240 - Automotive Power Systems  Credits: 3 hours
EDMM 3250 - Automotive Electrical Systems  Credits: 3 hours
EDMM 3260 - Operations Planning and Control  Credits: 3 hours
EDMM 3280 - Quality Assurance and Control  Credits: 3 hours
EDMM 3500 - Production Thermoplastic Processing  Credits: 3 hours
EDMM 3520 - Metal Casting  Credits: 3 hours
EDMM 3580 - Computer-Aided Manufacturing  Credits: 3 hours
EDMM 4250 - Automatic and Automated Drive Line Control Systems  Credits: 3 hours
EDMM 4260 - Automotive Structure, Ride, and Safety  Credits: 3 hours
EDMM 4520 - Die Casting  Credits: 3 hours
EDMM 4560 - Process Testing and Measurement  Credits: 3 hours
EDMM 4570 - Manufacturing for Sustainability  Credits: 2 hours
EDMM 4590 - Mold Design and Construction  Credits: 3 hours
EDMM 4870 - Manufacturing Productivity Techniques  Credits: 3 hours
EDMM 4880 - Applied Process Reengineering  Credits: 3 hours
EDMM 5500 - Advanced Plastics Processing  Credits: 3 hours
IEE 3420 - Ergonomics and Design  Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra  Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours
MSL 1020 - Introduction to the Profession of Arms  Credits: 1 hour
MSL 2020 - Army Doctrine and Team Development  Credits: 2 hours
MSL 3020 - Applied Leadership in Small Unit Operations  Credits: 3 hours
MSL 4020 - Mission Command and the Company Grade Officer  Credits: 3 hours

Note:
Some courses taken as part of other CEAS degrees or technical degrees may be used as electives. Please see an advisor prior to taking any course not on this list.

Engineering Management Technology
Accredited by the Engineering Technology Accreditation Commission ETAC of ABET, [www.abet.org](http://www.abet.org).

The Engineering Management Technology curriculum provides academic background in humanities, social sciences, communication, and technical subjects relating to manufacturing systems. Human relation skills used in industry when dealing with people are developed. The engineering manager may direct production employees working on line operations or may direct staff personnel specifically assigned to assist the line in meeting its objectives. Employment may be in the general areas of manufacturing and service industries.

The educational objectives of the Engineering Management Technology program are:
1. Manage projects, people, and resources effectively.
2. Plan, design, analyze, implement, and improve cost-effective manufacturing/service systems.
3. Build and use management tools to analyze and solve problems effectively and make decisions from a systems perspective.
4. Communicate effectively in verbal, written, and graphic forms.
5. Pursue professional growth and interact effectively in work environments.

(For up-to-date educational objectives and learning outcomes, see department web page at [www.wmich.edu/edmms](http://www.wmich.edu/edmms))

Requirements
Candidates for the Bachelor of Science must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with EDMM, IEE, ECE, and MSE prefixes.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 124 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

4. Prior to enrollment in 3000/4000-level courses, students must 1) place resume with Career and Student Employment Services; 2) complete the following gate courses with a grade of "C" or better: CHEM 1100 and 1110; IEE 1020; EDMM 2460; IEE 2610; PHYS 1150 and 1160; MATH 1220 or 1700 or 2000; and have earned a GPA of 2.3 at WMU. These courses are indicated below.

5. The Engineering Management Technology curriculum requires students to complete a course in General education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000-4000 level, and no more than two courses from any one department may be used to satisfy the Area requirements. Engineering Management Technology majors are required to take ECON 2010 and EDMM 3020 for Area V.

**Baccalaureate-Level Writing Requirement**

Students who have chosen the Engineering Management Technology curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing EDMM 4910: Multidisciplinary Senior Proposal and EDMM 4920: Multidisciplinary Senior Project.

**First Semester (15 hours)**

- General Education Area VIII: Health and Well-being  
  Credits: 2 hours
- IEE 1020 - Technical Communication  
  Credits: 3 hours  
  (With a grade of “C” or better. Satisfies General Education Proficiency 1)
- EDMM 1420 - Engineering Graphics  
  Credits: 3 hours
- EDMM 1500 - Introduction to Manufacturing  
  Credits: 3 hours  
  (Satisfies General Education Area VII)
- MATH 1180 - Precalculus Mathematics  
  Credits: 4 hours  
  (Satisfies General Education Proficiency 3)

**Second Semester (15 hours)**

- CHEM 1100 - General Chemistry I  
  Credits: 3 hours  
  (With a grade of “C” or better. Satisfies General Education Area VI)
  AND
- CHEM 1110 - General Chemistry Laboratory I  
  Credits: 1 hour  
  (With a grade of “C” or better. Satisfies General Education Area VI)
- CS 1021 – Introduction to Engineering Computing I: Spreadsheets  
  Credits: 1 hour
- CS 1023 – Introduction to Engineering Computing III: Computer Programming  
  Credits: 1 hour
- MATH 1220 - Calculus I  
  Credits: 4 hours  
  (With a grade of “C” or better. Satisfies General Education Proficiency 4b)
  OR
- MATH 1700 - Calculus I, Science and Engineering  
  Credits: 4 hours  
  (With a grade of “C” or better. Satisfies General Education Proficiency 4b)
  OR
- MATH 2000 – Calculus with Applications  
  Credits: 4 hours  
  (With a grade of “C” or better. Satisfies General Education Proficiency 3 and 4b)
- PHYS 1130 - General Physics I  
  Credits: 4 hours  
  (Satisfies General Education Area VI)
  AND
- PHYS 1140 - General Physics I Laboratory  
  Credits: 1 hour  
  (Satisfies General Education Area VI)

**Third Semester (14 hours)**

- ACTY 2100 – Principles of Accounting I  
  Credits: 3 hours
- ECON 2010 – Principles of Microeconomics  
  Credits: 3 hours  
  (Satisfies General Education Area V)
- IEE 2610 – Engineering Statistics  
  Credits: 3 hours  
  (With a grade of “C” or better.)
- PHYS 1150 - General Physics II  
  Credits: 4 hours  
  (With a Grade of “C” or better.)
AND
PHYS 1160 - General Physics II Laboratory Credits: 1 hour
(With a Grade of “C” or better.)

Fourth Semester (16 hours)
General Education Area II: Humanities* Credits: 3 hours
EDMM 2001 – Applied Electricity/Electronics Credits: 3 hours
EDMM 2460 - Introduction to Computer-Aided Design Credits: 3 hours
(With a grade of “C” or better.)
EDMM 2810 – Statics and Strength of Materials Credits: 4 hours
EDMM 2560 - Properties of Materials Credits: 3 hours
or
ME 2500 – Materials Science for Engineers Credits: 3 hours

Fifth Semester (16 hours)
See departmental advisor for a list of approved technical elective courses in each specialized area. Also see Technical Elective Requirements below.

EDMM 3020 – Engineering Teams: Theory and Practice Credits: 3 hours
(Satisfies General Education Area V)
EDMM 3050 - Work Analysis Credits: 3 hours
EDMM 3150 - Work Analysis and Design Lab Credits: 1 hour
IEE 3160 – Report Preparation Credits: 3 hours
EDMM 3200 - Engineering Cost Analysis Credits: 3 hours
Approved Technical Elective Credits: 3 hours

Sixth Semester (15 hours)
See departmental advisor for a list of approved technical elective courses in each specialized area. Also see Technical Elective Requirements below.

EDMM 3120 - Systems Decision Making Credits: 3 hours
EDMM 3260 - Operations Planning and Control Credits: 3 hours
EDMM 3280 - Quality Assurance and Control Credits: 3 hours
MGMT 2520 – Human Resource Management Credits: 3 hours
Approved Technical Elective Credits: 3 hours

Seventh Semester (17 hours)
See departmental advisor for a list of approved technical elective courses in each specialized area. Also see Technical Elective Requirements below.

General Education Area I: Fine Arts* Credits: 3 hours
Approved Technical Elective Credits: 3 hours
Approved Technical Elective Credits: 3 hours
EDMM 4020 - Supervision of Industrial Operations Credits: 3 hours
EDMM 4120 - Industrial Systems Management Credits: 3 hours
EDMM 4910 - Multidisciplinary Senior Proposal Credits: 2 hours
(Satisfies General Education Proficiency 2)

Eighth Semester (16 hours)
See departmental advisor for a list of approved technical elective courses in each specialized area. Also see Technical Elective Requirements below.

General Education Area III: The United States: Cultures and Issues* Credits: 3 hours
General Education Area IV: Other Cultures and Civilizations* Credits: 3 hours
EDMM 4040 – Plant Layout and Material Handling Credits: 4 hours
EDMM 4920 - Multidisciplinary Senior Project Credits: 2 hours
(Satisfies General Education Proficiency 2)
EDMM 4930 - Multidisciplinary Senior Project Consultation Credits: 1 hour
Approved Technical Elective Credits: 3 hours

* Note: At least one of these General Education courses must be at the 3000/4000-level.

Approved Electives - UEM
EDMM 1220 - Automobile in Society Credits: 3 hours
EDMM 2220 - Mobile Energy Sources and Lubricants Credits: 3 hours
EDMM 2500 - Plastics Properties and Processing Credits: 3 hours
EDMM 2540 - Machining Processes Credits: 3 hours
EDMM 2990 - Cooperative Education Credits: 1 to 3 hours
EDMM 3120 - Systems Decision Making Credits: 3 hours
EDMM 3240 - Automotive Power Systems Credits: 3 hours
EDMM 3250 - Automotive Electrical Systems Credits: 3 hours
EDMM 3500 - Production Thermoplastic Processing Credits: 3 hours
EDMM 3520 - Metal Casting Credits: 3 hours
EDMM 3580 - Computer-Aided Manufacturing Credits: 3 hours
EDMM 4250 - Automatic and Automated Drive Line Control Systems Credits: 3 hours
EDMM 4260 - Automotive Structure, Ride, and Safety Credits: 3 hours
EDMM 4520 - Die Casting Credits: 3 hours
EDMM 4560 - Process Testing and Measurement Credits: 3 hours
EDMM 4570 - Manufacturing for Sustainability Credits: 2 hours
EDMM 4590 - Mold Design and Construction Credits: 3 hours
EDMM 4870 - Manufacturing Productivity Techniques Credits: 3 hours
EDMM 4880 - Applied Process Reengineering Credits: 3 hours
EDMM 5500 - Advanced Plastics Processing Credits: 3 hours
IEE 3420 - Ergonomics and Design Credits: 3 hours
BUS 1750 - Business Enterprise Credits: 3 hours
BUS 2200 - Introduction to Global Business Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours
OR
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MKTG 2500 - Marketing Principles Credits: 3 hours
MSL 1020 - Introduction to the Profession of Arms Credits: 1 hour
MSL 2020 - Army Doctrine and Team Development Credits: 2 hours
MSL 3020 - Applied Leadership in Small Unit Operations Credits: 3 hours
MSL 4020 - Mission Command and the Company Grade Officer Credits: 3 hours

Note:
Some courses taken as part of other CEAS degrees or technical degrees may be used as electives. Please see an advisor prior to taking any course not on this list.

Manufacturing Engineering Technology

The Manufacturing Engineering Technology curriculum offers preparation for entry positions in manufacturing industries. Understanding of materials and production processes equips graduates to plan manufacturing practices and to develop tooling, machines and systems necessary for efficient production. Program minors allow students to specialize in cast metals or plastics.

The educational objectives of the Manufacturing Engineering Technology program are:
1. Plan, design, analyze, implement, and improve cost-effective manufacturing methods.
2. Synthesize and use technical tools to monitor and control manufacturing processes to solve production problems effectively.
3. Manage projects, people and resources effectively.
4. Communicate effectively in verbal, written, visual, and graphical forms.
5. Pursue professional growth and interact effectively in work environments.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)

Baccalaureate Writing Requirement

Students who have chosen the Manufacturing Engineering Technology curriculum will satisfy the Baccalaureate Writing requirement by successfully completing EDMM 4910: Multidisciplinary Senior Proposal and EDMM 4920: Multidisciplinary Senior Project.

Requirements

1. A grade point average of 2.0 or better must be earned in required courses with ECE, MSE, ME, IEE, and EDMM prefixes.
2. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
4. Prior to enrollment in 3000/4000-level courses, students must 1) place resume with Career and Student Employment Services; 2) complete the following courses with a grade of “C” or better: CHEM 1100 and 1110; IEE 1020; EDMM 2460; IEE 2610; PHYS 1150 and 1160; and MATH 1220 or 1700. These courses are indicated below.
5. The Manufacturing Engineering Technology curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements. Manufacturing Engineering Technology majors are required to take EDMM 3020 for Area V.

First Semester (15 hours)

General Education Area VIII: Health and Well-being Credits: 2 hours
IEE 1020 – Technical Communication Credits: 3 hours
(Satisfies General Education Proficiency 1)
EDMM 1420 – Engineering Graphics Credits: 3 hours
EDMM 1500 – Introduction to Manufacturing Credits: 3 hours
(Satisfies General Education Area VII)
MATH 1180 – Precalculus Mathematics Credits: 4 hours
(Satisfies General Education Proficiency 3)

Second Semester (16 hours)

CHEM 1100 – General Chemistry I Credits: 3 hours
(Satisfies General Education Area VI)
AND
CHEM 1110 – General Chemistry Laboratory I Credits: 1 hour
(Satisfies General Education Area VI)
EDMM 1220 – Automobile in Society Credits: 3 hours
(Satisfies General Education Area VII)
MATH 1220 – Calculus I Credits: 4 hours
(Satisfies General Education Proficiency 4b)
OR
MATH 1700 – Calculus I, Science and Engineering Credits: 4 hours
(Satisfies General Education Proficiency 4b)
OR
PHYS 1130 – General Physics I Credits: 4 hours
(Satisfies General Education Area VI)
AND
PHYS 1140 – General Physics I Laboratory Credits: 1 hour
(Satisfies General Education Area VI)
Third Semester (17 hours)
CS 1021 – Introduction to Engineering Computing I: Spreadsheets Credits: 1 hour
EDMM 2460 – Introduction to Computer-Aided Design Credits: 3 hours
EDMM 2540 – Machining Processes Credits: 3 hours
IEE 2610 – Engineering Statistics Credits: 3 hours
EDMM 2830 – Thermodynamics Credits: 2 hours
PHYS 1150 – General Physics II Credits: 4 hours
AND
PHYS 1160 – General Physics II Laboratory Credits: 1 hour

Fourth Semester (16 hours)
EDMM 2001 – Applied Electricity/Electronics Credits: 3 hours
EDMM 2500 – Plastics Properties and Processing Credits: 3 hours
EDMM 2810 – Statics and Strength of Materials Credits: 4 hours
EDMM 3020 – Engineering Teams: Theory and Practice Credits: 3 hours
(Satisfies General Education Area V)
EDMM 2560 - Properties of Materials Credits: 3 hours
or
ME 2500 – Materials Science for Engineers Credits: 3 hours

Fifth Semester (18 hours)
General Education Area IV: Other Cultures and Civilizations* Credits: 3 hours
Approved Elective Credits: 3 hours
EDMM 3480 – Designing for Production Credits: 3 hours
EDMM 3520 – Metal Casting Credits: 3 hours
EDMM 3540 – Metrology Credits: 3 hours
EDMM 3840 – Fluid Mechanics and Hydraulics Credits: 3 hours

Sixth Semester (15 hours)
General Education Area II: Humanities* Credits: 3 hours
Approved Elective Credits: 3 hours
EDMM 3260 – Operations Planning and Control Credits: 3 hours
EDMM 3280 – Quality Assurance and Control Credits: 3 hours
EDMM 3580 – Computer-Aided Manufacturing Credits: 3 hours

Seventh Semester (17 hours)
General Education Area I: Fine Arts* Credits: 3 hours
Approved Elective Credits: 3 hours
EDMM 3200 – Engineering Cost Analysis Credits: 3 hours
EDMM 4540 – Fabrication, Assembly and Finishing Credits: 3 hours
EDMM 4580 – Manufacturing Systems Integration Credits: 3 hours
EDMM 4910 – Multidisciplinary Senior Proposal Credits: 2 hours

Eighth Semester (14 hours)
General Education Area III: United States: Cultures and Issues* Credits: 3 hours
Approved Elective Credits: 3 hours
EDMM 4020 – Supervision of Industrial Operations Credits: 3 hours
EDMM 4570 – Manufacturing for Sustainability Credits: 2 hours
EDMM 4920 – Multidisciplinary Senior Project Credits: 2 hours
(Satisfies General Education Proficiency 2)
EDMM 4930 – Multidisciplinary Senior Project Consultation Credits: 1 hour

* Note: at least one of these General Education courses must be at the 3000/4000-level.

Approved Technical Electives - MFT
Automotive Systems Minor

The automotive systems minor would be most suitable for engineering, engineering technology and applied sciences graduates as they will have most of the prerequisites for the minor. It is recommended that students fulfill their General Education Area VI requirements by taking CHEM 1100 and CHEM 1110 and Proficiency 4b by taking MATH 1220 or MATH 2000 or MATH 1700. The automotive systems minor totals 15 hours.

Students must take 15 credit hours not in the major to satisfy the automotive systems minor requirements.

Core Classes – Take all of the following:
EDMM 1220 – Automobile in Society Credits: 3 hours
EDMM 2001 - Applied Electricity/Electronics Credits: 3 hours

Electives – select course(s) to total of 15 hours not required for the student's major or program:
EDMM 2220 - Mobile Energy Sources and Lubricants Credits: 3 hours
EDMM 3240 - Automotive Power Systems Credits: 3 hours
EDMM 3250 - Automotive Electrical Systems Credits: 3 hours
EDMM 4250 – Automatic and Automated Drive Line Control Systems Credits: 3 hours
EDMM 4260 – Automotive Structure, Ride, and Safety Credits: 3 hours

Cast Metals Minor
The cast metals minor would be most suitable for engineering, engineering technology and applied sciences graduates as they will have most of the prerequisites for the minor. It is recommended that students fulfill their General Education Area VI requirements by taking CHEM 1100 and CHEM 1110 and Proficiency 4b by taking MATH 1220 or MATH 2000 or MATH 1700. The cast metals minor totals 15 hours.

Students must take 15 credit hours not in the major to satisfy the cast metals minor requirements.

**Required Classes – Take all of the following:**
- EDMM 2460 – Introduction to Computer-Aided Design Credits: 3 hours
- EDMM 3520 – Metal Casting Credits: 3 hours
- EDMM 4520 – Die Casting Credits: 3 hours
- ME 2500 – Materials Science for Engineers Credits: 3 hours
- And Either:
  - EDMM 2540 – Machining Processes Credits: 3 hours or
  - ME 2200 – Processes and Materials in Manufacturing Credits: 4 hours

**Electives – select course(s) to achieve a total of 15 hours:**
- IEE 3420 – Ergonomics and Design Credits: 3 hours
- EDMM 2990 – Cooperative Education Credits: 3 hours (must be in Casting industry)
- EDMM 4560 – Process Testing and Measurement Credits: 3 hours
- EDMM 4590 – Mold Design and Construction Credits: 3 hours
- EDMM 5520 – Casting Simulation and Solidification Credits: 3 hours

**Plastics Processing Minor**

The plastics processing minor would be most suitable for engineering, engineering technology and applied sciences graduates as they will have most of the prerequisites for the minor. It is recommended that students fulfill their General Education Area VI requirements by taking CHEM 1100 and CHEM 1110 and Proficiency 4b by taking MATH 1220 or MATH 2000 or MATH 1700. The plastics processing minor totals 15 hours.

Students must take 15 credit hours not in the major to satisfy the plastics processing minor requirements.

**Required Classes – Take all of the following:**
- EDMM 2460 – Introduction to Computer Aided Design Credits: 3 hours
- EDMM 2500 – Plastics Properties and Processes Credits: 3 hours
- EDMM 3500 – Production Thermoplastic Processing Credits: 3 hours
- And either:
  - EDMM 2540 – Machine Processes Credits: 3 hours
  OR
  - ME 2200 – Processes and Materials in Manufacturing Credits: 4 hours

**Electives – select course(s) to achieve a total of 15 hours:**
- EDMM 2990 – Cooperative Education Credits: 3 hours (must be in the Plastics industry)
- EDMM 4560 – Process Testing and Measurement Credits: 3 hours
- EDMM 4590 – Mold Design and Construction Credits: 3 hours
- EDMM 5500 – Advanced Plastics Processing Credits: 3 hours

**Manufacturing Minor**

The following courses will satisfy the manufacturing minor requirements. WMU policy prohibits the use of the same course in a major and in a minor:
Required Core Classes (9 hours)
EDMM 1420 - Engineering Graphics Credits: 3 hours
EDMM 1500 - Introduction to Manufacturing Credits: 3 hours
EDMM 3280 - Quality Assurance and Control Credits: 3 hours

Approved Electives (6 hours)
Select at least (2) courses.
ECE 2500 - Digital Logic Credits: 3 hours
EDMM 2001 - Applied Electricity/Electronics Credits: 3 hours
EDMM 2460 - Introduction to Computer-Aided Design Credits: 3 hours
EDMM 2500 - Plastics Properties and Processing Credits: 3 hours
EDMM 2540 - Machining Processes Credits: 3 hours
EDMM 3260 - Operations Planning and Control Credits: 3 hours
EDMM 3580 - Computer-Aided Manufacturing Credits: 3 hours

Additional Electives
Other EDMM or IEE course (3 hours) may be used as elective subject to pre-approval.

Notes:
Students may not count any class that is required in their major toward the required 15 hours for this minor.

It is recommended that students selecting the manufacturing minor fulfill their General Education Area VI requirements by taking CHEM 1100 and CHEM 1110 and/or PHYS 1130 and PHYS 1140 as well as Proficiency 3 by taking MATH 1220 or MATH 2000 or MATH 1700.
Industrial and Entrepreneurial Engineering & Engineering Management

Steven E. Butt, Chair
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Lee Wells
Bob White

The Department of Industrial and Entrepreneurial Engineering & Engineering Management offers the following curricula:

Bachelor of Science in Engineering (Industrial & Entrepreneurial)

Industrial and Entrepreneurial Engineering

The Industrial and Entrepreneurial Engineering curriculum provides the essential foundation, experience, and understanding in science, mathematics, entrepreneurship, humanities, and engineering so that graduates may find employment in a wide variety of industries. The program allows students to obtain a minor of their choice and receive credit for internships or international study as part of the 128 credit hour, four year curriculum. The program also provides a solid foundation for future graduate study. Industrial and entrepreneurial engineering involves traditional IE functions such as the design, installation, and improvement of systems integrating people, materials, and equipment. The program also provides substantial course work in entrepreneurial engineering, including product innovation and design and financial aspects of starting new companies. Graduates are typically employed in startup as well as traditional companies in industries such as hotels, banks, food, transportation, and hospitals.

Industrial and Entrepreneurial Engineering Program Educational Objectives (PEOs)
Within a few years after graduation, IEE alumni are expected to be immersed in:

1. Practice: Performing Industrial Engineering functions in public, private or academic sectors.
2. Innovation: Engaging in intra/entrepreneurial activities leading to product, process, and/or system innovation.
3. Knowledge: Continuing formal and/or informal education, applying lessons learned, and leading or mentoring others.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ieeem)

Admission
1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the Engineering and Applied Sciences' section. The pre-engineering course requirements for this curriculum are indicated in the schedule below.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Baccalaureate-Level Writing Requirement
Students who have chosen the Industrial and Entrepreneurial Engineering curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing IEE 3160 – Report Preparation Credits: 3 hours.

Requirements
Candidates for the Bachelor of Science in Engineering (Industrial and Entrepreneurial) must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with IEE, ECE, and ME prefixes.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are indicated.

First Semester (14 hours)
CHEM 1100 - General Chemistry I Credits: 3 hours Pre-engineering requirement
(Satisfies General Education Area VI)
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour Pre-engineering requirement
(Satisfies General Education Area VI)
IEE 1020 - Technical Communication Credits: 3 hours Pre-engineering requirement
EDMM 1420 - Engineering Graphics Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours Pre-engineering requirement
or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours Pre-engineering requirement

Second Semester (16 hours)
General Education Credits: 3 hours
CS 1023 - Introduction to Computing Programming III: Computer Programming Credits: 1 hours
IEE 2010 - Entrepreneurial Engineering I: Cost and Financial Analysis Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours Pre-engineering requirement
or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours Pre-engineering requirement
PHYS 2050 - University Physics I Credits: 4 hours Pre-engineering requirement
(Satisfies General Education Area VI)
PHYS 2060 - University Physics I Laboratory Credits: 1 hour Pre-engineering requirement
(Satisfies General Education Area VI) Pre-engineering requirement

Third Semester (15 hours)
IEE 2610 - Engineering Statistics Credits: 3 hours Pre-engineering requirement
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours Pre-engineering requirement
ME 2560 - Statics Credits: 3 hours Pre-engineering requirement
PHYS 2070 - University Physics II Credits: 4 hours Pre-engineering requirement
PHYS 2080 - University Physics II Laboratory Credits: 1 hour Pre-engineering requirement

Fourth Semester (17 hours)
General Education Credits: 3 hours
Minor Elective Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
(Satisfies General Education Area V)
IEE 2050 - Work Design Credits: 4 hours Pre-engineering requirement
IEE 2621 - Probability for Engineers Credits: 2 hours
IEE 2622 - Statistical Quality Control Credits: 2 hours

Fifth Semester (16 hours)
Minor Elective  Credits: 3 hours
IEE 3010 - Entrepreneurial Engineering II: Product and Service Design  Credits: 3 hours
IEE 3100 - Engineering Economy  Credits: 3 hours
IEE 3160 - Report Preparation  Credits: 3 hours
(Satisfies General Education Proficiency 2)
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours

Sixth Semester (16 hours)
Minor Elective  Credits: 3 hours
IEE 3110 - Introduction to Operations Research  Credits: 3 hours
IEE 3300 - Simulation Modeling and Analysis  Credits: 3 hours
IEE 3420 - Ergonomics and Design  Credits: 3 hours
ECE 2100 - Circuit Analysis  Credits: 4 hours

Seventh Semester (17 hours)
General Education  Credits: 3 hours
Minor Elective  Credits: 3 hours
Approved Technical Elective  Credits: 3 hours
IEE 4010 - Entrepreneurial Engineering III: Facilities Planning and Logistics  Credits: 3 hours
IEE 4160 - Operations Control in Industry  Credits: 4 hours
IEE 4190 - IE Senior Design  Credits: 1 hour

Eighth Semester (17 hours)
General Education Area IV: Other Cultures and Civilizations  Credits: 3 hours
General Education Area VIII: Health and Well-Being  Credits: 2 Hours
Minor Elective  Credits: 3 hours
Approved Technical Elective  Credits: 3 hours
Internship/International Studies  Credits: 3 hours
IEE 4190 - IE Senior Design  Credits: 3 hours

Approved Technical Electives
Please see an advisor prior to taking any course not on this list.
ECE 2110 - Machines and Electronic Circuits  Credits: 3 hours
ECE 2120 - Electronic Circuits and Systems  Credits: 3 hours
ECE 2210 - Electronics I  Credits: 4 hours
ECE 2500 - Digital Logic  Credits: 3 hours
ME 2320 - Thermodynamics I  Credits: 3 hours
ME 2500 - Materials Science for Engineers  Credits: 3 hours
ME 2570 - Mechanics of Materials  Credits: 3 hours
ME 2580 – Dynamics  Credits: 3 hours
CHEG 2611 - Environmental Engineering I  Credits: 3 hours
IEE 2990 - Cooperative Education  Credits: 1 to 3 hours
OR
IEE 5200 - Modern Industrial Practices  Credits: 3 hours
(not both)
The Department of Mechanical and Aerospace Engineering offers programs leading to the degree of Bachelor of Science in Engineering (Mechanical or Aerospace). The two programs are accredited by the Engineering Accreditation Commission of ABET, www.abet.org. The programs are designed to provide diverse expertise appropriate to the selected engineering discipline. The subject matter includes mathematics, general education, the basic sciences, the engineering sciences, product design, and computational tools for engineering. Electives are used to deepen or broaden the program.

The department offers the opportunity for an Accelerated Master’s degree. Details of the degree can be found on the college’s website www.wmich.edu/engineer/academics/accelerated.

Mechanical engineers contribute in almost every industry. Mechanical engineers find career opportunities in areas such as: manufacturing, machine tool design, and product development; land, sea, air, and space vehicles and systems; energy conversion and energy distribution; computer hardware and computer software; environmental systems; and construction and urban development. WMU has strong historical ties to the automotive sector and our offerings in automotive engineering include internal combustion engines, engine design, vehicle design, vehicle dynamics, and vehicle structural design. Opportunities for mechanical engineers continue to develop with the rapid expansion of our knowledge base and population growth.

Aerospace Engineers have similar industrial career opportunities to those of mechanical engineers. The Aerospace Engineering program places additional emphasis on disciplines that provide career opportunities in the aerospace industries such as air and space vehicle design, flight testing, fluid and structural analysis, and systems engineering.

Academic Advising
Students should contact a Mechanical or Aerospace Engineering academic advisor as early as possible. Advisors are available to assist with individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, the curriculum committee, and the department chair. The academic advisors are located in Room E-102 Floyd Hall, (269) 276-3270.
Scholarships and Awards
Several scholarships are available through the College of Engineering and Applied Sciences. These include, but are not limited to, scholarships through the Giffels Associates, Lakehead-Pipeline, Society of Manufacturing Engineers, H. H. Harris Foundation, Kalamazoo Antique Auto Restorers Club, Knight scholarship, and the college itself. Program announcements are distributed during the application period.

The Department of Mechanical and Aerospace Engineering also annually presents several awards, which include:

1. MAE Merit Scholarship Award - to retain and encourage the students with excellent academic performance and to attract meritorious students into mechanical and aerospace engineering programs.
2. Dean E. Bluman Memorial Award - presented to an outstanding student of mechanical engineering who has demonstrated interest and ability in liberal studies. This is in honor and recognition of the late Dr. Bluman who, during his tenure as Professor and Chairman of Mechanical Engineering, was an active supporter of liberal education for engineering students.
3. Outstanding Mechanical Engineering Scholar Award - presented to a mechanical engineering student who is outstanding scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with mechanical engineering.
4. Outstanding Aerospace Engineering Scholar Award - presented to an aerospace engineering student who is outstanding scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with aerospace engineering.
5. Mechanical and Aerospace Engineering Presidential Scholar Award - presented to an outstanding undergraduate student from one of our programs who is selected using University-wide criteria which include senior standing, superior scholastic ability, extra-curricular involvement, and professional promise.

Cooperative Education
Mechanical Engineering students electing the cooperative education plan may choose to have up to 3 credits of co-op experience apply to their program as a Mechanical Engineering elective. Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. A detailed description of this process is available through the Mechanical and Aerospace Engineering homepage. See: www.wmich.edu/sites/default/files/attachments/u593/2015/ME%20program%20co-op.pdf. Cooperative Education is currently not available for Aerospace Engineering students.

Internships
A number of students choose to do internships while continuing their studies. Taking a reduced course load enables the student to gain valuable engineering experience while being continuously enrolled.

Aerospace Engineering

The following Program Educational Objectives (PEO) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve within two to five years after graduation.

1. Career Growth: as demonstrated by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.
2. Professional Development: as demonstrated by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
3. Service: as demonstrated by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
4. Innovation: as demonstrated by metrics such as the development of new processes, devices, methods, patents, and/or dissemination of knowledge.

(For up-to-date educational objectives and learning outcomes, see the department's Web site at www.wmich.edu/mechanical-aerospace/academics/aerospace)
Admission
1. To be admitted to this engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Baccalaureate-Level Writing Requirement
Students who have chosen the Aerospace Engineering curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing:
ME 4800: Mechanical and Aerospace Engineering Project Credits: 3 hours

Requirements
Candidates for the Bachelor of Science in Engineering (Aerospace) must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with AE, ECE, IEE, EDMM, and ME prefixes.
2. A student is required to earn a grade of "C" or better in all 1000-3000 level departmental prerequisite courses before enrollment is permitted in the next sequence course.
3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
4. Complete the following program of 129-130 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in the fall.
5. The Aerospace Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Education Area courses must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements.

First Semester (16 hours)
General Education Area VIII: Health and Well-Being Credits: 2 hours
CHEM 1100 - General Chemistry I Credits: 3 hours
(Pre-engineering requirement)
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour
(Pre-engineering requirement)
IEE 1020 - Technical Communication Credits: 3 hours
(Pre-engineering requirement)
EDMM 1420 - Engineering Graphics Credits: 3 hours
(MATH 1220 - Calculus I Credits: 4 hours
or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
(Pre-engineering requirement)

Second Semester (18 hours)
General Education Area II: Humanities Credits: 3 hours
AE 2610 - Introduction to Aerospace Engineering Credits: 3 hours
CS 1200 - Programming in C for Engineers Credits: 3 hours
MATH 1230 - Calculus II Credits: 4 hours
or
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours
(Pre-engineering requirement)
PHYS 2050 - University Physics I Credits: 4 hours
(Pre-engineering requirement)
PHYS 2060 - University Physics I Laboratory Credits: 1 hour
(Pre-engineering requirement)

Third Semester (18 hours)
General Education Area V: Social and Behavioral Science Credits: 3 hours
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
(Pre-engineering requirement)  
ME 2320 - Thermodynamics I  Credits: 3 hours  
(Pre-engineering requirement)  
ME 2560 - Statics  Credits: 3 hours  
(Pre-engineering requirement)  
PHYS 2070 - University Physics II  Credits: 4 hours  
(Pre-engineering requirement)  
PHYS 2080 - University Physics II Laboratory  Credits: 1 hour  
(Pre-engineering requirement)  

Fourth Semester (17-18 hours)  
ECE 2100 - Circuit Analysis  Credits: 4 hours  
(Pre-engineering requirement)  
MATH 3740 - Differential Equations and Linear Algebra  Credits: 4 hours  
ME 2570 - Mechanics of Materials  Credits: 3 hours  
ME 2580 - Dynamics  Credits: 3 hours  
PHYS 3090 - Introductory Modern Physics  Credits: 4 hours  
or  
CHEM 1120 - General Chemistry II  Credits: 3 hours  

Fifth Semester (16 hours)  
General Education Area III: U.S. Cultures and Issues  Credits: 3 hours  
General Education Area IV: Other Cultures and Civilizations  Credits: 3 hours  
AE 3610 - Aerodynamics I  Credits: 4 hours  
ME 3600 - Control Systems  Credits: 3 hours  
ME 3620 - Theory of Engineering Experimentation  Credits: 3 hours  

Sixth Semester (16 hours)  
General Education Area I: Fine Arts  Credits: 4 hours  
AE 3710 - Aerodynamics II  Credits: 3 hours  
AE 3800 - Flight Vehicle Performance  Credits: 3 hours  
ME 3350 - Instrumentation  Credits: 3 hours  
AE 4700 - Orbital Mechanics  Credits: 3 hours  

Seventh Semester (13 hours)  
Aerospace Elective  Credits: 3 hours  
AE 4600 - Aircraft Stability and Control  Credits: 3 hours  
AE 4630 - Aerospace Structural Design  Credits: 3 hours  
AE 4660 - Aerospace Propulsion I  Credits: 3 hours  
ME 4790 - Mechanical and Aerospace Engineering Project Planning  Credits: 1 hour  

Eighth Semester (15 hours)  
Aerospace Elective  Credits: 3 hours  
Aerospace Elective  Credits: 3 hours  
AE 4690 - Aircraft Design  Credits: 3 hours  
AE 4760 - Aerospace Propulsion II  Credits: 3 hours  
ME 4800 - Mechanical and Aerospace Engineering Project  Credits: 3 hours  

Aerospace Engineering Electives  
Students must complete a total of three elective courses from the list below.  

Thermal/Fluid Science  
AE 5200 - Advanced Aerodynamics  Credits: 3 hours  
ME 4310 - Heat Transfer  Credits: 3 hours  
ME 5300 - Theoretical and Computational Fluid Mechanics  Credits: 3 hours  
ME 5450 - Computational Fluid Dynamics I  Credits: 3 hours
Structures/Material Science
AE 5100 - Foundations of Structural Mechanics Credits: 3 hours
ME 4570 - Experimental Solid Mechanics Credits: 3 hours
ME 5610 - Finite Element Method Credits: 3 hours
ME 5690 - Principles of Fatigue and Fracture Credits: 3 hours

Flight Mechanics
AE 4590 - Flight Test Engineering and Design Credits: 3 hours
AE 5400 - Aerospace Vehicle Dynamics Credits: 3 hours

System/Component Design
ME 3650 - Machine Design I Credits: 3 hours

Mechanical Engineering

The following Program Educational Objectives (PEO) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve within two to five years after graduation.

1. Career Growth: as demonstrated by metrics such as achieving proficiency in current position, increasing responsibility, diversity of job functions, recognition, progression and/or job advancement.
2. Professional Development: as demonstrated by metrics such as pursuing additional educational activities, professional certifications, leadership effectiveness, staying current with evolving technologies and/or demonstrating initiative.
3. Service: as demonstrated by metrics such as involvement in their communities, professional societies, and/or humanitarian endeavors.
4. Innovation: as demonstrated by metrics such as the development of new processes, devices, methods, patents, and/or dissemination of knowledge.

(For up-to-date educational objectives and learning outcomes, see the department's Web site at www.wmich.edu/mechanical-aerospace/academics/mechanical)

Admission
1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of “C” or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Baccalaureate-Level Writing Requirement
Students who have chosen the Mechanical Engineering curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing:
ME 3650: Machine Design I Credits: 3 hours or
ME 4800: Mechanical and Aerospace Engineering Project Credits: 3 hours

Requirements
Candidates for the Bachelor of Science in Engineering (Mechanical) degree must satisfy the following requirements in addition to those required by Western Michigan University:
1. A grade point average of 2.0 or better must be earned in courses presented for graduation with AE, ECE, IEE, EDMM, and ME prefixes.
2. A student is required to earn a grade of “C” or better in all departmental pre-requisite courses before enrollment is permitted in the next sequence course.
3. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
4. Complete the following program of 128-134 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

5. The Mechanical Engineering curriculum requires students to complete a course in General Education Area I, Area II, Area III, Area IV, Area V, and Area VIII. At least two of the General Area course must be at the 3000/4000-level, and no more than two courses from any one department may be used to satisfy the Area requirements.

First Semester (17-18 hours)
General Education Credits: 3 hours
CHEM 1100 - General Chemistry I Credits: 3 hours (Pre-engineering requirement)
CHEM 1110 - General Chemistry Laboratory I Credits: 1 hour (Pre-engineering requirement)
EDMM 1420 - Engineering Graphics Credits: 3 hours
MATH 1220 - Calculus I Credits: 4 hours
OR
MATH 1700 - Calculus I, Science and Engineering Credits: 4 hours (Pre-engineering requirement)

Select either
ENGL 1050 - Thought and Writing Credits: 4 hours or
IEE 1020 - Technical Communication Credits: 3 hours (Pre-engineering requirement)

Second Semester (16 hours)
General Education Credits: 3 hours (Pre-Engineering requirement)
CS 1022 - Introduction to Engineering Computing 2: Mathematical Software Credits: 1 hour
OR
CS 1023 - Introduction to Engineering Computing 3: Computer Programming Credits: 1 hour (Pre-Engineering requirement)
MATH 1230 - Calculus II Credits: 4 hours or
MATH 1710 - Calculus II, Science and Engineering Credits: 4 hours (Pre-engineering requirement)
ME 2615 - Introduction to Mechanical Engineering Credits: 3 hours
PHYS 2050 - University Physics I Credits: 4 hours (Pre-engineering requirement)
PHYS 2060 - University Physics I Laboratory Credits: 1 hour (Pre-engineering requirement)

Third Semester (15 hours)
The following courses are Pre-engineering requirements.
MATH 2720 - Multivariate Calculus and Matrix Algebra Credits: 4 hours
ME 2320 - Thermodynamics I Credits: 3 hours
ME 2560 - Statics Credits: 3 hours
PHYS 2070 – University Physics II Credits: 4 hours
PHYS 2080 – University Physics II Laboratory Credits: 1 hour

Fourth Semester (17 hours)
ECE 2100 - Circuit Analysis Credits: 4 hours (Pre-engineering requirement)
MATH 3740 - Differential Equations and Linear Algebra Credits: 4 hours
ME 2500 - Materials Science for Engineers Credits: 3 hours
ME 2570 - Mechanics of Materials Credits: 3 hours
ME 2580 – Dynamics Credits: 3 hours

Fifth Semester (16 to 17 hours)
ME 3560 - Fluid Mechanics Credits: 3 hours
ME 3580 - Mechanism Analysis Credits: 3 hours
ME 3620 - Theory of Engineering Experimentation Credits: 3 hours
ME 3650 - Machine Design I Credits: 3 hours

Select either:
CHEM 1120 - General Chemistry II Credits: 3 hours
AND
CHEM 1130 - General Chemistry Laboratory II Credits: 1 hour

465
OR
PHYS 3090 - Introductory Modern Physics  Credits: 4 hours
AND
PHYS 3100 - Introductory Modern Physics Lab  Credits: 1 hour

Sixth Semester (15 hours)
ECE 2110 - Machines and Electronic Circuits  Credits: 3 hours
ME 3350 - Instrumentation  Credits: 3 hours
ME 3600 - Control Systems  Credits: 3 hours
ME 4310 - Heat Transfer  Credits: 3 hours
ME 4320 - Thermodynamics II  Credits: 3 hours

Seventh Semester (16 to 18 hours)
ME Elective  Credits: 3 hours
ME Elective  Credits: 3 to 4 hours
ME Elective  Credits: 3 to 4 hours
General Education  Credits: 3 hours
General Education  Credits: 3 hours
ME 4790 - Mechanical and Aerospace Engineering Project Planning  Credits: 1 hour

Eighth Semester (16 to 18 hours)
ME Elective  Credits: 3 to 4 hours
ME Elective  Credits: 3 to 4 hours
General Education  Credits: 3 hours
General Education  Credits: 2 hours
IEE 3090 - Engineering Economy for Mechanical Engineers  Credits: 2 hours
ME 4800 - Mechanical and Aerospace Engineering Project  Credits: 3 hours

Mechanical Engineering Electives
Students must complete a total of five different elective courses from the list below (Group 1 and/or Group 2). Two must be design courses (marked with a "D" in the list) and two must have a laboratory experience (marked with an “L” in list).

Group 1: Electives from Undergraduate Courses
Note: A minimum grade of "C" is required in all prerequisites to Group 1 electives.

AE 3610 - Aerodynamics I  Credits: 4 hours (L)
ME 3670 - Internal Combustion Engines I  Credits: 3 hours (L)
ME 4330 - Environmental Systems Design in Buildings  Credits: 3 hours (D)
This course has a prerequisite that is an elective.
ME 4390 - Design of Thermal Systems  Credits: 3 hours (D, L)
This course has a prerequisite that is an elective.
AE 4660 - Aerospace Propulsion I  Credits: 3 hours (L)
ME 4680 - Engine Design  Credits: 3 hours (D, L)
This course has a prerequisite that is an elective.
ME 4530 - Machine Design II  Credits: 3 hours (D)
ME 4570 - Experimental Solid Mechanics  Credits: 3 hours (L)
AE 4630 - Aerospace Structural Design  Credits: 3 hours (D)
AE 4690 - Aircraft Design  Credits: 3 hours (D)
ME 4700 - Vehicle Structural Design  Credits: 3 hours (D)
AE 4600 - Aircraft Stability and Control  Credits: 3 hours
ME 4590 - Dynamics of Machinery  Credits: 3 hours
ME 4650 - Vehicle Dynamics  Credits: 3 hours
ME 4710 - Motion and Control  Credits: 3 hours (L)
ME 3990 - Cooperative Education  Credits: 1 hour
(Repeatable 3 times to count as one elective 3 credit course.)
Group 2: Electives from Graduate Courses (5000-level)
Note: A minimum grade of "B" is required in all prerequisites to Group 2 electives.
ME 5300 - Theoretical and Computational Fluid Mechanics Credits: 3 hours
ME 5390 - Advanced Thermal Design Credits: 3 hours (D)
ME 5450 - Computational Fluid Dynamics I Credits: 3 hours
ME 5710 - Gas Dynamics Credits: 3 hours
ME 5720 - Advanced Thermodynamics Credits: 3 hours
ME 5770 - Fuel Cell and Alternative Energy Credits: 3 hours (L)
ME 5200 - Orthopaedic Biomechanics Credits: 3 hours
ME 5500 - Modern Engineered Materials Credits: 3 hours (D)
ME 5530 - Advanced Product Engineering Credits: 3 hours (D)
This course has a prerequisite that is an elective.
ME 5610 - Finite Element Method Credits: 3 hours
ME 5690 - Principles of Fatigue and Fracture Credits: 3 hours
ME 5730 - Materials Selection in Design Credits: 3 hours (D)
ME 5750 - Tribology - Principles and Applications Credits: 3 hours
ME 5410 - Continuous System Modeling & Simulation Credits: 3 hours
ME 5430 - Mechanical Systems Control Credits: 3 hours
ME 5550 - Intermediate Dynamics Credits: 3 hours
ME 5580 - Mechanical Vibrations Credits: 3 hours
ME 5640 - Engineering Noise Control Credits: 3 hours (L)
ME 5850 - Mechatronics Credits: 3 hours
ME 5350 - Applied Spectroscopy Credits: 3 hours
ME 5600 - Engineering Analysis Credits: 3 hours
ME 5620 - Application of Numerical Methods in Engineering Credits: 3 hours
Interdisciplinary Programs

Integrated Supply Management Minor
This program integrates business and technological concepts for a successful career in supply chain management. A major is designed for students in the Haworth College of Business and the minor is limited to students with majors in the College of Engineering and Applied Sciences. In completing the core course requirements for this minor, students may complete one or more of these courses through the course requirements of their undergraduate major or program. However, if the total number of credit hours earned for courses outside the student's major (or program) does not total at least 15, then the student must take courses from the prescribed electives to bring this total to 15 or more.

Core – (take all of the following):
MKTG 2500 - Marketing Principles Credits: 3 hours
MKTG 3720 - Sourcing and Purchasing Credits: 3 hours
MKTG 4630 - Supply Chain Logistics Credits: 3 hours

And either:
EDMM 3260 - Operations Planning and Control Credits: 3 hours or
IEE 4160 - Operations Control in Industry Credits: 4 hours

And either:
IEE 2620 - Probability and Quality for Engineers Credits: 3 hours or
IEE 2621 - Probability for Engineers Credits: 2 hours AND IEE 2622 - Statistical Quality Control Credits: 2 hours or
EDMM 3280 - Quality Assurance and Control Credits: 3 hours

And either:
EDMM 4880 - Applied Process Reengineering Credits: 3 hours or
MKTG 4880 - Applied Process Reengineering Credits: 3 hours

Electives
Select course(s) to achieve a total of 15 hours earned beyond the courses taken in the student's major or program.
EDMM 4870 - Manufacturing Productivity Techniques Credits: 3 hours
EM 5050 - Continuous Improvement in Operations Credits: 3 hours
EM 5080 - Advanced Quality Management Credits: 3 hours
MGMT 2800 - Introduction to Supply Management Credits: 3 hours
MGMT 3810 - Applied Six Sigma Problem-Solving Credits: 3 hours
College of Fine Arts
www.wmich.edu/finearts

Daniel Guyette
Dean

Scott R. Irelan
Associate Dean

Julie Rickert
Advising Director
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Academic Units:
Art
Dance
Music
Theatre

Vision

The college will be a national leader in the preparation of artists, practitioners, teachers, and scholars through educational and creative excellence.

The college holds as its core values:

- Teaching through the integration of theory and practice
- Rigorous student/faculty engagement
- Faculty who are practicing artists
- Student engagement with arts professionals
- A diverse, inclusive and collaborative environment
- The intersection of artistic tradition and innovation
- Contributions to, and partnership with, our communities

Mission

The College of Fine Arts fosters, integrates, and promotes the academic, and artistic excellence of its departments and schools.
The main goal of the Gwen Frostic School of Art is to provide education in the visual arts to the students of Western Michigan University. An innovative foundation program integrates traditional skills with recent computer technologies; while rigorous upper division course work allows the student to specialize in one or more media. The faculty fosters the technical skills, critical thinking, and creative freedom necessary to prepare students for careers in the competitive fields of studio art, graphic design, art education, and art history. Through our programs we also provide visual arts education to the wider university population in an effort to enhance art appreciation and visual literacy.

The Gwen Frostic School of Art also acts as a regional resource, working to advance the arts and their roles in our community. We provide facilities and instruction for special programs in the public school system, K-12. Through the exhibitions in our galleries, a visiting artists and scholars program, and a campus wide sculpture tour, we provide the community access to local, national, and international artists and scholars.

As artists and scholars ourselves, we also exhibit and publish our creative work and research. Through these activities we not only advance our respective fields in the visual arts, but we are better equipped to mentor our students in a world of constantly changing methodologies, technologies, and expectations for art.

**Accreditation**
Western Michigan University is an accredited member of the National Association of Schools of Art and Design and subscribes to the recommendations of this organization.

**Admission**
Only the Office of Admissions grants admission to Western Michigan University for undergraduate students. Application forms may be obtained by writing to the Office of Admissions.

Enrollment in the Bachelor of Arts in Art curriculum is contingent upon both admission to the University and approval of the School of Art, the latter of which is achieved through the portfolio review process. The student should begin by making
application to the University and requesting portfolio information from the School of Art. Both procedures should be commenced early in the senior year of high school, or early in the final year at a community college.

Approval to become an art major is based upon the student's background in art, as demonstrated in the portfolio application that includes samples of visual and written work (art history applications include only writing samples). The Gwen Frostic School of Art's portfolio review will help many students make a more intelligent choice regarding their educational career. Information regarding the portfolio admissions process can be found in the School of Art’s website or by calling the art advisors at (269) 387-2440. The school welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Students interested in pursuing one of our Bachelor of Fine Arts programs, please see below under "Art Major-Bachelor of Art Education," “Art Major-Bachelor of Fine Arts” and "Graphic Design Major-Bachelor of Fine Arts."

**Transfer Credit**
Transfer credit may be used to fulfill no more than half the number of credit hours required for the student's Art major or minor. Art credits earned at a college accredited by the National Association of Schools of Art and Design, or a regionally recognized accrediting agency, in which a grade of "C" or better is earned, will transfer in most cases. Successful art course transfer is dependent upon the degree of positive content relationship to existing WMU courses, particularly at the foundation level.

If you receive general art credit for any course you feel would fulfill a required art course, or for any course needed to fulfill a prerequisite for a course you wish to take, you must present a portfolio for consideration. Based on the results of this portfolio review, the course in question will either receive a direct course equivalent number or remain general art credit. General art credits can be used to fulfill the art elective category or be used as electives you may need to complete the minimum number of hours required for graduation (122).

If you do not wish to show a portfolio for any courses in which you have received general "art credit," you do not have to do so. These credits will automatically be used as electives wherever needed.

For portfolio guidelines please write to: Screening Committee, Gwen Frostic School of Art, Western Michigan University, Kalamazoo, MI 49008, or call (269) 387-2440.

**Advising**
All art majors and minors are required to see an art advisor as soon as they are on campus and at least once each Fall and Spring semester thereafter. To make an appointment please call (269) 387-2440.

**Miscellaneous**

*Baccalaureate-Level Writing Requirement*
Students who major in Art will satisfy the Baccalaureate-Level Writing requirement by successfully completing ART 3250: Writing About Art.

Students who major in Art History will satisfy the Baccalaureate-Level Writing requirement by successfully completing ART 3270: Writing About Art History.

*Computer Usage*
The Gwen Frostic School of Art utilizes computers in virtually all aspects of the visual arts. Our computer lab is open to all Art majors and minors.

Computer usage and design play a vital role in our Graphic Design Program, and our Design Center is fully equipped for exclusive use of Graphic Design students.

*Exhibition Requirement*
Each Bachelor of Fine Arts candidate must present a graduating exhibition as stated in Art 4900-4970 in the B.F.A. degree requirements. The B.F.A. candidate is to arrange such an exhibition in consultation with their B.F.A. Committee Chairperson. B.F.A. candidates must submit to the School of Art a minimum of two copies of their portfolio including 20 images of their
art work; a description of each piece with title, medium, size and year; an artist statement and resume on CD before receiving
a grade for their graduation presentation or final class in their area of concentration.

**Grading**
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

**Studios**
Advanced undergraduates occasionally are given studios. All other students may work in the regular classroom studios at
night and on Saturdays. The school and its instructors cannot be responsible for student work left in studios after the end of
each semester or term. Studio classes are usually limited to between 15 and 20 students.

**Programs**
The Gwen Frostic School of Art offers the following degree programs: Bachelor of Fine Arts with a major in Art and an
emphasis in either Ceramics, Jewelry/Metals, Painting, Photography, Photography and Intermedia, Printmedia, or Sculpture;
Bachelor of Fine Arts with a major in Graphic Design; Bachelor of Arts with a major in Art; Bachelor of Arts with a major in
Art History; Bachelor of Fine Arts with a major in Art Education. All programs are within the Art curriculum, which is
composed of the General Education requirements of the University and the Art major requirements of the B.A. or B.F.A.
degrees. The school also offers two minors: Art and Art History.

Those seeking a broadly inclusive studio experience in art are advised to take ART 1300 and/or 1400. ART 1200, 1300,
1400, 1480, 2200, and 2210 are open with no prerequisites to non-art majors and can satisfy the Area I, Fine Arts,
requirements of General Education. ART 2220 and 2230 are open with no prerequisites to non-art majors and can satisfy the
Avea IV: Other Cultures requirements of General Education.

**Art Major - Bachelor of Fine Arts (85 hours)**
This degree is designed for qualified students who intend to become professional artists or pursue graduate study in art. Art
majors must make application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis
after completing 30 hours in art and one semester residency in the school.

Areas of emphasis: Ceramics, Jewelry/Metals, Painting, Photography, Photography and Intermedia, Printmedia, and
Sculpture. Art Education students who are also BFA candidates must complete the requirements of one of the studio areas of
emphasis in addition to the certification requirements of the College of Education and Human Development and the art
education sequence in the School of Art: ART 2520, 3520, 4520, and 5520.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy both
the major and the minor requirements of this curriculum and are distributed as follows:

**Basic Studies Requirement (12 hours)**
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

**Art History Requirement (12 to 15 hours)**
Two additional Art History courses at the 3000- or 4000-level, or at the 5000-level with permission of instructor (6 to 9
hours)
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours

**Baccalaureate Writing Requirement (3 hours)**
ART 3250 - Writing About Art Credits: 3 hours

**Studio Emphasis (21 to 31 hours)**
Areas include: Ceramics, Painting, Photography, Photography and Intermedia, Printmedia, and Sculpture.
Emphasis in Ceramics
ART 2300 - Ceramics Credits: 3 hours
ART 3300 - Ceramics Credits: 3 hours
ART 5300 - Ceramics Workshop Credits: 1 to 6 hours
Credits: 15 hours needed

Emphasis in Metals/Jewelry
ART 2380 - Jewelry and Metalsmithing Credits: 3 hours
ART 3380 - Jewelry and Metalsmithing Credits: 3 hours
ART 5380 - Jewelry and Metalsmithing Workshop Credits: 1 to 6 hours
Credits: 15 hours needed

Emphasis in Painting
ART 2400 - Painting I Credits: 3 hours
ART 3400 - Painting II Credits: 3 hours
ART 5400 - Painting Workshop Credits: 1 to 6 hours
Credits: 15 hours needed

Emphasis in Printmedia
Printmaking Elective 2000-3000 level Credits: 3 hours
ART 2800 - Printmedia I Credits: 3 hours
ART 3800 - Printmedia II Credits: 3 hours
ART 3000 - Special Topics in Printmedia Credits: 3 hours
ART 5410 - Printmedia Workshop Credits: 3 hours
(repeatable for credit) (9 hours required)
Credits: 21 hours needed

Emphasis in Sculpture
ART 2310 - Sculpture Credits: 3 hours
ART 3310 - Sculpture Credits: 3 hours
ART 5310 - Sculpture Workshop Credits: 1 to 6 hours
Credits: 15 hours needed

Art Electives (21 to 34 hours)
Electives and required art courses must be determined in consultation with a faculty advisor within the studio area of emphasis. Three (3) hours of non-Western Art History may be applied to the elective requirement in certain emphases, with advisor approval.

Graduation Presentation (3 hours)
ART 4930 - Graduation Preparation Credits: 3 hours

Grading Requirement
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Art Education Major – Bachelor of Fine Arts (84 hours)

Procedures for Admission
Students who wish to declare an Art Education major are required to apply before registering for any art education courses (ART 3520, ART 4520, ART 5520). Application includes a portfolio review, letter of intent, and advising checks. More complete information is available in the Art Advising Office.

Program Requirements
This program is intended to develop artists trained in various forms of civic engagement, and educational theory and methods. Students who intend to gain K-12 teacher certification must also complete the requirements of the secondary
education curriculum of the College of Education and Human Development. Eighty-four credit hours in professional studies satisfy the comprehensive major/minor of this curriculum, and are distributed as follows:

**Professional Program**

*Basic Studies Requirement (12 hours)*
- ART 1040 – Object Drawing   Credits: 3 hours
- ART 1050 – Drawing Studio   Credits: 3 hours
- ART 1070 – Form and Surface   Credits: 3 hours
- ART 1080 – Form and Space   Credits: 3 hours

*Baccalaureate-Level Writing Requirement (3 hours)*
- ART 3250 – Writing About Art   Credits: 3 hours

*Studio Art Distribution Requirement (21 hours)*
- ART 2100 – Life Drawing   Credits: 3 hours
- ART 2160 – Black & White Photography I   Credits: 3 hours
- ART 2300 – Ceramics   Credits: 3 hours
- ART 2400 – Painting   Credits: 3 hours
- ART 2800 – Printmedia I   Credits: 3 hours

And either:
- ART 2750 – Video Art I   Credits: 3 hours OR
- ART 3470 – Digital Photography I   Credits: 3 hours

And either:
- ART 2310 – Sculpture   Credits: 3 hours OR
- ART 2380 – Jewelry and Metalsmithing   Credits: 3 hours

*Studio Art Concentration Requirement (9 hours)*
Intermediate and advanced level coursework (3000-5000) in **one** of the following areas:

**Studio Areas:**
- Ceramics
- Metals/Jewelry
- Painting
- Photography and Intermedia
- Printmedia
- Sculpture

*Art History Requirement (12 hours)*
- ART 2200 – History of Art   Credits: 3 hours
- ART 2210 – History of Art   Credits: 3 hours

And one elective in non-Western art history from the following:
- ART 2220 – Art of Africa, Oceania and the Americas   Credits: 3 hours OR
- ART 2230 – Introduction to Asian Art History   Credits: 3 hours

And one elective in contemporary art history:
- ART 3900 - Twentieth-Century Art: 1945 to Present   Credits: 3 hours OR

Other art history elective that meets the Michigan Department of Education/Standards for teacher preparation requiring a course in contemporary art history, upon approval of art education area coordinator.

**Professional Concentration**
See the Education Advisor, 2504 Sangren, for information concerning mandatory Michigan tests.
**Art Education Requirement (18 hours)**

- ART 3520 – Art, Education, and Child Development  Credit: 3 hours
- ART 4520 – Art, Education, and Adolescent Development  Credit: 3 hours
- ART 5520 – Art Education Practicum  Credit: 6 hours
  (ART 5520 must be repeated for a total of 12 hours)

**Teacher Education Requirement (9 hours)**

- ED 2500 – Human Development: Applications in Education  Credit: 3 hours
- ES 3950 – School and Society  Credit: 3 hours
- LS 3050 – Content Area Literacy  Credit: 3 hours

**Teacher Certification Requirement (24 hours)**

First Semester (12 hours):
- ED 4100 - Seminar in Education  Credit: 1 to 2 hours
  (2 credit hours needed)
- ED 4710 - Intern Teaching: Elementary/Middle School  Credit: 5, 8, or 10 hours
  (10 credit hours needed)

Second Semester (12 hours):
- ED 4100 - Seminar in Education  Credit: 1 to 2 hours
  (2 credit hours needed)
- ED 4750 - Intern Teaching: Middle School/Secondary  Credit: 5 or 10 hours
  (10 credit hours needed)

**Grading Requirement**

Art majors and minors receiving a grade below a “C” in a required course must repeat the course.

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**Graphic Design Major - Bachelor of Fine Arts (85 hours)**

This degree is designed for qualified students who intend to become professional graphic designers or pursue graduate study in graphic design. Art majors must make specific application for B.F.A. candidacy with a major in graphic design to a departmental committee of graphic design faculty. Courses in the program are sequential beginning in the fall semester of each year and will take a minimum of three years to complete after admission.

Application requires a portfolio review, personal interview, submission of an unofficial transcript, and completion of application forms. Applications and deadlines may be obtained from the advising office. Reviews are held only in the spring semester for admission into the following fall semester. Students must have completed or be enrolled in 12 hours of the Basic Studies courses and 3 hours of Art History.

Students' portfolios are reviewed for understanding of perspective, composition, and color acquired in foundation courses. Academic abilities reflected in the grade point average and an ability to articulate the fundamentals acquired at the basic level of study are also considered as part of the interview process.

The requirements of the B.F.A. curriculum of the Gwen Frostic School of Art and the College of Fine Arts must be satisfied. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows:

**Basic Studies Requirement (12 hours)**

- ART 1040 - Object Drawing  Credit: 3 hours
- ART 1050 - Drawing Studio  Credit: 3 hours
- ART 1070 - Form and Surface  Credit: 3 hours
- ART 1080 - Form and Space  Credit: 3 hours

**Baccalaureate Writing Requirement (3 hours)**

- ART 3250 - Writing About Art  Credit: 3 hours
Art History Requirement (12 hours)
ART 2200 - History of Art   Credits: 3 hours
ART 2210 - History of Art   Credits: 3 hours
Art History elective (3000-4000 level)   Credits: 3 hours
Art History elective (3000-4000 level)   Credits: 3 hours

Graphic Design Sequence (43 hours)
ART 2500 - Color for Graphic Design   Credits: 3 hours
ART 2600 - Graphic Design I: Visual Aesthetics   Credits: 3 hours
ART 2510 - Typography I   Credits: 3 hours
ART 2610 - Graphic Design II: Graphic Form   Credits: 3 hours
ART 3500 - Typography II   Credits: 3 hours
ART 3600 - Graphic Design III: Visual Systems   Credits: 3 hours
ART 3510 - Typography III   Credits: 3 hours
ART 3610 - Graphic Design IV: Design Applications   Credits: 3 hours
ART 3710 - Special Topics   Credits: 3 hours
ART 4600 - Graphic Design V: Advanced Problems   Credits: 3 hours
ART 5700 - Intern I   Credits: 3 hours
ART 4610 - Graphic Design VI: Senior Projects   Credits: 4 hours
ART 5710 - Intern II   Credits: 3 to 6 hours   Credits: 3 hours needed
ART 4920 - Graduation Presentation and Seminar-Graphic Design   Credits: 3 hours

Photography Requirement (6 hours)
ART 2160 – Black & White Photography I   Credits: 3 hours
ART 3470 – Digital Photography I   Credits: 3 hours

Art Studio Electives (9 hours)
It is recommended that two courses be in a sequence. Three hours of Non-Western art history may be applied to the elective requirement.

Grading Requirement
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Emphasis in Photography - Bachelor of Fine Arts (85 hours)

This option in the B.F.A. is designed for qualified students who intend to become professional photographers or pursue graduate study in art. Art majors must make application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art and one semester residency in the school. It also is necessary to be at or above the 3000-level in the area to which they are applying.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)
ART 1040 - Object Drawing   Credits: 3 hours
ART 1050 - Drawing Studio   Credits: 3 hours
ART 1070 - Form and Surface   Credits: 3 hours
ART 1080 - Form and Space   Credits: 3 hours

Baccalaureate-Level Writing Requirement (3 hours)
ART 3250 - Writing About Art   Credits: 3 hours

Art History Requirement (12 hours)
ART 2200 - History of Art   Credits: 3 hours
ART 2210 - History of Art   Credits: 3 hours
Art History elective (3000-5000 level) Credits: 3 hours
Art History elective (3000-5000 level) Credits: 3 hours

Photography Emphasis Requirement (21 hours)
ART 2160 – Black & White Photography I Credits: 3 hours
ART 3160 – Black & White Photography II Credits: 3 hours
ART 3470 – Digital Photography I Credits: 3 hours
ART 4470 – Digital Photography II Credits: 3 hours
And either:
ART 5480 – Photography Workshop Credits: 1 to 4 hours Credits: 6 to 9 hours needed*
OR
ART 4710 – Special Topics in Photography and Intermedia Credits: 3 hours

*ART 5480 is repeatable for credit.

Studio Art Electives (34 hours)
Recommended to include:
ART 2450 – Graphic Design-Non BFA in Graphic Design Credits: 3 hours
ART 2750 – Video Art I Credits: 3 hours
ART 2310 – Sculpture Credits: 3 hours
And either:
ART 2410 – Intaglio and Relief Credits: 3 hours
OR
ART 2460 – Screenprint Credits: 3 hours

Graduation Preparation (3 hours)
ART 4930 - Graduation Preparation Credits: 3 hours

Grading Requirement
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Emphasis in Photography and Intermedia - Bachelor of Fine Arts (85 hours)

This option in the BFA is designed for qualified students who intend to become professional photographers or pursue graduate study in art. Art majors must make application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art and one semester residency in the school. It also is necessary to be at or above the 3000-level in the area to which they are applying.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

Baccalaureate-Level Writing Requirement (3 hours)
ART 3250 - Writing About Art Credits: 3 hours

Art History Requirement (15 hours)
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours
Art History elective (3000-5000 level)Credits: 3 hours
Art History elective (3000-5000 level)Credits: 3 hours

And either:
ART 2220 – Art of Africa, Oceania, and the AmericasCredits: 3 hours
OR
ART 2230 – Introduction to Asian Art HistoryCredits: 3 hours

Photography Emphasis Requirement (31 hours)
ART 2160 – Black & White Photography ICredits: 3 hours
ART 3160 – Black & White Photography IICredits: 3 hours
ART 3470 – Digital Photography ICredits: 3 hours
ART 4470 – Digital Photography IICredits: 3 hours
ART 2750 – Video Art ICredits: 3 hours
ART 3750 – Video Art IICredits: 3 hours
ART 5480 – Photography WorkshopCredits: 1 to 4 hoursCredits: 6 to 7 hours needed*
ART 5350 – Intermedia WorkshopCredits: 1 to 4 hoursCredits: 3 to 4 hours needed*

And one of the following three courses:
ART 5480 – Photography WorkshopCredits: 1 to 4 hours
OR
ART 5350 – Intermedia WorkshopCredits: 1 to 4 hours
OR
ART 4710 – Special Topics in Photography and IntermediaCredits: 3 hours

*Four hours in ART 5480 or ART 5350 must be taken during thesis semester. ART 5480 and ART 5350 are repeatable for credit.

Studio Art Electives (21 hours)
Suggested to include:
ART 2450 - Graphic Design-Non BFA in Graphic DesignCredits: 3 hours
ART 2310 – SculptureCredits: 3 hours
ART 3560 – Web ArtCredits: 3 hours

And either:
ART 2410 – Intaglio and ReliefCredits: 3 hours
OR
ART 2460 – ScreenprintCredits: 3 hours

Graduation Preparation (3 hours)
ART 4930 - Graduation PreparationCredits: 3 hours

Grading Requirement
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Product Design - Bachelor of Fine Arts (98 hours)

The Product Design degree is designed for qualified students who intend to become professional product designers or pursue graduate study in product design. The program is a four-year course of study with an emphasis on interdisciplinary collaboration among Design, Art, Engineering and Business programs. Application requires a portfolio review, a letter of intent, submission of an unofficial transcript, and completion of application forms. Application details may be obtained from the Art Advising Office. Courses in the Product Design program are sequential beginning in the fall semester of each year and will take a minimum of four years to complete after admission.
The requirements of a B.F.A. curriculum of the Gwen Frostic School of Art and the College of Fine Arts must be satisfied. Eighty-three hours in art, design, and related technologies, and fifteen hours in Entrepreneurial Studies satisfy the major requirements of this curriculum and are distributed as follows:

**Basic Studies Requirement (12 hours)**
ART 1040 - Object Drawing  Credits: 3 hours  
ART 1050 - Drawing Studio  Credits: 3 hours  
ART 1070 - Form and Surface  Credits: 3 hours  
ART 1080 - Form and Space  Credits: 3 hours

**Baccalaureate-Level Writing Requirement (3 hours)**  
ART 3250 - Writing About Art  Credits: 3 hours

**Art History Requirement (12 hours)**
3000-4000 level Art History Topic Course  Credits: 3 hours  
3000-4000 level Art History Topic Course  Credits: 3 hours  
ART 2200 - History of Art  Credits: 3 hours  
OR  
ART 2210 - History of Art  Credits: 3 hours  
ART 2220 - Art of Africa, Oceania, and the Americas  Credits: 3 hours  
OR  
ART 2230 - Introduction to Asian Art History  Credits: 3 hours

**Product Design Sequence (37 hours)**
ART 1600 - Design Studio  Credits: 1 hour  
(repeatable for credit, minimum of 4 hours required)  
ART 1610 - Drawing for Design  Credits: 3 hours  
ART 1650 - Product Design I  Credits: 3 hours  
ART 2650 - Product Design II  Credits: 3 hours  
ART 2660 - Materials and Processes  Credits: 3 hours  
ART 3620 - Product Design III  Credits: 3 hours  
ART 3680 - Special Topics in Design  Credits: 3 hours  
ART 4640 - Design Internship  Credits: 3  
ART 4650 - Product Design IV  Credits: 3 hours  
ART 4670 - Thesis Project  Credits: 3 hours  
ART 4980 - Product Design V  Credits: 3 hours  
IEE 3420 - Ergonomics and Design  Credits: 3 hours

**Art Studio Electives (12 hours)**
Art Elective course in sculpture, metals/jewelry, or ceramics  Credits: 3 hours  
Art Elective course in sculpture, metals/jewelry, or ceramics  Credits: 3 hours  
Art Elective course in any art discipline  Credits: 3 hours  
Art Elective course in any art discipline  Credits: 3 hours

**Supporting Engineering Requirement (7 hours)**
EDMM 1420 - Engineering Graphics  Credits: 3 hours  
EDMM 1500 - Introduction to Manufacturing  Credits: 3 hours  
EDMM 1501 - Processes and Materials in Manufacturing Laboratory  Credits: 1 hour

**Entrepreneurial Studies Requirement (15 hours)**
Entrepreneurial Elective  Credits: 3 hours  
Entrepreneurial Elective  Credits: 3 hours  
MGMT 2140 - Exploring Entrepreneurship  Credits: 3 hours  
FIN 2420 - Entrepreneurial Finance  Credits: 3 hours  
IEE 3010 - Entrepreneurial Engineering II: Product and Service Design  Credits: 3 hours
Grading Requirement
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Art Major - Bachelor of Arts (54 hours)

This program is designed for the liberal arts-oriented students who want to major in the visual arts. It provides maximum flexibility in terms of electives in art and non-art courses. Professionally oriented art students may start in this program and apply for admission to the B.F.A. program when eligible.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Fifty-four hours in art satisfy the major requirements of this curriculum and are distributed as follows:

Basic Studies Requirement (12 hours)
ART 1040 - Object Drawing Credits: 3 hours
ART 1050 - Drawing Studio Credits: 3 hours
ART 1070 - Form and Surface Credits: 3 hours
ART 1080 - Form and Space Credits: 3 hours

Art History Requirement (12 hours)
Two additional Art History courses at the 3000- or 4000-level, or at the 5000-level with permission of instructor Credits: 6-9 hours
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours

Baccalaureate-Level Writing Requirement (3 hours)
ART 3250 - Writing About Art Credits: 3 hours

Studio Art Requirement (12 hours)
One 2000-level 2D course Credits: 3 hours
One 3000-4000 level 2D course Credits: 3 hours
One 2000-level 3D course Credits: 3 hours
One 3000-level 3D course Credits: 3 hours

Art Electives (15 hours)
Art major studio credits. Electives and required art courses should be determined in consultation with a faculty advisor within the studio area of emphasis. Three (3) hours of non-Western Art History may be applied to the elective requirement.

Grading Requirement
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Art History Major - Bachelor of Arts (40 hours)

The Art History degree provides instruction in Art History and art criticism and is dedicated to a multi-cultural perspective. Course work is offered in Asian, African, Native American, and Western Art ranging from prehistoric to contemporary. The faculty combines expertise to ensure that students are broadly educated in a variety of art historical methods, including a traditional formalist approach, as well as more recent post-modern and post-colonial theories. The program, while housed in the Gwen Frostic School of Art, is interdisciplinary in nature and requires or encourages complementary course work in History, Anthropology, Languages, and other areas. Students receive a variety of classroom-related experiences, as well as opportunities for internships and study abroad.

2000-Level Survey Requirement (9 hours)
ART 2200 - History of Art Credits: 3 hours
ART 2210 - History of Art Credits: 3 hours and either
ART 2220 - Art of Africa, Oceania, and the Americas Credits: 3 hours or
ART 2230 - Introduction to Asian Art History Credits: 3 hours

Baccalaureate Level Writing Requirement (3 hours)
ART 3270 - Writing About Art History Credits: 3 hours

3000-Level Requirement (12 hours)
Choose One (1) From Area One:
ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours
ART 3810 - Greek and Roman Art Credits: 3 hours
ART 3830 - Medieval Art Credits: 3 hours
ART 3850 - Renaissance Art Credits: 3 hours

Choose One (1) From Area Two:
ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours
ART 3890 - European and American Art 1900—1945 Credits: 3 hours
ART 3900 - Twentieth-Century Art: 1945 to Present Credits: 3 hours
HIST 3150 - Popular Art and Architecture in America Credits: 3 hours

Choose One (1) From Area Three:
ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours

4000- And 5000-Level Requirement (10 hours)
Required Courses (4 hours)
ART 4990 - Senior Thesis Credits: 1 hour
ART 5270 - Art History Methods Credits: 3 hours

Choose One (1)
HIST 4495 - Topics in European History and Culture (BW) Credits: 3 hours
Topic: Russian Art and Art Patronage

Choose One (1)
ART 5210 - Topics in Art History: Variable Topics Credits: 3 hours
ART 5220 - Topics in Medieval and Renaissance Art Credits: 3 hours
ART 5230 - Topics in Modern Art Credits: 3 hours
ART 5250 - Topics in Asian Art Credits: 3 hours

Electives
ART 5200 - Independent Study in Art History Credits: 2 to 3 hours
ART 5290 - Art History Internship Credits: 1 hour

Elective Requirement (9 hours)
Art History majors may fill the 9 hours of electives required in the major by taking course work in the following areas: Art History and Art Studio (major courses only), as well as courses numbered 3000 or above in the following departments: History; Comparative Religion; literature courses in the Departments of English and of World Languages and Literatures; archaeology and cultural anthropology courses in the Department of Anthropology;

The following courses in the Department of Family and Consumer Sciences: FCS 2510 - Period Interiors I Credits: 3 hours; FCS 2520 - Period Interiors II Credits: 3 hours; FCS 3260 - History of Fashion Credits: 3 hours;

The following courses in the Department of Philosophy: PHIL 3200 - Formal Logic Credits: 4 hours

World Language Requirement (8 hours)
Eight hours of one language other than English are required. French and German are recommended as research languages; however, Spanish, Italian, Chinese, Japanese, or other languages approved by the Art History faculty can also be applied to
the requirement. Students may test out of this requirement by placement in the 2000-level or above on a language proficiency examination. The language requirement credits are counted under Proficiency 4g of the General Education requirements.

Grading Requirement
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

**Art Minor (24 hours)**

This program is designed to expose the student to the field of art. Art minors must register with the art advisor before completing any art courses. A minor slip is required.

**Basic Studies Requirement (12 hours)**
- ART 1040 - Object Drawing Credits: 3 hours
- ART 1050 - Drawing Studio Credits: 3 hours
- ART 1070 - Form and Surface Credits: 3 hours
- ART 1080 - Form and Space Credits: 3 hours

**Art Electives (12 hours)**
Must be art studio (will not include art history courses).

**Grading Requirement**
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

**Art History Minor (18 hours)**

This program is designed for liberal arts students interested in art history. A minor slip is required. The 18 credit hours are distributed as follows:

**Required Core Courses (6 hours)**
- ART 2200 - History of Art Credits: 3 hours
- ART 2210 - History of Art Credits: 3 hours

**Art History Electives (12 hours)**
Choose One Non-Western Art History Elective From Among The Following (3 hours)
- ART 2220 - Art of Africa, Oceania, and the Americas Credits: 3 hours
- ART 2230 - Introduction to Asian Art History Credits: 3 hours
- ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours (with a non-Western topic)

Choose Three Art History Electives From Among The Following: (9 hours)
One Course Must Be At The 4000- Or 5000 level
- ART 3210 - Topics in Art History: Variable Topics Credits: 3 hours
- ART 3810 - Greek and Roman Art Credits: 3 hours
- ART 3830 - Medieval Art Credits: 3 hours
- ART 3850 - Renaissance Art Credits: 3 hours
- ART 3890 - European and American Art 1900—1945 Credits: 3 hours
- ART 3900 - Twentieth-Century Art: 1945 to Present Credits: 3 hours
- ART 5200 - Independent Study in Art History Credits: 2 to 3 hours Credits: 3 hours
- ART 5210 - Topics in Art History: Variable Topics Credits: 3 hours
- ART 5220 - Topics in Medieval and Renaissance Art Credits: 3 hours
- ART 5230 - Topics in Modern Art Credits: 3 hours
- ART 5250 - Topics in Asian Art Credits: 3 hours
ART 5270 - Art History Methods   Credits: 3 hours
ART 5290 - Art History Internship   Credits: 1 hour   Credits: 1 to 3 hours
HIST 4495 - Topics in European History and Culture (BW)   Credits: 3 hours - Russian Art and Art Patronage

Grading Requirement
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.
Dance
Megan Slayter, Chair
Main Office: 3107 Dalton
Telephone: (269) 387-5830
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Jane Baas
David Curwen
Sharon Garber
Monique Haley
Whitney Moncrief
Nina Nelson
Carolyn Pavlik

Western Michigan University is an accredited institutional member of the National Association of Schools of Dance. The Department's website may be accessed at www.wmich.edu/dance

Department Mission
The mission of the Department of Dance is to provide a comprehensive undergraduate education that integrates theory and practice in order to prepare students to contribute to the dance profession. We are committed to:

- The highest aesthetic standards,
- Being of service to our diverse cultural global community,
- Excellence in creative and scholarly research,
- Exemplary, experientially-based teaching.

The department goals and strategic action plan are aligned with the university and college strategic plans and focus on degree programs and co-curricular activities that are learner centered, globally engaged and discovery driven. These goals are:

- To recruit, retain, and graduate the finest students who are active contributors to the field of dance,
- To interface with the professional dance world and provide vibrant residencies; with comprehensive professional/student interactions,
- To expand our national and international recognition,
- To educate and serve our regional community,
- To secure the necessary resources to meet departmental goals,
- To advance innovation and discovery in all facets of faculty and student work.

Programs
The Department of Dance offers three programs in dance: Bachelor of Fine Arts in Dance (79 hours); Bachelor of Arts in Dance (52 hours); and a Dance Minor (18 hours). The BFA program emphasizes performance, choreographic and aesthetic training and is designed for the student seeking employment at the professional level. The BA program offers an opportunity to explore the diversity of the dance profession within a strong liberal arts component, and BA students individualize their program by choosing electives that support their dance career goals. The Dance Minor is designed for students who wish to continue their dance studies as an avocation. Dance courses offered include four levels of ballet, jazz, and modern dance, three levels of choreography, three dance history courses, dance science and analysis, conditioning, pedagogy and production. An audition is required for acceptance into all dance major programs. For additional information, please refer to specific Program Requirements.

Courses for General Students
Introductory dance courses are offered for general students. Dance technique courses open to general students without audition include: DANC 1010, 1020, 1030, 1040, 1250, and 1810.

DANC 1450, a dance survey course, may be elected by any student to satisfy Area I - Fine Arts of the University General Education Program.
Admission
Admission to the University is granted only by the Office of Admissions for undergraduate students. Application may be made via WMU's website: www.wmich.edu/admissions.

Enrollment in dance major degree programs at WMU is contingent upon admission to the University and acceptance to the department via an audition. Auditions for acceptance into dance major degree programs are normally held in October, November, and February. The audition consists of taking class in ballet, jazz and modern, including sections designed to showcase quick-study and improvisation skills. Prospective dance majors must place into the technique level I in at least two dance idioms to meet the minimum standard for acceptance. No audition is required for dance minors; however, prospective dance minors should contact the dance academic advisor to discuss program plans and to gain entry to dance courses which have prerequisites. There is currently a waiting list for entrance into the dance minor. Application and admission requirements for the Online Certificate in Dance Studio Management can be found at www.wmich.edu/apply/undergraduate/nondegree. More information about Undergraduate Certificate Programs can be found in the University Catalog wmich.edu/registrar/catalogs/.

Prospective degree-seeking students may also elect to apply for scholarships via the October or November audition dates. In addition to the three classes, scholarship candidates write an essay on-site and have an interview with a member of the faculty. Candidates must submit two letters of recommendation, one of which must be from a dance teacher. Awards average $2,000 per academic year, some of which may be renewable. Limited scholarships may be available at the February audition; selected students will be invited to apply following the February audition if funds are available. Students enrolled in the Online Undergraduate Certificate in Dance Studio Management as non-degree seeking students are not eligible for Department of Dance scholarships.

Students interested in pursuing the Bachelor of Fine Arts program may petition for entrance after completion of: at least one semester each of ballet, jazz and modern major technique courses; DANC 1800: The Creative Choreographer and at least one dance major theory course. The eligibility of transfer students to apply for the BFA degree will be evaluated on an individual basis.

The results of all of the above are communicated in writing to the student within three weeks following the audition or petition. Further information is available by calling the Department of Dance at (269) 387-5830 or contacting the department by email at: dance-info@wmich.edu.

Transfer Credit
Dance credit from other institutions transfers as a direct equivalent to a WMU course, as an unspecified dance credit, or as credit by department recommendation only. Transfer students should schedule an appointment with the dance academic advisor immediately after admission to the University to evaluate dance credits taken at other institutions.

Advising
Dorothy U. Dalton Center, Room 3141
(269) 387-3210

Upon admission to the University and acceptance into the dance program, each major and minor student should complete a declaration form with the dance academic advisor. It is the responsibility of the student to make an appointment with the advisor each semester in order to prepare for the next semester's registration. Each student should meet with the advisor during his/her junior year to secure a Graduation Audit before registration for the final semester.

The dance academic advisor is also available to counsel students on selection of appropriate additional majors/minors, selection of General Education courses, and other University requirements. Matters which are beyond the advisor's qualifications will be referred to offices, on- and off-campus, qualified to assist.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog in effect at the time the student is admitted to the University. Requirements cannot be added during the student's enrollment, but the student may take advantage of course and curriculum alterations if these changes enhance the student's education. Each student is responsible for knowing the requirements of the degree and for taking the steps necessary for completion of these requirements. All dance students are urged to take advantage of advising services in the Department of Dance for assistance in making educational choices and for interpretation of requirements stated in the Undergraduate Catalog.
Miscellaneous
Dance majors should also reference the current edition of the Department of Dance Student Handbook found on the department website under the Academics tab for current policies and procedures and other important information.

Focus of Major Technique Courses
Ballet courses emphasize technical and artistic skills based on a foundation of correct body alignment, placement and turnout, musicality, vocabulary, strength, stamina, flexibility, and kinesthetic movement quality. Piano accompaniment is provided and a variety of international ballet styles are introduced. Students are exposed to a variety of modern dance styles such as Cunningham, Limon, Horton and Release Technique as well as Bartenieff FundamentalsSM and elements of Laban Movement Analysis®. Courses emphasize understanding of the anatomical principles and movement theories that support these and other modern dance styles. Piano or percussion accompaniment is provided. Jazz courses support technique concepts used in ballet and modern, in addition to exploring rhythmic and dynamic qualities inherent in jazz and social dance styles. Recorded accompaniment is used in jazz courses.

Major Technique Course Progression
It is expected that the dance major/minor will spend at least two semesters in each level of technique. A passing grade in a technique class does not imply automatic progression to the next level. Faculty determine a student's ability to move to the next level just prior to Registration for the coming semester.

Scholarships
Scholarships are available for new and current students. Awardees are selected by the faculty on the basis of outstanding achievement in the field, overall academic excellence, and specific individual scholarship criteria. Entering students who wish to be considered for scholarships must audition, submit two letters of recommendation, and have an interview with the faculty at either the October or November New Student Audition Day. Current students apply in November for the next academic year. For specific information, contact the Department of Dance or visit the website of the Office of Student Financial Aid and Scholarships at www.wmich.edu/finaid. Student can e-mail the Office at finaid-info@wmich.edu or call the Office at (269) 387-6000.

Annual Meetings
Department meetings are held during the first week of classes for the fall semester to prepare the student for the academic year. At these meetings, students will receive information regarding department events, policies and procedures. Attendance is mandatory for all dance majors and minors. Juniors and seniors enrolled in the Bachelor of Fine Arts program will be required to attend an additional meeting regarding B.F.A. required projects.

Additional Study Options
Students are encouraged to study with dance professionals whenever possible and to afford themselves the opportunity for study with artists-in-residence on Western's campus. Limited awards may be available for off-campus study. For specific information, contact the Department of Dance.

Performance and Choreographic Opportunities
Students have a variety of opportunities to perform in department concerts, informal showings, graduating presentations, special class-related performances, university musicals and operas, and the department performing ensemble. Students must be enrolled for credit in and regularly attending at least one 1000, 2000 or 3000-level major technique course during rehearsal and performance periods and be in good academic standing in order to perform in department concerts. Students whose cumulative GPA falls below 2.0 may not audition for or perform in formal dance concerts. The department is committed to publicly presenting the dances of students who demonstrate choreographic excellence. Special opportunities in performance and choreography are available on- and off-campus and are posted as they occur.

Dance Major - Bachelor of Fine Arts (79 hours)
Students may petition for entrance into the B.F.A. program after completion of:
1. At least one semester each of ballet, jazz and modern major technique courses
2. DANC 1800: The Creative Choreographer (DANC 1800 is a prerequisite with concurrency for DANC 1800)
3. At least one dance theory course.
Eligibility of transfer students to petition will be determined on an individual basis by the dance academic advisor. Petition forms are posted in November and March.

Continuation in the B.F.A. program will be determined by the dance faculty during the second semester of the student's enrollment. In order to continue in the B.F.A. program, the student must: demonstrate potential to succeed as a professional dancer and/or choreographer; have at least B-level skills in technique and performance; and have demonstrated professional commitment in dance course work and dance-related activities. Any student discontinued from the program may reapply for the B.F.A. after a minimum of one additional semester at WMU.

By the end of the junior year, the B.F.A. student must create and perform a solo dance in a public showing which exhibits his/her choreographic, technical, and performance skills. At this time, the student must also submit an essay. The essay is a discussion of the development of the choreographic project and a critique of the resulting final dance in the areas of choreography, technique and performance. The essay should include a discussion of how the project reflects or expands on the student's beliefs and aspirations as delineated in the personal artistic statement. In order to enroll in DANC 4800: Graduating Presentation, the dance and essay must be acceptable to the dance faculty.

A grade of "C" or better is mandatory in all required dance courses.

General Education Requirements
The student enrolled in the B.F.A. in Dance must complete all General Education Requirements as described in this catalog.


Baccalaureate-Level Writing Requirements
Students who have chosen the Dance major will satisfy the Baccalaureate-Level Writing requirement by successfully completing DANC 3450: Twentieth Century American Dance.

Required Courses in Technique and Performance (33 hours)
The following courses may be used to complete the Technique/Performance requirement.
DANC 1210 - Roots of Jazz Credits: 2 hours
DANC 1250 - Special Studies in Introductory Dance Technique Credits: 1 to 6 hours
DANC 2250 - Special Studies in Intermediate Dance Technique Credits: 1 to 6 hours
DANC 4100 - Supplemental Ballet Technique Credits: 1 hour
DANC 4200 - Supplemental Jazz Technique Credits: 1 hour
DANC 4250 - Advanced Technique Credits: 1 to 6 hours
DANC 4300 - Supplemental Modern Technique Credits: 1 hour

Technique Courses
B.F.A. students must enroll in two major technique courses (listed below) for regular credit each semester of the sophomore and junior years. Courses must be selected to ensure the student is participating in a technique class five days per week.

DANC 1100 - Ballet Technique I Credits: 2 hours
DANC 1200 - Jazz Technique I Credits: 2 hours
DANC 1300 - Modern Technique I Credits: 2 hours
DANC 2100 - Ballet Technique II Credits: 2 hours
DANC 2200 - Jazz Technique II Credits: 2 hours
DANC 2300 - Modern Technique II Credits: 2 hours
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours
DANC 4100 - Supplemental Ballet Technique Credits: 1 hour
DANC 4200 - Supplemental Jazz Technique Credits: 1 hour
DANC 4300 - Supplemental Modern Technique Credits: 1 hour
**Technique Courses - Senior Year**
During the senior year, candidates must: enroll for regular credit in major technique courses selected from the list above and through enrollment in DANC 4000, serve as a teaching assistant in a technique. Courses must be selected to ensure the student is participating in a technique class five days per week.

**Technique Courses - Performance Course**
At least four hours must be selected from performance courses.
DANC 4600 - Performance Credits: 1 – 6 hours
DANC 4650 - Dance Ensemble Credits: 1 - 3 hours

**Technique Courses - Ballet, Jazz, and Modern**
The student must complete at least two semesters each of ballet, jazz and modern technique courses; one semester of:
DANC 1000 - First Year Performance Credits: 2 hour

And at least one semester of two of the following:
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours

**Required Courses In Choreography (12 hours)**
DANC 1800 - The Creative Choreographer Credits: 3 hours
DANC 2800 - Choreographing for a New Millennium Credits: 3 hours
DANC 3800 - The Choreographer in the Community Credits: 3 hours
DANC 4800 - Graduating Presentation Credits: 3 hours

**Required Courses In Theory (25 hours)**
**History (6 hours)**
DANC 2450 - Ballet History Credits: 3 hours
DANC 3450 - Twentieth Century American Dance Credits: 3 hours (Dance majors use this course to meet the University Baccalaureate-level Writing Requirement)

**Music (3 hours)**
DANC 1860 - Music for Dancers Credits: 3 hours

**Production and Management (4 hours)**
DANC 3890 - Lighting and Staging for Dance Credits: 2 hours
DANC 4890 - Dance Management Credits: 2 hours

**Dance Science/Analysis (8 hours)**
DANC 1950 - Introduction to Bartenieff Fundamentals Credits: 1 hour
DANC 1960 - Conditioning for Dancers Credits: 2 hours
DANC 2950 - Introduction to Dance Science and Kinesiology Credits: 3 hours
DANC 2960 - Introduction to Laban Movement Analysis Credits: 2 hours

**Pedagogy (2 hours)**
DANC 4400 - Teaching Dance Technique Credits: 2 hours

**Capstone Experience (2 hours)**
DANC 4000 - Practicum Credits: 1 to 4 hours (1 hour)
DANC 4450 - Senior Seminar Credits: 1 hour
(DANC 4800: Graduating Presentation is also considered a capstone experience in choreography, production, and management for the BFA student.)

**Related Studies (9 hours)**
The Department of Dance believes that the professionally oriented student must augment his/her education via study in the related arts and sciences which complement specific career goals. The student will consult with the dance academic advisor in selecting 9 hours from the courses listed below, some of which may also meet General Education requirements:

- **ANTH 2400 - Principles of Cultural Anthropology**  Credits: 3 hours
- **ART 1400 - Studio Experience - (2-D)**  Credits: 3 hours
- **ART 2200 - History of Art**  Credits: 3 hours
- **ART 2210 - History of Art**  Credits: 3 hours
- **BIOS 1120 - Principles of Biology**  Credits: 3 hours
- **BIOS 2110 - Human Anatomy**  Credits: 4 hours
- **ED 2300 - The Nature of Creativity**  Credits: 3 hours
- **ENGL 1050 - Thought and Writing**  Credits: 4 hours
- **ENGL 1100 - Literary Interpretation**  Credits: 4 hours
- **ENGL 1500 - Literature and Other Arts**  Credits: 4 hours
- **ENGL 3050 - Introduction to Professional Writing**  Credits: 4 hours
- **FREN 1000 - Basic French I**  Credits: 4 hours
- **FREN 1010 - Basic French II**  Credits: 4 hours
- **HIST 3150 - Popular Art and Architecture in America**  Credits: 3 hours
- **MUS 1500 - Music Appreciation: Live Music**  Credits: 4 hours
- **MUS 1510 - Jazz in American Culture**  Credits: 4 hours
- **MUS 3500 - American Music**  Credits: 4 hours
- **MUS 3520 - World Music in Theory and Practice**  Credits: 4 hours
- **MUS 4500 - Music Appreciation: The Symphony**  Credits: 3 hours
- **PHIL 2000 - Introduction to Philosophy**  Credits: 4 hours
- **PHIL 3120 - Philosophy of Art**  Credits: 3 hours
- **THEA 1000 - Playing with Fire: Love, Politics & Entertainment**  Credits: 3 hours
- **THEA 1050 - Introduction to African-American Theatre**  Credits: 3 hours
- **THEA 1410 - Introduction to Acting**  Credits: 3 hours
- **THEA 1420 - Acting I: Action and Personalization**  Credits: 3 hours

**Dance Major - Bachelor of Arts (52 hours)**

During the second year of enrollment in the program, the student will be evaluated by the dance faculty regarding his/her progress in the program. This review is designed to give the student individualized feedback on their technical, artistic, creative and intellectual development. The student is required to schedule an appointment with the assigned dance faculty member to receive the faculty feedback.

By the senior year, the student must design and propose a capstone project that will further develop the focus area. The student must submit the proposal to his/her faculty committee no later than the fourth week of the semester of enrollment in DANC 4700. The capstone proposal must be approved by the student's faculty committee no later than the fifth week week of the semester of enrollment in DANC 4700.

A grade of "C" or better is mandatory in all required courses.

**General Education Requirement**

The student enrolled in the B.A. in Dance must complete all General Education requirements as described in this catalog. DANC 1960: Conditioning for Dancers, in combination with DANC 2950: Introduction to Dance Science and Kinesiology, meets the Area VIII: Health and Well-being General Education requirement for dance majors.

**Baccalaureate-Level Writing Requirement**

Students who have chosen the Dance major will satisfy the Baccalaureate-level Writing requirement by successfully completing DANC 3450: Twentieth Century American Dance.
**Liberal Arts Requirements**

In addition to the minimum University General Education Proficiency and Distribution Requirements, the student enrolled in the B.A. in dance must take 30 credit hours of liberal arts courses. One course each must be selected from approved General Education courses in Art, Music, and Theatre. The remaining credit hours may be chosen from any course approved for General Education, or may include a minor or major in a liberal arts area. Any other courses must have specific approval of the dance academic advisor in order to satisfy the Liberal Arts requirement.

**Required Courses in Technique and Performance (19 hours)**

*Technique Course*

B.A. students must enroll in at least one major technique course for credit each semester.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 1100</td>
<td>Ballet Technique I</td>
<td>2 hours</td>
</tr>
<tr>
<td>DANC 1200</td>
<td>Jazz Technique I</td>
<td>2 hours</td>
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<tr>
<td>DANC 1300</td>
<td>Modern Technique I</td>
<td>2 hours</td>
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<tr>
<td>DANC 2100</td>
<td>Ballet Technique II</td>
<td>2 hours</td>
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<tr>
<td>DANC 2200</td>
<td>Jazz Technique II</td>
<td>2 hours</td>
</tr>
<tr>
<td>DANC 2300</td>
<td>Modern Technique II</td>
<td>2 hours</td>
</tr>
<tr>
<td>DANC 3100</td>
<td>Ballet Technique III</td>
<td>2 hours</td>
</tr>
<tr>
<td>DANC 3200</td>
<td>Jazz Technique III</td>
<td>2 hours</td>
</tr>
<tr>
<td>DANC 3300</td>
<td>Modern Technique III</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

*Electives*

During his/her program, the student must elect at least one course in each of the following areas: ballet technique, jazz technique, modern technique, and performance. Performance course options include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 4600</td>
<td>Performance</td>
<td>1 to 6 hours</td>
</tr>
<tr>
<td>DANC 4650</td>
<td>Dance Ensemble</td>
<td>1 to 3 hours</td>
</tr>
</tbody>
</table>

The student must complete one semester of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 1000</td>
<td>First Year Performance</td>
<td>2 hour</td>
</tr>
<tr>
<td>DANC 1210</td>
<td>Roots of Jazz</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

The student must complete at least one semester of one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 3100</td>
<td>Ballet Technique III</td>
<td>2 hours</td>
</tr>
<tr>
<td>DANC 3200</td>
<td>Jazz Technique III</td>
<td>2 hours</td>
</tr>
<tr>
<td>DANC 3300</td>
<td>Modern Technique III</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

The following courses may be used to complete the 19-hour Technique/Performance requirement:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 1250</td>
<td>Special Studies in Introductory Dance Technique</td>
<td>1 to 6 hours</td>
</tr>
<tr>
<td>DANC 2250</td>
<td>Special Studies in Intermediate Dance Technique</td>
<td>1 to 6 hours</td>
</tr>
<tr>
<td>DANC 4100</td>
<td>Supplemental Ballet Technique</td>
<td>1 hour</td>
</tr>
<tr>
<td>DANC 4200</td>
<td>Supplemental Jazz Technique</td>
<td>1 hour</td>
</tr>
<tr>
<td>DANC 4250</td>
<td>Advanced Technique</td>
<td>1 to 6 hours</td>
</tr>
</tbody>
</table>

The student must complete one semester of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 4300</td>
<td>Supplemental Modern Technique</td>
<td>1 hour</td>
</tr>
</tbody>
</table>

**Required Courses in Dance Studies (Choreography and Theory) (33 hours)**

*Choreography (6 hours)*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 1800</td>
<td>The Creative Choreographer</td>
<td>3 hours</td>
</tr>
<tr>
<td>DANC 2800</td>
<td>Choreographing for a New Millennium</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

*History (6 hours)*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 2450</td>
<td>Ballet History</td>
<td>3 hours</td>
</tr>
</tbody>
</table>
DANC 3450 - Twentieth Century American Dance  Credits: 3 hours

Music (3 hours)
DANC 1860 - Music for Dancers  Credits: 3 hours

Production (2 hours)
DANC 3890 – Lighting and Staging for Dance  Credits: 2 hours

Dance Science/Analysis (6 hours)
DANC 1950 - Introduction to Bartenieff FundamentalsSM  Credits: 1 hour
DANC 1960 - Conditioning for Dancers  Credits: 2 hours
DANC 2950 - Introduction to Dance Science and Kinesiology  Credits: 3 hours

Pedagogy (2 hours)
DANC 4400 - Teaching Dance Technique  Credits: 2 hours

Theory Electives (5 hours)
Select hours from:
DANC 2960 - Introduction to Laban Movement Analysis  Credits: 2 hours
DANC 3250 - Special Studies in Dance Theory  Credits: 1 to 6 hours
DANC 3800 - The Choreographer in the Community  Credits: 3 hours
DANC 4000 - Practicum  Credits: 1 to 4 hours
DANC 4890 - Dance Management  Credits: 2 hours

Capstone Experience (3 hours)
DANC 4450 - Senior Seminar  Credits: 1 hour
DANC 4700 - Senior Capstone Project  Credits: 2 hours

Dance Minor (18 hours)

Required Courses in Technique (6 hours)
Two credit hours in ballet selected from:
DANC 1010 - Beginning Ballet  Credits: 2 hours
DANC 1100 - Ballet Technique I  Credits: 2 hours
DANC 1250 - Special Studies in Introductory Dance Technique  Credits: 1 to 6 hours
DANC 2100 - Ballet Technique II  Credits: 2 hours
DANC 3100 - Ballet Technique III  Credits: 2 hours
DANC 4250 - Advanced Technique  Credits: 1 to 6 hours

Two credit hours in jazz selected from:
DANC 1020 - Beginning Jazz  Credits: 2 hours
DANC 1200 - Jazz Technique I  Credits: 2 hours
DANC 2200 - Jazz Technique II  Credits: 2 hours
DANC 3200 - Jazz Technique III  Credits: 2 hours

Two credit hours in modern selected from:
DANC 1030 - Beginning Modern  Credits: 2 hours
DANC 1300 - Modern Technique I  Credits: 2 hours
DANC 2300 - Modern Technique II  Credits: 2 hours
DANC 3300 - Modern Technique III  Credits: 2 hours

Required Courses In Choreography/Theory (4 total hours)
DANC 1450 - Experiencing Dance  Credits: 3 hours
DANC 1810 - Dance Improvisation  Credits: 1 hour
Choreography/Theory Electives (2 total hours)
A minimum of two hours to be elected from the following courses, in consultation with the dance academic advisor:
DANC 1800 - The Creative Choreographer Credits: 3 hours
DANC 1860 - Music for Dancers Credits: 3 hours
DANC 1950 - Introduction to Bartenieff FundamentalsSM Credits: 1 hour
DANC 1960 - Conditioning for Dancers Credits: 2 hours
DANC 2450 - Ballet History Credits: 3 hours
DANC 2950 - Introduction to Dance Science and Kinesiology Credits: 3 hours
DANC 2960 - Introduction to Laban Movement Analysis Credits: 2 hours
DANC 3250 - Special Studies in Dance Theory Credits: 1 to 6 hours
DANC 3450 - Twentieth Century American Dance Credits: 3 hours
DANC 3890 - Lighting and Staging for Dance Credits: 2 hours
DANC 4890 - Dance Management Credits: 2 hours

Electives (6 total hours)
The student may select additional electives from any technique or theory courses for which the student has met the prerequisites. In order to ensure that the dance minor has experienced the rigors of intensive dance training, the student must complete one of the following courses, if one of these courses has not been elected under Required Courses in Technique listed above.
DANC 1100 - Ballet Technique I Credits: 2 hours
DANC 1200 - Jazz Technique I Credits: 2 hours
DANC 1250 - Special Studies in Introductory Dance Technique Credits: 1 to 6 hours
DANC 1300 - Modern Technique I Credits: 2 hours
DANC 2100 - Ballet Technique II Credits: 2 hours
DANC 2200 - Jazz Technique II Credits: 2 hours
DANC 2250 - Special Studies in Intermediate Dance Technique Credits: 1 to 6 hours
DANC 2300 - Modern Technique II Credits: 2 hours
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours
DANC 4250 - Advanced Technique Credits: 1 to 6 hours

Undergraduate Certificate in Dance Studio Management (18 hours)
The Online Undergraduate Certificate in Dance Studio Management is designed to provide current and prospective dance studio owners with knowledge and skills related to dance studio ownership and management.

Required Courses
DANC 3510 - Dancer Wellness Credits: 3 hours
DANC 3520 - Dance Studio Management Credits: 3 hours
DANC 3530 - Employee Client Relations Credits: 3 hours
DANC 3540 - Recital Preparation/Production Credits: 3 hours
DANC 3550 - Training Theories for Dancers Credits: 3 hours
DANC 3560 - Curriculum Development - Dance Credits: 3 hours
Music (School of)
Bradley Wong, Director
Main Office: 2132 Dalton Center
Telephone: (269) 387-4667
Fax: (269) 387-1113

Kimberly Dunn Adams
Richard Adams
Christopher Biggs
Scott Boerma
Jacob Cameron
John Campos
Alexander Cannon
David Loberg Code
David Colson
Lisa Coons
Martha Councell-Vargas
Scott Cowan
Maria Cristina Fava
Igor Fedotov
Jennifer Fiore
Lin Foulk
Delores Gauthier
Daniel Jacobson
Gregory Jasperse
Karen Kness
Renata Artman Knific
Thomas Knific
Nora Lewis
David Little
John A. Lychner
David Montgomery
Judy Moonert
Kenneth Prewitt
Andrew Rathbun
Carl Ratner
Wendy Rose
Edward Roth
Lori Sims
Jeremy Siskind
David S. Smith
Kenneth H. Smith
Yu-Lien The
Scott W. Thornburg
Bruce Uchimura
Robert White
Steve M. Wolfinbarger

The Western Michigan University School of Music is dedicated to the advancement of the musical arts through traditional study and performance, while promoting the development of new musical paths that prepare students for an ever-changing profession. The School of Music serves local, state, national and international communities through performance, educational and therapeutic applications, composition, research, and technological innovation.

The School of Music is a member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published regulations of NASM and the National Council for Accreditation of Teacher
Education. The School's program in music therapy is sanctioned by the American Music Therapy Association (formerly the National Association for Music Therapy).

Programs
The School of Music offers courses of study that lead to the Bachelor of Music, the Bachelor of Arts, the Bachelor of Musical Arts, and the Bachelor of Science degrees. The Bachelor of Music degree offers the student an opportunity to elect a major in performance, composition, jazz studies, music education, and music therapy. The Bachelor of Arts and Bachelor of Musical Arts degrees afford the student the opportunity to major in music and minor in another academic area. The Bachelor of Science degree is offered in Multimedia Arts Technology.

Two majors carry certification upon completion of degree requirements: the Bachelor of Music with a major in music education carries certification to teach music in the public schools, grades K-12. The student with a Bachelor of Music in music therapy is eligible to sit for the national board exam administered by the Certification Board for Music Therapists in order to earn the credential of Music Therapist - Board Certified.

A music minor program is offered through the School of Music for students who have a background in music and who wish to extend their formal education in that field of study. A minor in Multimedia Arts Technology-Music (MAT) is also available to both Music majors and non-majors. Non-Music majors may combine the MAT minor with the music minor.

Those students seeking a music minor must be in contact with the advisor in the School of Music in order that the declaration of the minor be official. Official declaration of the music minor must be made prior to registration for the final eight hours of music course work which will apply to that minor.

The School of Music offers an Accelerated Graduate Degree Path (AGDP) program which combines a Bachelor of Music degree (or a Bachelor of Arts in Music) with a Master of Arts in Music. The M.A. in Music degree is a graduate research degree which culminates with a written thesis and a public presentation (lecture or lecture/recital). Possible areas of focus for the thesis include (but are not limited to) music history, music theory, ethnomusicology, historical performance practice, music technology, and interdisciplinary subjects relating music with other fields. The program is intended for students with a strong interest in scholarly research and should not be considered a substitute for a Master of Music in Performance degree. The benefits include a stronger preparation for graduate studies after Western and a more diverse portfolio for future teaching positions.

To begin the program, qualified undergraduate music students can be admitted into the accelerated degree path and take approved graduate-level coursework in music. These courses count as advanced placement towards the MA degree and can be used to substitute for Theory/History, Professional Music, and General elective requirements in the Bachelor of Music. The university limits the total number of graduate credits used in the AGDP to twelve (12) and restricts enrollment to undergraduates of senior standing (i.e., 88 total credits). School of Music policy does not restrict AGDP students to only one calendar year between initial enrollment in the AGDP and completion of the baccalaureate degree. In addition, undergraduates admitted to dual-enrollment status with the Graduate College may take graduate-level courses for graduate credit only (i.e., counting toward the MA, but not toward the Bachelor of Music). Following completion of the bachelor's degree, the AGDP student can apply for final admission into the master's program and typically complete the remaining graduate coursework in a fifth year.

Admission
Admission to Western Michigan University is granted only by the Office of Admissions for undergraduate students. Application forms may be obtained by contacting the Office of Admissions.

Enrollment in a music curriculum is contingent upon admission to the University, which is achieved through the application process; and approval of the School of Music, which is achieved through the audition process or interview, depending on the program. The student should begin by making application to the University and requesting admission information from the School of Music. Both procedures should be commenced early in the senior year, or early in the final year at a community college.

Approval to become a music major is based upon the student's background in music, as demonstrated in the audition or interview, and upon academic abilities reflected in grade point average and various scholastic test scores as they are available.
A student considering a Bachelor of Music or Bachelor of Arts in Music should have a good background in applied music (instrumental or vocal study or performance). Preparation in piano, as a secondary instrument, is also helpful to the student, but not a requisite. Prior to entry into Basic Music 1600, which is required of all music majors (except those in the Bachelor of Science in Multimedia Arts Technology) in the first year of study, the student must demonstrate knowledge of fundamentals. A fundamentals examination will be administered on New Student Admissions Day.

Further information regarding admission to a music curriculum is available on the School of Music web page. The School welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Transfer Credit
Music credit from another institution is normally acceptable providing course substance is equivalent to a similar course required in the student's curriculum at Western and the student has earned a grade of "C" or better in that course. No credit hours exceeding the number granted for parallel work at Western will be accepted for transfer from another institution. In order to earn a Bachelor of Music degree from Western Michigan University, a student may not transfer more than thirty-seven (37) semester credit hours in music courses taken at a community college toward music curriculum requirements. If the "Performance Electives" requirement has not been completed at the time of the transfer, at least two of the remaining hours must be completed in major ensembles. Advisors will assist transfer students in finding ways of applying credit hours, not applicable to music curriculum requirements, toward General Education electives or free electives.

Four areas—applied music, music theory, aural comprehension, and piano proficiency for non-pianists—are, by nature, skills courses which require competency at one level before the student is ready for the next level of course in a sequence. This competency can only be determined by demonstration and/or examination, which precludes the automatic transfer of credit in these areas.

Presumably, the transfer student will have completed many of the core requirements (see below) before enrolling at Western. In that case, the student must elect a major area of concentration within the music curriculum prior to enrollment. In order to maintain good standing as a major in music performance, composition, jazz studies, music history, or music theory, the student must earn a minimum grade point average of 3.25 in the first two courses that apply to the major area of concentration. The student who elects music education or music therapy as a major must maintain a grade point average of 3.0 in all courses in the major area of concentration in order to be recommended for intern teaching (music education) or music therapy internship. All transfer students (except those in Multimedia Arts Technology) must take a Piano Placement Examination before admission in order to project the feasibility of completion of piano proficiency requirements.

For further information regarding the transfer of music credits, contact the Music advisor in the School of Music.

Advising
Advisor: Julie Rickert
Appointments: 2132 Dalton Center (269) 387-4672

The Music Student Advising Office provides one-stop advising for all students in a music curriculum. Advising on general education and major or minor requirements can be obtained by consulting the music student advisor. Only when a student pursues a minor or other major outside of the School of Music, or is an honors student, is an appointment required with another advisor.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog, which is in effect at the time the student is admitted. Requirements may not be added in the midst of the student's enrollment, but the student may take advantage of course and curriculum alterations that may occur while work on the degree is in progress if these changes enhance the student's education. Each student is responsible for knowing the requirements that must be completed for the degree and for taking the steps necessary for completion of requirements. All music students are urged to take advantage of the advising services in the School of Music for assistance in making educational choices and for interpretation of requirements as they are stated in the Undergraduate Catalog.

Miscellaneous
Students must earn a grade of “C” or better in any MUS class being counted toward a School of Music major. Some courses may have higher grade requirements.
Except for courses that are repeatable for credit, the number of times a student can enroll in an undergraduate music course in an attempt to earn a passing grade ("C" or better) is limited to two. After a second attempt to earn a passing grade ("C" or better), students will be dismissed from their degree program. Petition for exceptions should be directed to the School of Music Dismissal Appeals Committee.

In addition to required course work, all students must satisfy additional requirements which may include recital attendance and recital performance.

The requirement for recital attendance: All music majors are required to attend Music Convocation (MUS 1010) the number of semesters specified by the degree program. Students must attend a specified number of approved events and any absences will be recorded in the student's file. Absences must be made up by attending other pre-approved School of Music concerts and recitals in which the student is not a participant. Absences in the student's record which have not been made up will prevent graduation.

The requirement(s) for recital performance are as follows:
1. Bachelor of Music candidates with a major in music performance must present a Senior Recital which is approved by and acceptable to the faculty of the respective performance area.
2. Bachelor of Music candidates with a major in areas other than music performance (except those in Music Composition) must present at least one successful solo performance on a student recital (scheduled public recitals, convocations, or area recitals) prior to graduation. Individual students may be required to give additional performances on student recitals at the discretion of their private teachers.

Prerequisite to performance on any student recital shall be a recommendation by the student's applied teacher. Prerequisite to the presentation of Junior and/or Senior Recitals is an approved hearing of that recital by the student's area faculty. Recitals should be scheduled in the Concerts Office in the School of Music as far in advance as possible.

Competency Examinations are available to students who qualify for advanced placement or a waiver of requirements in music courses even if no formal education at the college level may have been completed. Common areas of competency are applied music, secondary instruments, music theory, and aural skills. Examinations may be scheduled in these areas to allow qualified students to demonstrate competency.

In the event that a student demonstrates competency in an area of study that is required in the curriculum, the student may elect one of two alternatives for fulfilling degree requirements: (1) request a waiver of the requirement and elect an equivalent number of hours in music courses of the student's choice or (2) receive credit for the course(s) in which competency is demonstrated by paying an examination fee according to the schedule approved by the Board of Trustees.

Scholarships and Grants in Music are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these stipends at the time of their audition or interview for admission to the music curriculum. Decisions on music scholarships are made beginning in March.

The School of Music adheres to the code of ethics of the National Association of Schools of Music (NASM). The acceptance of a scholarship by an applicant is considered a declaration of intent to attend the institution; after May 1, the applicant may not consider any other offer from a NASM member institution without the written consent of the first institution. Similarly, a transfer applicant from a NASM-accredited college or university cannot be considered for a scholarship without the recommendation of the institution from which the transfer is being made.

For a listing of music grants and scholarships, contact the School of Music or visit the website of the Office of Student Financial Aid and Scholarships at www.wmich.edu/finaid or e-mail the Office at finaid-info@wmich.edu or call the Office at (269) 387-6000.

Music majors may also be eligible for any number of general University scholarships as described in the Student Financial Aid and Scholarships section of this catalog.

Students who have chosen any music major will satisfy the School of Music’s technology requirement by successfully completing MUS 1140: Digital Media in Music.
The School of Music does not offer a minor leading to Elementary or Secondary Teaching Certification or which allows the student to become certified in music therapy.

Baccalaureate-Level Writing Requirement
Students who have chosen any music major will satisfy the Baccalaureate-Level Writing requirement by successfully completing the specified section of MUS 3520: World Music in Theory and Practice.

Bachelor of Music

Core Requirements

Music Convocation (7 semesters)
MUS 1010 - Music Convocation Credits: No Credit

Applied Music (14 hours)
(See Exceptions below)
MUS 2000 - Applied Music Credits: 1 to 4 hours
MUS 3000 - Applied Music Credits: 1 to 4 hours
These may be taken for 2 hours minimum per semester

Basic Music (12 hours)
MUS 1600 - Basic Music I Credits: 3 hours
MUS 1610 - Basic Music II Credits: 3 hours
MUS 2600 - Basic Music III Credits: 3 hours
MUS 2610 - Basic Music IV Credits: 3 hours

Aural Skills (4 hours)
MUS 1620 - Aural Skills I Credits: 1 hour
MUS 1630 - Aural Skills II Credits: 1 hour
MUS 2590 - Aural Skills III Credits: 1 hour
MUS 2650 - Aural Skills IV Credits: 1 hour

History or Theory Elective (2 hours)
(see Electives below)

Music History and Literature (8 hours)
MUS 1700 - Introduction to Music History Credits: 2 hours
MUS 2700 - Music History I Credits: 3 hours
MUS 2710 - Music History II Credits: 3 hours

Performance Elective (8 hours)
(see Electives below)

Keyboard Fundamentals (2 hours)
MUS 1200 - Keyboard Fundamentals Credits: 1 hour
MUS 1210 - Keyboard Fundamentals Credits: 1 hour

Conducting (1 hour)
MUS 2150 - Conducting Credits: 1 hour

General Education Electives (37 hours)

Major Area of Concentration (13 to 41 hours)
Free Electives to make a minimum of 122 semester credit hours.

Music Clearance (verification of completion of recital performance, sophomore hearing, and attendance requirements).

Exceptions To Core Requirements

Jazz Studies
Jazz Studies majors may fulfill two of the four semester major ensemble requirements by electing:
MUS 1180 - Gold Company II  Credits: 1 hour
MUS 1190 - Gold Company  Credits: 1 hour
MUS 2100 - Jazz Lab Band  Credits: 1 hour or
MUS 2120 - Jazz Orchestra  Credits: 1 hour

Music Therapy
Music Therapy majors complete only 8 hours of Applied Music 2000 (including successful completion of a Sophomore Hearing); only 4 hours of Performance Electives; and are not required to complete a theory/history elective.

Music Composition
Applied Music:
In addition to their Applied Music Composition requirement, Music Composition majors must complete 12 credit hours of electives from the following courses:
Any instrument or voice technique class (MUS 1170, MUS 1290, MUS 1300, MUS 1420, MUS 1430, MUS 1440, or MUS 1460)
MUS 1000 - Applied Music  Credits: 1 to 2 hours
(Instrument/Voice)(May be repeated for credit)
MUS 1260 - Fundamentals of Guitar  Credits: 1 hour
MUS 1940 - Introduction to Audio Engineering  Credits: 2 hours
MUS 2000 - Applied Music  Credits: 1 to 4 hours
(May be repeated for credit)(Requires a successful instrumental audition)
MUS 2200 - Keyboard Musicianship  Credits: 1 hour
MUS 2640 - Jazz Composition  Credits: 2 hours
MUS 3000 - Applied Music  Credits: 1 to 4 hours
(May be repeated for credit)(Requires a successful instrumental audition)
MUS 5620 - Advanced Compositional Topics  Credits: 2 hours
(May be repeated for credit)
MUS 5640 - Seminar in Electronic Music Composition  Credits: 2 to 3 hours
MUS 5645 - Audio for Video  Credits: 3 hours
MUS 5655 - Special Topics in Multimedia Arts Technology  Credits: 2 to 3 hours

Performance Electives (4 hours minimum):
Composition majors must complete an additional 4 credit hours of ensemble performance electives (any of these courses may be repeated for credit, except MUS 1900):
MUS 1070 - University Choruses  Credits: 1 hour
MUS 1080 - Collegiate Singers  Credits: 1 hour
MUS 1090 - Marching Band  Credits: 1 hour
MUS 1100 - Symphonic Band  Credits: 1 hour
MUS 1110 - University Orchestra  Credits: 1 hour
MUS 1120 - University Chorale  Credits: 1 hour
MUS 1130 - Concert Band  Credits: 1 hour
MUS 1180 - Gold Company II  Credits: 1 hour
MUS 1190 - Gold Company  Credits: 1 hour
MUS 1900 – Accompanying  Credits: 1 hour
(Not repeatable for credit)
MUS 2100 - Jazz Lab Band  Credits: 1 hour
MUS 2120 - Jazz Orchestra  Credits: 1 hour
MUS 2180 - Chamber Music Without Conductor  Credits: 1 hour
Keyboard
Keyboard majors are to replace Keyboard Fundamentals 1200 and 1210 with MUS 1900 Accompanying (1 credit) in freshman-sophomore years and MUS 1000 Organ (1 credit) in junior-senior years.

Music Education: Choral/General/Music
Music Education: Choral/General Music majors complete only 7 semesters of Performance Electives. Students for whom keyboard is the applied instrument must elect MUS 1900 Accompanying in the freshman-sophomore years as one of the required performance electives, and may choose to substitute one credit of MUS 1000: Organ for one credit of MUS 3000: Piano. It is recommended that all Music Education majors have at least one jazz experience/ensemble.

Music Education: Instrumental
Music Education: Instrumental majors complete only 6 semesters of Performance Electives plus 2 semesters of Marching Band. Students for whom keyboard is the applied instrument must elect MUS 1900: Accompanying in the freshman-sophomore years as one of the required performance electives, and may choose to substitute one credit of MUS 1000: Organ for one credit of MUS 3000: Piano. It is recommended that all Music Education majors have at least one jazz experience/ensemble.

All Students Wishing to Earn a Teaching Certificate
All students wishing to earn a teaching certificate should have minimal keyboard skills upon entry to the major. Therefore, Keyboard Fundamentals (1200 and 1210) may not be applied towards any major that leads to a teaching certification.

Electives
Performance electives may be selected from the following list of courses:

1. Students are required to elect four semesters of a major ensemble (see exception below for Composition students).

The major ensembles are:
MUS 1070 - University Choruses Credits: 1 hour
(not Grand Chorus)
MUS 1080 - Collegiate Singers Credits: 1 hour
MUS 1100 - Symphonic Band Credits: 1 hour
MUS 1110 - University Orchestra Credits: 1 hour
MUS 1120 - University Chorale Credits: 1 hour
MUS 1130 - Concert Band Credits: 1 hour
MUS 1180 - Gold Company II Credits: 1 hour

Please note the following:
At least two of the required four semesters of major ensemble must be taken during the junior-senior years. The four semesters MUST be taken in an ensemble in the student's applied area.
(Keyboard majors may elect any large ensemble, except that Keyboard/Music Education-Choral/General majors must elect a vocal ensemble and Keyboard/Music Education-Instrumental majors must elect an instrumental ensemble.)

2. The remaining four semester hours of performance electives may be selected from the following:
MUS 1070 - University Choruses Credits: 1 hour
MUS 1080 - Collegiate Singers Credits: 1 hour
MUS 1090 - Marching Band Credits: 1 hour
MUS 1100 - Symphonic Band Credits: 1 hour
MUS 1110 - University Orchestra Credits: 1 hour
MUS 1120 - University Chorale Credits: 1 hour
MUS 1130 - Concert Band Credits: 1 hour
MUS 1180 - Gold Company II Credits: 1 hour
MUS 1900 - Accompanying Credits: 1 hour (not repeatable for credit)
MUS 2100 - Jazz Lab Band Credits: 1 hour
MUS 2120 - Jazz Orchestra Credits: 1 hour
MUS 2180 - Chamber Music Without Conductor Credits: 1 hour
(Topic: Instrumental Chamber Music)
MUS 3170 - Opera Workshop Credits: 1 hour
MUS 5170 - Collegium Musicum Credits: 1 hour
MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra Credits: 1 hour

Please note the following:
All keyboard majors are required to elect one semester of MUS 1900: Accompanying (therapy majors excepted).
The student is expected to complete one performance elective during each term of enrollment.

**Theory Electives**
Theory electives may be selected from the following:
- MUS 2630 - Composition II Credits: 2 hours
- MUS 5550 - Jazz Arranging Credits: 2 hours
- MUS 5580 - Jazz Improvisation I Credits: 2 hours
- MUS 5600 - Counterpoint Credits: 2 hours
- MUS 5650 - Seminar in Music Theory Credits: 2 hours
- MUS 5670 - Orchestration Credits: 2 hours

**Music History/Literature Electives**
Music History/Literature electives may be selected from the following list of courses:
- MUS 5720 - Baroque Music (1600-1750) Credits: 3 hours
- MUS 5730 - Classical Music (1750-1800) Credits: 2 hours
- MUS 5740 - Romantic Music (1800-1910) Credits: 3 hours
- MUS 5790 - Operatic Literature Credits: 2 hours
- MUS 5800 - Solo Literature Credits: 2 hours
- MUS 5810 - Choral Music Literature Credits: 2 hours
- MUS 5830 - Jazz History and Literature Credits: 3 hours
- MUS 5840 - Topics in Musicology and Ethnomusicology Credits: 2 to 3 hours
- MUS 5850 - Medieval Music Credits: 2 hours
- MUS 5860 - Renaissance Music Credits: 2 hours
- MUS 5870 - Contemporary Music Credits: 3 hours

**Electing a Major Area of Study**
A student desiring professional programs will be accepted in the area of choice in the fourth semester of enrollment if he/she qualifies under the following guidelines:

**Music Composition**
The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major.

**Music Performance**
The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major, as well as be approved for this major by taking a performance qualifying examination which should be passed not later than the Sophomore Hearing.

**Music Education**
The student must have met the standards of the College of Education and Human Development; must have completed all Music Core courses, with no grade of less than a "C" and a 2.5 average in those courses; and must complete the formal admission procedure as described in the Music Student Handbook.

**Music Therapy**
Prior to beginning practicum (4000 level) courses in the music therapy curriculum, the student must have completed 35 hours of course work, completed the music core in theory/history/aural comprehension/conducting with a GPA of 2.5 or better, have a GPA of 3.25 or better in music therapy core courses, and have an overall GPA of 2.5 or better. See the Music Student Handbook for a complete description of admission procedures and standards.

**Music Therapy and Music Education**

Students must earn a minimum grade point average of 3.0 in course work in the area of the major in order to be recommended for an internship (music therapy).

If the student does not qualify according to the guidelines outlined above, the application will be submitted to the faculty committee in the area of the major for approval. In the event that approval is denied and the student does not qualify for any other major area of concentration, the music advisor will outline the course work in music which may be applied toward the Bachelor of Arts degree with a major in music.

**Bachelor of Musical Arts**

1. General Education Electives (37 hours)

2. A major in music (57 hours)

**Music Convocation (6 semesters)**

- MUS 1010 - Music Convocation  Credits: No Credit

**Applied Music (8 hours)**

- MUS 1000 - Applied Music  Credits: 1 to 2 hours
- MUS 2000 - Applied Music  Credits: 1 to 4 hours
- MUS 3000 - Applied Music  Credits: 1 to 4 hours
- MUS 3620 - Applied Music Composition  Credits: 2 to 4 hours

**Basic Music (9 hours)**

- MUS 1600 - Basic Music I  Credits: 3 hours
- MUS 1610 - Basic Music II  Credits: 3 hours
- MUS 2600 - Basic Music III  Credits: 3 hours

**Aural Skills (2 hours)**

- MUS 1620 - Aural Skills I  Credits: 1 hour
- MUS 1630 - Aural Skills II  Credits: 1 hour

**Music Composition (2 hours)**

- MUS 2620 - Composition I  Credits: 2 hours

**Conducting (1 hour)**

- MUS 2150 - Conducting  Credits: 1 hour

**Music History/Literature (8 hours)**

- MUS 1700 - Introduction to Music History  Credits: 2 hours
- MUS 2700 - Music History I  Credits: 3 hours
- MUS 2710 - Music History II  Credits: 3 hours

**Multimedia Arts (2+ hours)**

- MUS 1940 - Introduction to Audio Engineering  Credits: 2 hours
- MUS 1945 - Intro to Sound Reinforcement  Credits: 1 hour
- MUS 1950 - Digital Video Concepts  Credits: 2 hours
- MUS 2220 - Computer Music Design  Credits: 3 hours
- MUS 2240 - Electronic Music Techniques  Credits: 2 hours
MUS 5965 - Sound Reinforcement Practicum  Credits: 1 hour

Performance Electives (8 hours)
Students must take at least four hours of the repeatable ensemble electives.

Ensemble electives (Minimum 4 hours: these courses may be repeated for credit)
MUS 1070 - University Choruses  Credits: 1 hour
MUS 1080 - Collegiate Singers  Credits: 1 hour
MUS 1090 - Marching Band  Credits: 1 hour
MUS 1100 - Symphonic Band  Credits: 1 hour
MUS 1110 - University Orchestra  Credits: 1 hour
MUS 1120 - University Chorale  Credits: 1 hour
MUS 1130 - Concert Band  Credits: 1 hour
MUS 1180 - Gold Company II  Credits: 1 hour
MUS 1190 - Gold Company  Credits: 1 hour
MUS 2100 - Jazz Lab Band  Credits: 1 hour
MUS 2120 - Jazz Orchestra  Credits: 1 hour
MUS 2180 - Chamber Music Without Conductor  Credits: 1 hour
MUS 3170 - Opera Workshop  Credits: 1 hour
MUS 5170 - Collegium Musicum  Credits: 1 hour
MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra  Credits: 1 hour

Please note the following:
Most ensembles are by audition only.

Remaining Performance Hours
Students may elect the following non-repeatable courses for the remaining performance hours if they wish:
MUS 1200 - Keyboard Fundamentals  Credits: 1 hour
MUS 1210 - Keyboard Fundamentals  Credits: 1 hour
MUS 1220 - Voice Class  Credits: 1 hour
MUS 1240 - Guitar Class I  Credits: 2 hours
MUS 1250 - Guitar Class II  Credits: 2 hours
MUS 1420 - Oboe/Bassoon Class  Credits: 1 hour
MUS 1430 - Trumpet/Horn Class  Credits: 1 hour
MUS 1440 - Trombone/Tuba Class  Credits: 1 hour
MUS 1460 - Clarinet/Flute/Saxophone Class  Credits: 1 hour
MUS 1900 - Accompanying  Credits: 1 hour

Music Electives (17 hours)

3. A Minor or Second Major in Another Department in University (15 hours)
(Notes: Multimedia Arts Technology is an exception and can be elected for inclusion in the BMA degree. In the event that
the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the
student may make an appropriate adjustment in the hours allowed for free electives so that the student completes a minimum
of 122 credit hours.)

4. Free Electives (13 hours)

Music Composition
A student must be able to demonstrate previous music composition practice and competency before being admitted to a
music composition major. Previous compositional practice will be assessed through a review of the student's creative work
involving sound. The student will need to have completed two or three works. All Bachelor of Music: Music Composition
candidates are required to present a Senior Recital consisting of at least 30 minutes of original compositions which are an
outgrowth of the candidate's course work and which have been approved by the composition faculty member with whom the
Music Composition majors must fulfill the following:

**Music Composition Major Requirements**
- **MUS 2620 - Composition I**  Credits: 2 hours
- **MUS 2630 - Composition II**  Credits: 2 hours

**Applied Music Composition (16 hours minimum)**
- **MUS 2000 - Applied Music**  Credits: 1 to 4 hours
  (Topic: Composition) (instructor approval required)
- and/or
- **MUS 3620 - Applied Music Composition**  Credits: 2 to 4 hours
  (Minimum 12 hours total)

**Electronic Music (8 hours minimum)**
- **MUS 2240 - Electronic Music Techniques**  Credits: 2 hours
- **MUS 5640 - Seminar in Electronic Music Composition**  Credits: 2 to 3 hours
  (May be repeated for credit)

**Compositional Topics (8 hours minimum)**
- **MUS 5600 - Counterpoint**  Credits: 2 hours
- **MUS 5670 - Orchestration**  Credits: 2 hours

Additional credits selected from the following:
- **MUS 5610 - Counterpoint**  Credits: 2 hours
- **MUS 5620 - Advanced Compositional Topics**  Credits: 2 hours
  (May be repeated for credit)
- **MUS 5680 - Orchestration**  Credits: 2 hours

**Recommendations**
It is recommended that the student also consider electing:
- **ART 1200 - Introduction to Art**  Credits: 3 hours
- **ENGL 1500 - Literature and Other Arts**  Credits: 4 hours
- **THEA 1000 - Playing with Fire: Love, Politics & Entertainment**  Credits: 3 hours

**Music Education Major: Choral/General Emphasis**
Coursework required for certification to teach music at any grade level (K-12) (44 hours)

**Introductory Course (2 hours)**
- **MUS 1800 - Experiencing Music Education**  Credits: 2 hours

**Teaching and Learning in Music (3 hours)**
- **MUS 2480 - Teaching and Learning in Music**  Credits: 3 hours

**General Music Methods (3 hours)**
- **MUS 3360 - General Music Methods**  Credits: 3 hours

**Choral Techniques (2 hours)**
- **MUS 3390 - Choral Techniques**  Credits: 2 hours

**Choral Methods (3 hours)**
- **MUS 3400 - Choral Methods**  Credits: 3 hours

**Conducting (2 hours)**
- **MUS 3300 - Choral Conducting and Literature**  Credits: 2 hours
**Instrument (1 hour)**
MUS 2790 - Instruments of the Band and Orchestra  Credits: 1 hour

**Methods Elective II (2 hours)**
Select from the following:
MUS 1260 - Fundamentals of Guitar  Credits: 1 hour
MUS 2800 - Instruments of the Music Classroom  Credits: 1 hour
MUS 3860 - Music Technology Concepts  Credits: 2 hours

**Senior Seminar in Music Education (1 hour)**
MUS 3850 - Senior Seminar in Music Education  Credits: 1 hour

**Second Instrument (4 hours)**

*Piano*
Keyboard Musicianship 2200, 2210, 3200, 3210 and/or pass the exam administered by the Keyboard and Professional Education areas. Students who do not qualify for entry at the 2200 level must complete Keyboard Fundamentals (1200 and/or 1210) as a deficiency. No class is to be counted twice. Those students who test out of a course or courses in the Keyboard Musicianship sequence will select courses from the instrument or methods elective areas to complete course requirements.

MUS 2200 - Keyboard Musicianship  Credits: 1 hour
MUS 2210 - Keyboard Musicianship  Credits: 1 hour
MUS 3200 - Advanced Keyboard Musicianship  Credits: 1 hour
MUS 3210 - Advanced Keyboard Musicianship II  Credits: 1 hour

*Voice*
Pass exam for Keyboard Musicianship 3210, given by the Keyboard and Professional Education areas. The student should take Vocal Techniques for Music Educators 1170 as part of four semesters of voice study. Four semesters of study are required, with one semester at 2000 level voice.

MUS 1000 - Applied Music  Credits: 1 to 2 hours
MUS 1170 - Vocal Techniques for Music Educators  Credits: 1 hour
MUS 2000 - Applied Music  Credits: 1 to 4 hours
MUS 3210 - Advanced Keyboard Musicianship II  Credits: 1 hour

**College of Education and Human Development Courses (21 hours)**
ED 2500 - Human Development: Applications in Education  Credits: 3 hours
ED 4100 - Seminar in Education  Credits: 1 to 2 hours (2 hours)
ED 4750 - Intern Teaching: Middle School/Secondary  Credits: 5 or 10 hours (10 hours)
ES 3950 - School and Society  Credits: 3 hours
LS 3050 - K-12 Content Area Literacy  Credits: 3 hours

**Notes:**
Before the student will be recommended for intern teaching, he/she must have a minimum WMU grade-point average of 3.0. Additionally, the student must have earned no grade lower than a "CB" in any courses specific to the music education major (this does not apply to the other Bachelor of Music requirements). The application for intern teaching assignment must be made in the Office of Professional Field Experiences one full year before the assignment is to begin.

**Music Education Major: Instrumental Emphasis**

Coursework required for certification to teach music at any grade level (K-12) (44 hours)

**Introductory Course (2 hours)**
MUS 1800 - Experiencing Music Education  Credits: 2 hours
Teaching and Learning in Music (3 hours)
MUS 2480 - Teaching and Learning in Music   Credits: 3 hours

Instrumental Methods I (3 hours)
MUS 3440 - Instrumental Methods I   Credits: 3 hours

Methods Elective I (3 hours)
Select from the following:
MUS 3360 - General Music Methods   Credits: 3 hours
MUS 3400 - Choral Methods   Credits: 3 hours
MUS 3470 - Instrumental Methods II   Credits: 3 hours

Conducting (2 hours)
MUS 3310 - Instrumental Conducting and Literature   Credits: 2 hours

Class Instruments (6 hours)
Complete these courses (concurrent with or after taking MUS 3440 - Instrumental Methods I):
MUS 1290 - String Class-Violin, Viola Credits: 1 hour
MUS 1300 - Percussion Class   Credits: 1 hour
MUS 1420 - Oboe/Bassoon Class   Credits: 1 hour
MUS 1430 - Trumpet/Horn Class   Credits: 1 hour
MUS 1440 - Trombone/Tuba Class   Credits: 1 hour
MUS 1460 - Clarinet/Flute/Saxophone Class   Credits: 1 hour
concurrent with
MUS 3440 - Instrumental Methods I   Credits: 3 hours

Vocal Technique (1 hour)
MUS 1170 - Vocal Techniques for Music Educator   Credits: 1 hour

Senior Seminar in Music Education (1 hour)
MUS 3850 - Senior Seminar in Music Education   Credits: 1 hour

Keyboard Musicianship (2 hours)
Those who pass the exam administered by the Keyboard area will complete this requirement by selecting courses from the class instrument or methods elective areas. Students who do not qualify for entry at the 2200 level must complete Keyboard Fundamentals (1200) and/or 1210 as a deficiency.
MUS 2200 - Keyboard Musicianship   Credits: 1 hour
MUS 2210 - Keyboard Musicianship   Credits: 1 hour

College of Education and Human Development Courses (21 hours)
ED 2500 - Human Development: Applications in Education   Credits: 3 hours
ED 4100 - Seminar in Education   Credits: 1 to 2 hours (2 hours)
ED 4750 - Intern Teaching: Middle School/Secondary   Credits: 5 or 10 hours (10 hours)
ES 3950 - School and Society   Credits: 3 hours
LS 3050 - K-12 Content Area Literacy   Credits: 3 hours

Notes:
Wind/Percussion students must complete two semesters of Marching Band (1090). All other instrumental emphasis majors are also strongly urged to elect MUS 1090 (see "Exceptions To Core Requirements" in the Bachelor of Music Program).

Before the student will be recommended for intern teaching, he/she must have a minimum WMU grade-point average of 3.0. Additionally, the student must have earned no grade lower than a "CB" in any courses specific to the music education major (this does not apply to the other Bachelor of Music requirements). The application for intern teaching assignment must be made in the Office of Professional Field Experiences one full year before the assignment is to begin.
Music Therapy Major

The student must achieve a 3.0 grade point average in the therapy major in order to be recommended for MUS 4810 (internship). In completing the General Education requirements the therapy major must complete OT 2000/2010 and SPPA 2000. The therapy major must complete at least one course in dance.

Courses in Music Therapy (22 hours)
MUS 2810 - Introduction to Music Therapy Credits: 1 hour
MUS 2890 - Music Therapy Activities for Children Credits: 2 hours
MUS 2900 - Music Therapy Activities for Adults Credits: 2 hours
MUS 3800 - Psychology of Music Credits: 2 hours
MUS 3810 - Research in the Psychology of Music Credits: 2 hours
MUS 3830 - Observation and Measurement in Music Therapy Credits: 1 hour
MUS 4720 - Clinical Practicum in Music Therapy I Credits: 2 hours
MUS 4730 - Clinical Practicum in Music Therapy II Credits: 2 hours
MUS 4790 - Influence of Music on Behavior Credits: 3 hours
MUS 4800 - Music Therapy Methods and Materials Credits: 3 hours
MUS 4810 - Music Therapy Internship Credits: 2 hours

Keyboard Musicianship (4 hours)
All music therapy majors who have passed a piano competency exam may be excused from any Keyboard Musicianship requirements except MUS 3220.
MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour
MUS 3200 - Advanced Keyboard Musicianship Credits: 1 hour

Fundamentals of Guitar (1 hour)
MUS 1260 - Fundamentals of Guitar Credits: 1 hour

Voice Class (1 hour)
MUS 1170 - Vocal Techniques for Music Educator Credits: 1 hour

Additional Courses (2 hours)
MUS 2790 - Instruments of the Band and Orchestra Credits: 1 hour
MUS 2800 - Instruments of the Music Classroom Credits: 1 hour

Professional Electives (5 hours) Select from:
Performance Electives (selected from electives listed under Core Requirements)
MUS 1290 - String Class-Violin, Viola Credits: 1 hour
MUS 1300 - Percussion Class Credits: 1 hour
MUS 1420 - Oboe/Bassoon Class Credits: 1 hour
MUS 1430 - Trumpet/Horn Class Credits: 1 hour
MUS 1440 - Trombone/Tuba Class Credits: 1 hour
MUS 1450 - Flute/Saxophone Class Credits: 1 hour
MUS 3000 - Applied Music Credits: 1 to 4 hours
MUS 3360 - General Music Methods Credits: 3 hours
MUS 5550 - Jazz Arranging Credits: 2 hours
MUS 5580 - Jazz Improvisation I Credits: 2 hours

Psychology (6 hours)
PSY 1000 - General Psychology Credits: 3 hours
PSY 2500 - Abnormal Psychology Credits: 3 hours
Special Education (3 hours)
SPED 5300 - Introduction to Special Education   Credits: 3 hours

Notes:
The student must achieve a 3.0 grade point average in the therapy major in order to be recommended for MUS 4810. In completing the General Education requirements the therapy major must complete OT 2000/2010 and SPPA 2000. The therapy major must complete at least one course in dance.

Music Performance: Instrumental Major

In order to be allowed to continue to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 2000 and pass a performance qualifying examination (see “Electing a Major Area of Study” in the Bachelor of Music program).

Applied Music (4 hours) (in addition to Core requirements)
MUS 2000 - Applied Music   Credits: 1 to 4 hours

Applied Music (10 hours) (in addition to Core requirements)
MUS 3000 - Applied Music   Credits: 1 to 4 hours

Performance Electives (2 hours) (in addition to Core Requirements; see Electives above)

Chamber Music (2 hours)
MUS 2180 - Chamber Music Without Conductor   Credits: 1 hour
(Topic: Instrumental Chamber Music)

Composition (2 hours)
MUS 2620 – Composition I   Credits: 2 hours

Advanced History/Literature (2 hours) (in addition to Core Requirements)

Counterpoint (2 hours)
MUS 5600 – Counterpoint   Credits: 2 hours

Music Electives (5 hours)

Senior Recital (0 hours) (required for Music Clearance)

Music Performance: Jazz Studies

Applied Music (10 hours) (in addition to Core Requirements)
MUS 3000 - Applied Music   Credits: 1 to 4 hours

Jazz Ensembles (2 hours)
MUS 1190 - Gold Company   Credits: 1 hour or
MUS 2120 - Jazz Orchestra   Credits: 1 hour

Jazz Combo (2 hours)
MUS 2180 - Chamber Music Without Conductor   Credits: 1 hour
(Topic: Instrumental Chamber Music)
OR
MUS 5150 - Advanced Jazz Combo   Credits: 1 hour
Jazz Composition (2 hours)
MUS 2640 - Jazz Composition Credits: 2 hours

Jazz Arranging (4 hours)
MUS 5550 - Jazz Arranging Credits: 2 hours
MUS 5560 - Advanced Jazz Arranging Credits: 2 hours

Jazz Improvisation (4 hours)
MUS 5580 - Jazz Improvisation I Credits: 2 hours
MUS 5590 - Jazz Improvisation II Credits: 2 hours

Jazz History and Literature (3 hours)
MUS 5830 - Jazz History and Literature Credits: 3 hours

Keyboard Musicianship (2 hours)
MUS 2200 - Keyboard Musicianship Credits: 1 hour
MUS 2210 - Keyboard Musicianship Credits: 1 hour

Professional Electives (2 hours)
Select from:
MUS 1000 - Applied Music Credits: 1 to 2 hours Piano
MUS 2620 - Composition I Credits: 2 hours
MUS 2630 - Composition II Credits: 2 hours
MUS 3300 - Choral Conducting and Literature Credits: 2 hours
MUS 3310 - Instrumental Conducting and Literature Credits: 2 hours
MUS 3860 - Music Technology Concepts Credits: 2 hours
MUS 5600 - Counterpoint Credits: 2 hours
MUS 5610 - Counterpoint Credits: 2 hours
MUS 5640 - Seminar in Electronic Music Composition Credits: 2 hours
MUS 5670 - Orchestration Credits: 2 hours
MUS 5680 - Orchestration Credits: 2 hours

Senior Recital
All Bachelor of Music-Jazz Studies candidates are required to present a senior recital.

Music Performance: Keyboard Major

In order to be allowed to continue to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 2000 and pass a performance qualifying examination (see “Electing a Major Area of Study”).

Applied Music (4 hours) (in addition to Core requirements)
MUS 2000 - Applied Music Credits: 1 to 4 hours

Applied Music (10 hours) (in addition to Core requirements)
MUS 3000 - Applied Music Credits: 1 to 4 hours

Performance Electives (2 hours) (in addition to Core Requirements; see Electives core in the Bachelor of Music program)

Chamber Music (2 hours)
MUS 2180 - Chamber Music Without Conductor Credits: 1 hour
(Topic: Instrumental Chamber Music)

Composition (2 hours)
MUS 2620 - Composition I Credits: 2 hours
Advanced History/Literature (2 hours)  (in addition to Core Requirements)

Counterpoint (2 hours)
MUS 5600 - Counterpoint   Credits: 2 hours

Keyboard Literature (2 hours)
MUS 5800 - Solo Literature   Credits: 2 hours
(Topic: Keyboard Literature)

Keyboard Pedagogy (2 hours)
MUS 5900 - Studies in Pedagogy   Credits: 1 to 4 hours

Music Electives (1 hour)

Senior Recital (0 hours)  (required for Music Clearance)

Music Performance: Vocal Major

In order to be allowed to continue to major in music performance the student must achieve a minimum grade point average of 3.25 in Applied MUS 2000 and pass a performance qualifying examination (see “Electing a Major Area of Study” in the Bachelor of Music program).

Applied Music (4 hours) (in addition to Core Requirements)
MUS 2000 - Applied Music   Credits: 1 to 4 hours

Applied Music (10 hours) (in addition to Core Requirements)
MUS 3000 - Applied Music   Credits: 1 to 4 hours

Performance Electives (2 hours) (in addition to Core Requirements; See Electives Core in the Bachelor of Music program)

Opera Workshop (2 hours)
MUS 3170 - Opera Workshop   Credits: 1 hour

Keyboard Musicianship (4 hours)
MUS 2200 - Keyboard Musicianship   Credits: 1 hour
MUS 2210 - Keyboard Musicianship   Credits: 1 hour
MUS 3200 - Advanced Keyboard Musicianship   Credits: 1 hour
MUS 3210 - Advanced Keyboard Musicianship II   Credits: 1 hour

Foreign Languages (8 hours)

Vocal Literature and Pedagogy (4 hours)
MUS 5800 - Solo Literature   Credits: 2 hours
(Topic: Vocal Literature)
MUS 5900 - Studies in Pedagogy   Credits: 1 to 4 hours

Diction (2 hours)
MUS 2330 - Italian/English Diction   Credits: 1 hour
MUS 2340 - French/German Diction   Credits: 1 hour

Senior Recital (0 hours)  (required for Music Clearance)

Note:
In addition to the 8 hours of language study above, the music performance-vocal major must include two semesters of one additional language in completing General Education requirements. The language must be selected from the list of approved General Education Proficiency 4 courses.

**Bachelor of Arts in Music (122 hours)**

1. General Education Electives (37 hours)

2. A major in music (48 hours):

   **Music Convocation (6 semesters)**
   MUS 1010 - Music Convocation  Credits: No Credit

   **Applied Music (4 hours)**
   MUS 1000 - Applied Music  Credits: 1 to 2 hours
   MUS 2000 - Applied Music  Credits: 1 to 4 hours
   MUS 3620 - Applied Music Composition  Credits: 2 to 4 hours

   **Basic Music (12 hours)**
   MUS 1600 - Basic Music I  Credits: 3 hours
   MUS 1610 - Basic Music II  Credits: 3 hours
   MUS 2600 - Basic Music III  Credits: 3 hours
   MUS 2610 - Basic Music IV  Credits: 3 hours

   **Aural Skills (2 hours)**
   MUS 1620 - Aural Skills I  Credits: 1 hour
   MUS 1630 - Aural Skills II  Credits: 1 hour

   **Music History/Literature (8 hours)**
   MUS 1700 - Introduction to Music History  Credits: 2 hours
   MUS 2700 - Music History I  Credits: 3 hours
   MUS 2710 - Music History II  Credits: 3 hours

   **History or Theory Electives (2 hours)**
   *Theory electives may be selected from the following:*
   MUS 2630 - Composition II  Credits: 2 hours
   MUS 5550 - Jazz Arranging  Credits: 2 hours
   MUS 5580 - Jazz Improvisation I  Credits: 2 hours
   MUS 5600 - Counterpoint  Credits: 2 hours
   MUS 5650 - Topics in Music Theory  Credits: 2 to 3 hours
   MUS 5670 - Orchestration  Credits: 2 hours

   *History electives may be selected from the following:*
   MUS 5720 - Baroque Music (1600-1750)  Credits: 3 hours
   MUS 5730 - Classical Music (1750-1800)  Credits: 2 hours
   MUS 5740 - Romantic Music (1800-1910)  Credits: 3 hours
   MUS 5830 - Jazz History and Literature  Credits: 3 hours
   MUS 5840 - Topics in Musicology and Ethnomusicology  Credits: 2 to 3 hours
   MUS 5850 - Medieval Music  Credits: 2 hours
   MUS 5860 - Renaissance Music  Credits: 2 hours
   MUS 5870 - Contemporary Music  Credits: 3 hours

   **Music Performance Electives (6 hours)**
   Six hours chosen from the following:
Ensemble Electives (Minimum 2 hours)
(these courses may be repeated for credit)
MUS 1070 - University Choruses Credits: 1 hour
MUS 1080 - Collegiate Singers Credits: 1 hour
MUS 1090 - Marching Band Credits: 1 hour
MUS 1100 - Symphonic Band Credits: 1 hour
MUS 1110 - University Orchestra Credits: 1 hour
MUS 1120 - University Chorale Credits: 1 hour
MUS 1130 - Concert Band Credits: 1 hour
MUS 1180 - Gold Company II Credits: 1 hour
MUS 1190 - Gold Company Credits: 1 hour
MUS 2100 - Jazz Lab Band Credits: 1 hour
MUS 2120 - Jazz Orchestra Credits: 1 hour
MUS 2180 - Chamber Music Without Conductor Credits: 1 hour
MUS 3170 - Opera Workshop Credits: 1 hour
MUS 5170 - Collegium Musicum Credits: 1 hour
MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra Credits: 1 hour

Please note the following: Most ensembles are by audition only.

Remaining Performance Hours
Students may elect the following non-repeatable courses for the remaining performance hours if they wish:
MUS 1200 - Keyboard Fundamentals Credits: 1 hour
MUS 1210 - Keyboard Fundamentals Credits: 1 hour
MUS 1220 - Voice Class Credits: 1 hour
MUS 1240 - Guitar Class I Credits: 2 hours
MUS 1250 - Guitar Class II Credits: 2 hours
MUS 1420 - Oboe/Bassoon Class Credits: 1 hour
MUS 1430 - Trumpet/Horn Class Credits: 1 hour
MUS 1440 - Trombone/Tuba Class Credits: 1 hour
MUS 1460 - Clarinet/Flute/Saxophone Class Credits: 1 hour
MUS 1900 - Accompanying Credits: 1 hour

Music Electives (11 hours)

Capstone Requirement (3 hours)
Students may select one of the following three courses:
MUS 5840 - Topics in Musicology and Ethnomusicology Credits: 2 to 3 hours
MUS 5650 - Topics in Music Theory Credits: 2 to 3 hours
MUS 5970 - Projects in Music Credits: 1 to 4 hours

3. A Minor or Second Major in Another Department (minimum) (15 hours)

Multimedia Arts Technology is an exception and can be elected for inclusion in the BA degree.

(Note: In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the students may make an appropriate adjustment in the hours allowed for free electives.)

4. Free Electives (22 hours)

Notes:
To be awarded a Bachelor of Arts degree, the student, in completing requirements as outlined above, must have completed at least 67 hours of general studies/general education classes outside of music.

World language requirement: The student must complete training in a language other than English through at least the fourth semester, college-level.
Multimedia Arts Technology – Music (122 hours)(MATJ)

The Bachelor of Science in Multimedia Arts Technology - Music is designed to prepare students for career opportunities in audio engineering, multimedia content creation, sound reinforcement, computer programming for multimedia projects, and technology-based performance. Students in this degree receive intensive, hands-on instruction and experience utilizing state-of-the-art electronic equipment and labs.

Admission procedures for the B.S. MAT - Music include:
1. An application to the University during the initial filing period;
2. An application to the School of Music including a letter outlining the student’s background, interests, and goals.
3. Attending a School of Music New Student Admissions Day to:
   a. complete an interview with Multimedia Arts Technology faculty (including submission of a portfolio and brief performance)
   b. complete the theory testing for placement
   c. attend informational sessions at the School of Music.

Visit www.wmich.edu/multimedia/apply or consult with Music's Undergraduate Advisor for additional application details.

Prospective or current WMU students may apply to the B.S. MAT major a maximum of two times. Qualified students will initially be admitted to the program with the designation pre-MAT based on the following criteria:
1. The extent to which their goals are in line with the program goals.
2. The extent to which their knowledge and background supports achieving these goals.
3. Available space in the program.

To matriculate from pre-MAT to the MAT-major, students must:
1. Earn a grade of "C" or better for all courses taken to fulfill major course requirements.
2. Complete MUS 1590 or MUS 1600, MUS 1940, MUS 1945, MUS 1950, MUS 2220, and MUS 2240 with a minimum GPA of 3.0 or higher for those courses. These courses must be completed during a student's first two semesters as a pre-MAT student.

At the end of student's 2nd semester as pre-MAT, each pre-MAT student will be evaluated based on the above criteria. The outcome of these evaluations will be:
1. MAT major: The student successfully met the criteria and is now a MAT-major.
2. Probation: Students who are close to meeting the above criteria can retake certain classes the following two semesters in order to meet the criteria. If a student is successful in meeting the above criteria upon retaking classes, then the student is a MAT-major. If not successful, the student is in category 3 below.
3. Rejection: For students who clearly do not meet the above criteria or who fail to improve within one year of being placed on probation, the student is no longer pre-MAT and can not take additional courses towards the MAT-major. Students in this category can re-apply to the School of Music to be reconsidered for admission.

1. General Education Electives (37 credit hours)
MUS 3520 - World Music in Theory and Practice Credits: 4 hours
(MUS 3520 fulfills baccalaureate-level writing requirement)

2. Major Core Music Program (13-15 credit hours)

Music Theory (2-3 credit hours)
One course selected from the following:
MUS 1590 - Fundamentals of Music Credits: 2 hours
MUS 1600 - Basic Music I Credits: 3 hours
(must waive prereq of MUS 1590 by exam)

Music Appreciation (3-4 credit hours)
MUS 1010 - Music Convocation Credits: No Credit
One course selected from the following:
MUS 1500 - Music Appreciation: Live Music   Credits: 4 hours
MUS 1510 - Jazz in American Culture   Credits: 4 hours
MUS 1520 - Rock Music: Genesis and Development   Credits: 3 hours
MUS 3500 - American Music   Credits: 4 hours
MUS 4500 - Music Appreciation: The Symphony   Credits: 3 hours

Music Performance (8 credit hours) selected from:
All MAT students must register at least once for:
MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra   Credits: 1 hour

Applied Music (MUS 1000) and Ensembles are available to students who can qualify by audition with appropriate applied faculty and/or ensemble director. Select an additional 7 credits from the courses immediately below or the Ensemble Electives:
MUS 1000 - Applied Music   Credits: 1 to 2 hours
(may be repeated for credit)
MUS 1020 - Piano Class I   Credits: 2 hours
MUS 1030 - Piano Class II   Credits: 2 hours
MUS 1200 - Keyboard Fundamentals   Credits: 1 hour
MUS 1220 - Voice Class   Credits: 1 hour
MUS 1240 - Guitar Class I   Credits: 2 hours
MUS 1250 - Guitar Class II   Credits: 2 hours
MUS 1420 - Oboe/Bassoon Class   Credits: 1 hour
MUS 1430 - Trumpet/Horn Class   Credits: 1 hour
MUS 1440 - Trombone/Tuba Class   Credits: 1 hour
MUS 1460 - Clarinet/Flute/Saxophone Class   Credits: 1 hour

Or Ensemble Electives:
These courses may be repeated for credit.
MUS 1070 - University Choruses   Credits: 1 hour
MUS 1080 - Collegiate Singers   Credits: 1 hour
MUS 1090 - Marching Band   Credits: 1 hour
MUS 1100 - Symphonic Band   Credits: 1 hour
MUS 1110 - University Orchestra   Credits: 1 hour
MUS 1120 - University Chorale   Credits: 1 hour
MUS 1130 - Concert Band   Credits: 1 hour
MUS 1180 - Gold Company II   Credits: 1 hour
MUS 1190 - Gold Company   Credits: 1 hour
MUS 2100 - Jazz Lab Band   Credits: 1 hour
MUS 2120 - Jazz Orchestra   Credits: 1 hour
MUS 2170 - Chamber Music With Conductor   Credits: 1 hour
MUS 2180 - Chamber Music Without Conductor   Credits: 1 hour
MUS 3170 - Opera Workshop   Credits: 1 hour
MUS 5170 - Collegium Musicum   Credits: 1 hour
MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra   Credits: 1 hour

Required Laptop Purchase
To complete this program, the student must have the use of a Mac laptop computer. Please consult with the MAT faculty for current hardware and software recommendations.

3. Major Course Requirements in Multimedia Arts Technology (41-43 credit hours)

Required Courses (32-34 credit hours)
MUS 1940 - Introduction to Audio Engineering   Credits: 2 hours
MUS 1945 - Intro to Sound Reinforcement Credits: 1 hour
MUS 1950 - Digital Video Concepts Credits: 2 hours
MUS 2220 - Computer Music Design Credits: 3 hours
MUS 2240 - Electronic Music Techniques Credits: 2 hours
MUS 2940 - Multi-track Recording Credits: 2 hours
MUS 3240 - Effects Processing and Synthesis Credits: 2 hours
MUS 3860 - Music Technology Concepts Credits: 2 hours
MUS 3940 - Advanced Recording I Credits: 2 hours
MUS 4240 - Audio Programming I Credits: 2 hours
MUS 4940 - Advanced Recording II Credits: 2 hours
MUS 5240 - Audio Programming II Credits: 2 hours
MUS 5645 - Audio for Video Credits: 3 hours
MUS 5655 - Special Topics in Multimedia Arts Technology Credits: 2 to 3 hours
(minimum of 4 credits)
MUS 5965 - Sound Reinforcement Practicum Credits: 1 hour

A minimum 9 credit hours selected from the following:
MUS 1610 - Basic Music II Credits: 3 hours
MUS 2600 - Basic Music III Credits: 3 hours
MUS 2620 - Composition I Credits: 2 hours
MUS 2630 - Composition II Credits: 2 hours
ART 2750 - Video Art I Credits: 3 hours
ART 3750 - Video Art II Credits: 3 hours
COM 2550 - Introduction to Digital Filmmaking Credits: 3 hours
COM 2560 - Digital Media: Planning and Operations Credits: 3 hours
MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra Credits: 1 hour
(may be repeated for credit)
MUS 5640 - Seminar in Electronic Music Composition Credits: 2 to 3 hours
(may be repeated for credit)
MUS 5655 - Special Topics in Multimedia Arts Technology Credits: 2 to 3 hours
(may be repeated for credit)
MUS 5965 - Sound Reinforcement Practicum Credits: 1 hour
(may be repeated for credit)
MUS 5990 - Projects in Recording Technology Credits: 1 to 4 hours
(may be repeated for credit)

Course Substitutions
Subject to approval by the School of Music MAT faculty and undergraduate advisor, additional courses related to arts and technology (not already listed above) may be used to fulfill some MAT requirements on a case-by-case basis.

Capstone Project (4 credit hours)
The capstone project is designed and completed by students with faculty oversight. The capstone project is an outgrowth of the candidate's course work and must be approved by the MAT faculty. The project will constitute a significant demonstration of skills with and application of multimedia arts technology. Projects will reflect each student's technological and artistic focus. The capstone project will provide the student with significant artifacts as part of their portfolio for potential employers or graduate school. Students register for 2 credit hours each semester during their final year and are required to give a thirty-minute public presentation of the project.

MUS 5970 - Projects in Music Credits: 1 to 4 hours
(4 hours needed - may be repeated for credit)

4. A Minor in Another Department of the University (15 credit hours minimum)
   • In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the students may make an appropriate adjustment in the hours allowed for free electives.
   • Due to the significant overlap in courses, MAT-majors may not use either the Music minor or the MAT-minor to fulfill the Bachelor of Science requirement of a minor.
5. Free Electives (15-18 credit hours)

Music Minor (15 hours)

The School of Music does not offer a minor leading to Elementary or Secondary Teaching Certification or which allows the student to become certified in music therapy.

Music Theory (2-3 hours)
Select from:
- MUS 1590 - Fundamentals of Music Credits: 2 hours
- MUS 1600 - Basic Music I Credits: 3 hours
(Must waive MUS 1590 by exam)

Music Appreciation/History (3-4 hours)
Select from:
- MUS 1500 - Music Appreciation: Live Music Credits: 4 hours
- MUS 1510 - Jazz in American Culture Credits: 4 hours
- MUS 1520 - Rock Music: Genesis and Development Credits: 3 hours
- MUS 3500 - American Music Credits: 4 hours
- MUS 4500 - Music Appreciation: The Symphony Credits: 3 hours

Music Performance (minimum 2 hours total)
Select from:
- Ensemble Electives Credits: 1 hour
  (MUS 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1180, 1190, 2100, 2120, 2180, 3170, 5170, 5220)
- MUS 1000 - Applied Music Credits: 1 to 2 hours
- MUS 1020 - Piano Class I Credits: 2 hours
- MUS 1030 - Piano Class II Credits: 2 hours
- MUS 1200 - Keyboard Fundamentals Credits: 1 hour
- MUS 1210 - Keyboard Fundamentals Credits: 1 hour
- MUS 1240 - Guitar Class I Credits: 2 hours
- MUS 1250 - Guitar Class II Credits: 2 hours

Note:
Applied Music (MUS 1000) and Ensembles are available to students who can qualify by audition with appropriate applied faculty and/or ensemble director.

Music Electives (6-8 hours)
Electives selected from any Music (MUS) courses, as approved by the music advisor and with appropriate prerequisites.

Multimedia Arts Technology – Music (15 hours)(MATN)

The Minor in Multimedia Arts Technology - Music is a concentrated course of study in audio engineering, digital media, electronic music, and other interdisciplinary applications of technology in the fine arts. The Minor in Multimedia Arts Technology - Music is open to both music majors and non-music majors.

Select from the following courses (minimum 15 hours)
- MUS 1940 - Introduction to Audio Engineering Credits: 2 hours
- MUS 1945 - Intro to Sound Reinforcement Credits: 1 hour
- MUS 1950 - Digital Video Concepts Credits: 2 hours
- MUS 2220 - Computer Music Design Credits: 3 hours
- MUS 2240 - Electronic Music Techniques Credits: 2 hours
MUS 2940 - Multi-track Recording Credits: 2 hours
MUS 3240 - Effects Processing and Synthesis Credits: 2 hours
MUS 3860 - Music Technology Concepts Credits: 2 hours
MUS 3940 - Advanced Recording I Credits: 2 hours
MUS 4240 - Audio Programming I Credits: 2 hours
MUS 4940 - Advanced Recording II Credits: 2 hours
MUS 5220 - KLOrk: Kalamazoo Laptop Orchestra Credits: 1 hour
(may be repeated for credit)
MUS 5240 - Audio Programming II Credits: 2 hours
MUS 5640 - Seminar in Electronic Music Composition Credits: 2 to 3 hours
(may be repeated for credit)
MUS 5645 - Audio for Video Credits: 3 hours
MUS 5655 - Special Topics in Multimedia Arts Technology Credits: 2 to 3 hours
(may be repeated for credit)
MUS 5965 - Sound Reinforcement Practicum Credits: 1 hour
(may be repeated for credit)
MUS 5990 - Projects in Recording Technology Credits: 1 to 4 hours
(may be repeated for credit)

Alternate elective
Subject to approval by the School of Music undergraduate advisor and by the department offering the alternative course, an alternative course (2-3 hours) related to arts and technology may be used to fulfill part of the total. This could be another music course (e.g., MUS 5995 - Special Topics in Music) or a relevant course from another department (e.g., ART 2750 - Video Art I, COM 2650 - Digital Media, etc.).

Note:
Any course which is already required as part of a student's major degree may not be used to satisfy the requirements for Multimedia Arts Technology - Music minor.
The Department of Theatre offers programs leading to the Bachelor of Arts and the Bachelor of Fine Arts degrees. Students should refer to degree and General Education requirements within this catalog for specifics. The Department of Theatre concentrates on undergraduate programs that stress the interdependency of academic and production experiences, the importance of a broad theatre background, and the mastery of theatre fundamentals in preparation for the more advanced theatre training offered in graduate schools or professional theatre internship/apprentice programs or entry into the professional theatre.

Opportunities for participation in the production program begin with the freshman year. The Department presents nine faculty-directed productions in the season, all in the Irving S. Gilmore Theatre Complex. Additional student-directed plays are presented in the Footlights I and II Series. All regularly enrolled students in good academic standing (2.0 GPA or above) are eligible to participate in these productions.

The Department of Theatre is fully accredited by the National Association of Schools of Theatre (NAST). The requirements for entrance and for graduation are in accordance with the published guidelines of NAST.

Admission as a Major
Admission to Western Michigan University is granted only by the Office of Admissions for undergraduate students. Application forms may be obtained by writing to the Office of Admissions, 2240 Seibert Administration Building, or via the Web at www.wmich.edu.

Enrollment in a Theatre or Music Theatre curricula is contingent upon admission to the University and approval of the Department of Theatre. Department approval is obtained through the theatre audition or interview process. Information regarding auditions and interviews can be found at www.wmich.edu/theatre. The students are urged to commence application procedures early in the senior year of high school, or in the final year at a community college.

Approval to become a Theatre or Music Theatre major is based upon the student's capabilities, as demonstrated by the audition or interview, upon academic abilities reflected in grade point average, various scholastic test scores as they are available, a resume, and letters of recommendation.

Further information regarding admission to the Theatre or Music Theatre major may be obtained by writing to the Department of Theatre via the Web at www.wmich.edu/theatre. The department welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Advising
Advisor: Debra Gambino
The Theatre Academic Advisor will assist any student enrolled in the University with course selections in theatre. Appointments are made by calling (269) 387-6171. Theatre majors and minors must confer yearly with the theatre advisor who will help them plan their program.

All students are reviewed by the faculty in their respective majors during their fourth and six semesters of study within the Department of Theatre. The purpose of the review is to assess the students’ progress toward completion of the major and to discuss upper level coursework, fourth-year projects and post-graduate planning. Satisfactory review is required for continuation in the program.

A grade of "C" or better is required in all courses within the major. If a student receives a grade lower than "C", the student is required to retake the class. If a second grade of lower than "C" is received, the student will be dismissed from the major.

Transfer Credit
It is department policy to accept no more than 18 hours of transferred credit toward a major and 9 hours toward a minor.

Students transferring into all Theatre programs will be assessed at the time of their audition/interview and will be placed into the program at the level of study deemed appropriate by the faculty.

Programs
The Department of Theatre offers Bachelor of Fine Arts degrees in: Acting, Music Theatre Performance, Theatre Design and Technical Production, and Stage Management; a Bachelor of Arts in Theatre Studies, available for those students who require a more flexible course of study; and a liberal arts theatre minor.

Baccalaureate-Level Writing Requirement
Theatre students should take THEA 3700 Theatre History I to complete the Baccalaureate-Level Writing requirement. Students who have chosen the Music Theatre Performance degree program will satisfy the Baccalaureate-Level Writing requirement by successfully completing THEA: 3720 Music Theatre History Script Analysis II.

A student must complete all the General Education requirements as outlined in this catalog including a minimum of six (6) of these general education courses by the end of the sophomore year or the student will be placed on probation which may impact casting and production assignments.

Theatre Major – Bachelor of Arts (57 hours)
The theatre studies concentration is designed for both current WMU Theatre students whose academic pursuits require a flexible program of study and incoming and current students who plan to study arts management. Theatre students must make application to the Department Advisor for admission to this concentration following the completion of 36 hours of study, 15 of which must be in Theatre. Incoming students who plan to study Arts Management within the BA in Theatre degree may apply to the department and interview with faculty for approval to enroll.

Required Core Courses
THEA 1200 - Stagecraft I   Credits: 3 hours
THEA 1410 - Introduction to Acting   Credits: 3 hours
THEA 1420 - Acting I: Action and Personalization   Credits: 3 hours
THEA 1700 - Script Analysis   Credits: 3 hours
THEA 2320 - Scenic Design   Credits: 3 hours
THEA 2330 – Costume Design   Credits: 3 hours
THEA 2900 - Theatre Practicum   Credits: 1 to 8 hours (6 hours required)
THEA 3320 - Lighting and Sound Design   Credits: 3 hours
THEA 3510 - Directing I   Credits: 3 hours
THEA 3700 - Theatre History I  Credits: 3 hours
THEA 3710 - Theatre History II  Credits: 3 hours
THEA 4700 - Development of Theatre Art  Credits: 3 hours

Required Courses for Theatre Studies Concentration (TSTJ)
In addition to the 39 hours of required core courses, Theatre Studies students must select 18 hours from Theatre Department courses or related courses offered in other departments. The program of each individual student requires the approval of the Theatre Department Advisor and a designated faculty/staff mentor.

Theatre Major – Bachelor of Fine Arts

This program is designed for the student who has chosen to prepare for graduate study in theatre, advanced specialized training, or direct entry into the profession. It offers a program combining a strong background in theatre with a concentrations in Acting, Theatre Design and Technical Production, or Stage Management.

**Acting (TACJ)**

**Required Core Courses**
THEA 1200 - Stagecraft I  Credits: 3 hours
THEA 1410 - Introduction to Acting  Credits: 3 hours
THEA 1420 - Acting I: Action and Personalization  Credits: 3 hours
THEA 1700 - Script Analysis  Credits: 3 hours
THEA 2320 - Scenic Design  Credits: 3 hours
THEA 2330 – Costume Design  Credits: 3 hours
THEA 2700 – Script Analysis for Production  Credits: 3 hours
THEA 2900 - Theatre Practicum  Credits: 1 to 8 hours
   (Four semesters at 1 hour required)
THEA 3320 - Lighting and Sound Design  Credits: 3 hours
THEA 3510 - Directing I  Credits: 3 hours
THEA 3700 - Theatre History I  Credits: 3 hours
THEA 3710 - Theatre History II  Credits: 3 hours
THEA 4700 - Development of Theatre Art  Credits: 3 hours

**Required Courses**
THEA 2410 – Voice and Movement I  Credits: 3 hours
THEA 2420 – Voice and Movement II  Credits: 3 hours
THEA 2450 – Acting II: Character and Action  Credits: 3 hours
THEA 2460 – Acting III: Character, Action, Language  Credits: 3 hours
THEA 3430 – Elements of Performance  Credits: 1 hour
   Credits: 3 semesters at 1 hour (3 hours total) required
THEA 3910 – Performance Practicum  Credits: 2 hours
   Credits: 2 semesters at 2 hours (4 hours total) required
Dance Class  Credits: 2 hours

Select 21 credits from the following:
Six credits must be in Voice and Movement.
THEA 1810 - Stage Management  Credits: 3 hours
THEA 2600 - Arts Management  Credits: 3 hours
THEA 3440 - Acting IV: Advanced Scene Study  Credits: 3 hours
THEA 3450 - Acting V: Contemporary Drama  Credits: 3 hours
THEA 3470 - Voice and Movement Lab  Credits: 3 hours
   Credits: 6 hours required (May be repeated for credit.)
THEA 3520 - Directing II  Credits: 3 hours
ENGL 3680 - Playwriting  Credits: 3 hours
THEA 3820 - Job Preparation, Self Promotion and Branding  Credits: 3 hours
THEA 4410 - Acting Studio Credits: 3 hours
THEA 4430 - Acting for the Camera Credits: 3 hours
THEA 4440 - New Play Project Credits: 3 hours
THEA 1900 - Summer Theatre Credits: 1 to 3 hours
(May be repeated for credit.)
THEA 4000 - Special Topics in Theatre Credits: 1 to 3 hours
Credits: 3 hours required (May be repeated for credit.)

Stage Management (TSMJ)

Required Core Courses
THEA 1200 - Stagecraft I Credits: 3 hours
THEA 1410 - Introduction to Acting Credits: 3 hours
THEA 1420 - Acting I: Action and Personalization Credits: 3 hours
THEA 1700 - Script Analysis Credits: 3 hours
THEA 2320 - Scenic Design Credits: 3 hours
THEA 2330 - Costume Design Credits: 3 hours
THEA 2700 - Script Analysis for Production Credits: 3 hours
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours
(Six semesters at 1 hour required)
THEA 3320 - Lighting and Sound Design Credits: 3 hours
THEA 3510 - Directing I Credits: 3 hours
THEA 3700 - Theatre History I Credits: 3 hours
THEA 3710 - Theatre History II Credits: 3 hours
THEA 4700 - Development of Theatre Art Credits: 3 hours

Required Courses
THEA 1810 - Stage Management Credits: 3 hours
THEA 2200 - Stagecraft II Credits: 3 hours
THEA 2301 - Computer-Aided Theatre Design Credits: 3 hours
THEA 2600 - Arts Management Credits: 3 hours
THEA 2810 - Stage Management Production-Studio Credits: 3 hours
THEA 3520 - Directing II Credits: 3 hours
THEA 3810 - Stage Management Production-Mainstage Credits: 3 hours
THEA 3820 - Job Preparation, Self Promotion and Branding Credits: 3 hours

Electives (18 credit hours)
Electives to be approved by area advisor.
ACTY 2100 - Principles of Accounting I Credits: 3 hours
ACTY 2110 - Principles of Accounting II Credits: 3 hours
COM 2800 - Introduction to Organizational Communication Credits: 3 hours
COM 3320 - Teamwork and Communication Credits: 3 hours
COM 3350 - Leadership Communication Credits: 3 hours
COM 3540 - Web Design and Digital Communication Credits: 3 hours
HPHE 1810 - First Aid Credits: 2 hours
INTL 3300 - Education Abroad-WMU Programs Credits: 1 to 16 hours Credits: 1 to 4 hours
MGMT 2500 - Organizational Behavior Credits: 3 hours
MGMT 3010 - Project Management Credits: 3 hours
MUS 1020 - Piano Class I Credits: 2 hours
MUS 1590 - Fundamentals of Music Credits: 2 hours
PSY 3440 - Organizational Psychology Credits: 3 hours
THEA 1900 - Summer Theatre Credits: 3 hours
THEA 2410 - Voice and Movement I Credits: 3 hours
THEA 2420 - Voice and Movement II Credits: 3 hours
THEA 3720 - Musical Theatre History and Script Analysis II Credits: 3 hours
THEA 3900 - Professional Theatre Internship Credits: 2 to 6 hours
THEA 4900 - Individualized Study in Theatre  Credits: 1 to 6 hours  Credits: 3 hours

Theatre Design And Technical Production (TDTJ)

Required Core Courses
THEA 1200 - Stagecraft I  Credits: 3 hours
THEA 1410 - Introduction to Acting  Credits: 3 hours
THEA 1700 - Script Analysis  Credits: 3 hours
THEA 2320 - Scenic Design  Credits: 3 hours
THEA 2330 - Costume Design  Credits: 3 hours
THEA 2700 - Script Analysis for Production  Credits: 3 hours
THEA 2900 - Theatre Practicum  Credits: 1 to 8 hours
(Six semesters at 1 hour required)
THEA 3320 - Lighting and Sound Design  Credits: 3 hours
THEA 3510 - Directing I  Credits: 3 hours
THEA 3700 - Theatre History I  Credits: 3 hours
THEA 3710 - Theatre History II  Credits: 3 hours
THEA 4700 - Development of Theatre Art  Credits: 3 hours

Required Courses
THEA 1150 - Introduction to Theatre Production  Credits: 1 hour
THEA 1300 - Period Styles of Design  Credits: 3 hours
THEA 1310 - Drafting and Color Media  Credits: 3 hours
THEA 2200 - Stagecraft II  Credits: 3 hours
THEA 2301 - Computer-Aided Theatre Design  Credits: 3 hours
THEA 2311 - Theatrical Rendering  Credits: 3 hours
THEA 3200 - Stagecraft III  Credits: 3 hours
THEA 3330 - Advanced Design  Credits: 3 hours
THEA 4330 - Portfolio Preparation  Credits: 3 hours
THEA 4900 - Individualized Study in Theatre  Credits: 1 to 6 hours  Credits: 6 hours required

AND students are required to complete two art history courses from this list:
ART 2200 - History of Art  Credits: 3 hours
ART 2210 - History of Art  Credits: 3 hours
ART 2220 - Art of Africa, Oceania, and the Americas  Credits: 3 hours
ART 2230 - Introduction to Asian Art History  Credits: 3 hours

Electives
Students must elect 8 credit hours in a field related to their emphasis, selected in consultation with their faculty/staff mentor.

Music Theatre Performance (84 hours)

Required Courses In Dance (20 hours)
The following courses must be completed (12 hours):
DANC 1250 - Special Studies in Introductory Dance Technique: Tap  Credits: 1 to 6 hours  
(Tap Credits: 1 hour)
DANC 1210 - Roots of Jazz  Credits: 2 hours
DANC 4950 - Music Theatre Performance Workshop II  Credits: 2 hours
DANC 4960 - Performance in Music Theatre  Credits: 2 hours  
(2 semesters; 2 hours each)

Ballet (2 hours):
DANC 1010 - Beginning Ballet  Credits: 2 hours
DANC 1100 - Ballet Technique I  Credits: 2 hours
DANC 1250 - Special Studies in Introductory Dance Technique: Men’s Ballet  Credits: 1 - 6 hours
DANC 2100 - Ballet Technique II Credits: 2 hours
DANC 3100 - Ballet Technique III Credits: 2 hours

**Jazz (4 hours):**
Classes may be repeated for credit based on appropriate placement.
DANC 1200 - Jazz Technique I Credits: 2 hours
DANC 2200 - Jazz Technique II Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours

**Techniques (4 hours):**
DANC 1020 - Beginning Jazz Credits: 2 hours
DANC 1030 - Beginning Modern Credits: 2 hours
DANC 1100 - Ballet Technique I Credits: 2 hours
DANC 1250 - Special Studies in Introductory Dance Technique: Men’s Ballet Credits: 1 to 6 hours (Credits: 2 hours)
DANC 1300 - Modern Technique I Credits: 2 hours
DANC 2100 - Ballet Technique II Credits: 2 hours
DANC 2200 - Jazz Technique II Credits: 2 hours
DANC 2250 - Special Studies in Intermediate Dance Technique: Intermediate Tap Credits: 1 to 6 hours (Credits: 2 hours)
DANC 2250 - Special Studies in Intermediate Dance Technique: Jazz Skill Building Credits: 1 to 6 hours (Credits: 2 hours)
DANC 2300 - Modern Technique II Credits: 2 hours
DANC 3100 - Ballet Technique III Credits: 2 hours
DANC 3200 - Jazz Technique III Credits: 2 hours
DANC 3300 - Modern Technique III Credits: 2 hours

**Required Courses In Music (27 hours):**
MUS 1595 - MTP Musicianship I Credits: 2 hours
MUS 2595 - MTP Musicianship II Credits: 2 hours
MUS 1995 - MTP Ensemble Vocal Technique Credits: 2 hours
MUS 2000 - Applied Music Credits: 1 to 4 hours (3 semesters; 3 hours each)
MUS 2950 - Music Theatre Performance Workshop I Credits: 3 hours
MUS 3000 - Applied Music Credits: 1 to 4 hours (3 semesters; 3 hours each)

**Required Courses In Theatre (33 hours):**
THEA 1200 - Stagecraft I Credits: 3 hours
THEA 1410 - Introduction to Acting Credits: 3 hours
THEA 1420 - Acting I: Action and Personalization Credits: 3 hours
THEA 2410 - Voice and Movement I Credits: 3 hours
THEA 2450 - Acting II: Character and Action Credits: 3 hours
THEA 2460 - Acting III: Character, Action, Language Credits: 3 hours
THEA 2720 - Musical Theatre History and Script Analysis I Credits: 3 hours
THEA 2900 - Theatre Practicum Credits: 1 to 8 hours (Two semesters at 1 hour required)
THEA 3510 - Directing I Credits: 3 hours
THEA 3720 - Musical Theatre History and Script Analysis II Credits: 3 hours
THEA 4950 - Music Theatre Performance Workshop III Credits: 3 hours
THEA 4990 - Music Theatre Showcase Credits: 1 hour

**Electives (4 hours):**
Four hours from courses in the Department of Dance, the School of Music, and the Department of Theatre, with the consent of the Academic Advisor.
Note:
At the beginning of the fall semester for the MTP senior, the department advisor will conduct an audit. If it is determined that the student cannot graduate by the conclusion of the following Summer I, that student will not be eligible to remain enrolled in THEA 4990, Music Theatre Showcase.

Theatre Minor (24 hours)

A grade of “C” or better is required in all courses.

Required Courses
THEA 1200 - Stagecraft I  Credits: 3 hours
THEA 1410 - Introduction to Acting  Credits: 3 hours
THEA 1420 - Acting I: Action and Personalization  Credits: 3 hours
THEA 1700 - Script Analysis  Credits: 3 hours
THEA 2900 - Theatre Practicum  Credits: 1 to 8 hours
   (Credits: 3 hours required)
THEA 3700 - Theatre History I  Credits: 3 hours
THEA 3710 - Theatre History II  Credits: 3 hours

And one (1) of the following:
THEA 2320 - Scenic Design  Credits: 3 hours
THEA 2330 - Costume Design  Credits: 3 hours
THEA 3320 - Lighting and Sound Design  Credits: 3 hours
College of Health and Human Services
Earlie Washington
Dean

Ann Tyler
Associate Dean

Nancy Cretsinger
Director of Academic and Student Services

The College of Health and Human Services provides education, research, and community assistance through its programs. Students receive training and education in direct service roles as well as in policy development, planning, and administration.

Students may earn the degrees of Bachelor of Science in Health Informatics and Information Management; Bachelor of Science in Interdisciplinary Health Services; Bachelor of Science in Nursing; Bachelor of Arts or Science in Speech Pathology and Audiology; Bachelor of Social Work; Master of Science in Medicine; Master of Science in Nursing; Master of Arts in Rehabilitation Teaching; Master of Arts in Orientation and Mobility; Master of Arts in Speech Pathology and Audiology; Master of Science in Occupational Therapy; and Master of Social Work through their studies. Also two dual master's programs are offered: Rehabilitation Counseling/Teaching (administered jointly by the Department of Blindness and Low Vision Studies and the Department of Counselor Education and Counseling Psychology) and Teaching Children Who are Visually Impaired/Orientation and Mobility (administered jointly by the Department of Blindness and Low Vision Studies and the Department of Educational Studies). Additionally, the following doctorate programs are offered: Doctor of Audiology; Doctor of Philosophy in Interdisciplinary Health Sciences; and the Doctor of Philosophy in Evaluation.

The College also provides programs in Integrative Holistic Health and Wellness at the undergraduate and graduate level, as well as Addiction Studies at the undergraduate and graduate levels, and a graduate certificate program in Low Vision Rehabilitation for the Occupational Therapist.

Mission
Consistent with the University's mission of a student-centered research institution, the College of Health and Human Services is committed to educating professionals to provide exemplary health care, rehabilitation, and social services, to promote innovation and discovery and to build mutually enriching local and global partnerships.

The vision of the college is to lead transformative education, practice and research in health and human services.

In achieving its vision and mission, the College of Health and Human Services values service that improves quality of life; compassion and cooperation as integral to professional competence; interdisciplinary, holistic, and collaborative education, research, and service; multidimensional scholarship and lifelong learning; environments that are healthful, intellectually stimulating, supportive, and respectful of differences; and partnerships with the community.

Academic Units:
Blindness and Low Vision Studies
Bronson School of Nursing
Interdisciplinary Health Programs, School of
Occupational Therapy
Physician Assistant
Social Work, School of
Speech, Language, and Hearing Sciences

Advising
Students admitted to Western Michigan University must also be admitted formally to the college's programs through the individual departments, schools, or units. Interested candidates should contact the college advising office for further information.

Financial Aid
Scholarships and other forms of financial assistance are available through most programs in the college. Please refer to the section on Financial Aid and Scholarships.
Blindness and Low Vision Studies
James Leja, Chair
Main Office: 4477 CHHS (Oakland Campus)
Telephone: (269) 387-3455
Fax: (269) 387-3567

Dawn Anderson
Elyse Connors
David Guth
Dae Kim
Donna B. Lee
Helen Lee
Robert Wall Emerson
Jennifer Wiebold

The Department of Blindness and Low Vision Studies offers graduate-level, professional education programs in orientation and mobility, rehabilitation teaching, rehabilitation counseling/teaching (administered jointly with the Department of Counselor Education and Counseling Psychology), Teaching Children Who are Visually Impaired/Orientation and Mobility (administered jointly with the Department of Educational Studies), and a baccalaureate-level, professional program in travel instruction. The department offers the opportunity that allows for an Accelerated Master's degree. Details of the degree can be found on the department website: wmich.edu/visionstudies/academics/accelerated/.

Travel Instruction (122 hours)
Admission to this major is temporarily suspended

Admission Requirements:
The program will admit ten qualified students each year based on the following selection criteria:
1. Admission to WMU
2. Appropriate volunteer experience with persons who have disabilities
3. A minimum grade point average of 3.0 (on a 4.0 scale)
4. Completed program application supported by letters of recommendation
5. Personal or telephone interview

Program Requirements
This curriculum, leading to a Bachelor of Arts degree, will be 122 credit hours in length. Built into the Travel Instruction major will be the competencies necessary to prepare direct service instructors to assist persons with disabilities in meeting their travel needs. In addition to the major, students will be required to complete a 19-hour interdisciplinary minor.

The program consists of didactic courses, a 60-hour practicum, and a 600-hour internship.

Students apply to begin the professional program in the junior year.

Courses must be taken with approval of the advisor. All courses in the Travel Instruction major and interdisciplinary minor must be completed with a grade of "C" or better.

Travel Instruction (31 hours)
BLS 5770 - Services to Individuals with Blindness or Other Disabilities Credits: 1 to 2 hours Credits: 2 hours
BLS 5860 - Job Development and Placement Credits: 3 hours
BLS 5880 - Psychosocial Aspects of Disability Credits: 2 hours
BLS 5890 - Medical and Functional Aspects of Disability Credits: 2 hours
CECP 5200 - Foundations of Rehabilitation Counseling Credits: 3 hours

Interdisciplinary Minor (19 credit hours)
BLS 3050 - Introduction to Adults with Disabilities Credits: 3 hours
SPED 3300 - Foundations of Special Education   Credits: 3 hours
SPED 3400 - Introduction to Cognitive Impairments   Credits: 3 hours
SPPA 2000 - Communication Disorders and Sciences   Credits: 3 hours
The Western Michigan University Bronson School of Nursing opened in 1994, the result of several years of planning and collaboration by University and community leaders. The school was founded based on the need for baccalaureate prepared nursing professionals as articulated by local and national nursing leaders.

The WMU Bronson School of Nursing offers a Bachelor of Science in Nursing (B.S.N.). The prelicensure track provides the nursing degree for individuals who are entering the nursing profession, while the Registered Nurse progression (RN-BSN) track offers an avenue to the degree for the licensed nurse who graduated from a diploma or associate degree program in nursing. The RN-BSN track curriculum is offered as an online sequence of courses.

The WMU Bronson School of Nursing curriculum is designed to prepare nurse generalists who comprehend the discipline and the profession of nursing and who are competent to provide, coordinate, and evaluate patient care in the multiple social contexts in which health care is delivered. The graduate of the program will deliver nursing care to individuals, groups, and communities.

The Western Michigan University Bronson School of Nursing seeks to prepare thoughtful, professional nurses who possess the skills, knowledge, and values necessary to deliver quality health care in this century. The faculty believe that the long-standing social contract between nursing and society conveys an understanding that community needs direct nursing services, that nurses develop partnerships with clients and other health care providers to promote holistic health care, and that caring is intrinsic to nursing. The curriculum integrates knowledge from liberal arts, sciences, and the discipline of nursing. The program emphasizes the development of skills, knowledge, and competencies essential for the scope of clinical judgment that distinguishes the practice of a professional nurse. Concepts of patterning, holism, caring, service to vulnerable groups, and partnership are emphasized.

Accreditation
The Michigan Board of Nursing is the regulatory body that grants provisional and full approval of nursing education programs in the State of Michigan. Full approval of the WMU Bronson School of Nursing undergraduate program was granted in July 2002.
The Western Michigan University Bronson School of Nursing undergraduate program is accredited through 2017 by the Commission on Collegiate Nursing Education (CCNE), One DuPont Circle, NW, Suite 530, Washington, D.C. 20036-1120, phone (202) 887-6791. The CCNE is an autonomous accrediting agency. As a “specialized professional accrediting agency, CCNE ensures the quality and integrity of baccalaureate and graduate nursing programs” (CCNE document).

The Bronson School of Nursing undergraduate program has also received endorsement from the American Holistic Nurses Certification Corporation, which is the credentialing body for holistic nursing. This endorsement enables graduates of the program to be exempt from prerequisites should they choose to sit for the National Certification Examination in Holistic Nursing.

Pre-nursing Curriculum
Admitted high school students who indicate nursing as their intended major will be advised to begin the required "pre-nursing" curriculum in the fall semester of their freshman year. Current WMU students, transfer students, and second degree students who change their intended major to nursing will make an advising appointment with an advisor in CHHS prior to beginning the "pre-nursing" curriculum.

The Undergraduate Professional Nursing Program
This program, with two curriculum tracks, leads to the completion of a Bachelor of Science in Nursing (B.S.N.).

1. The Prelicensure track is offered for individuals who do not hold a Registered Nurse license.
   Admission to this track occurs through:
   • Direct admission to professional nursing curriculum, or
   • Declaring nursing as the intended major on WMU application

2. The RN-BSN Progression Track, has been specifically designed for Registered Nurses.

Nursing - Prelicensure Track

Direct Admission to the Professional Nursing Program (BSN)

Students who have recently graduated from high school demonstrating excellent academic performance in their high school curriculum, particularly in the sciences, in addition to high ACT (or equivalent) scores will be considered for direct admission to the professional nursing program. Direct admission to the professional nursing program is a very selective and highly competitive process.

All high school graduates interested in the BSN must apply to WMU and declare nursing as their intended major.

Candidates for direct admission will be selected from this pool and notified by the Bronson School of Nursing.

Students are being considered for fall direct admission as University applications are received by the school. Limited seats will be available each fall semester.

Selection criteria for direct admission to the professional nursing program requires at least ALL of the following:

- High school GPA of at least 3.6 or higher.
- Minimum ACT Composite score of 26.
- One year of high school chemistry (grades will be evaluated).
- Two years of high school biology (grades will be evaluated).

Students will be required to maintain a minimum of 3.25 university cumulative GPA, earn a “B” (3.0) or better in each of the prerequisite sciences courses (CHEM 1100 and CHEM 1110 OR CHEM 1510 and CHEM 1520; CHEM 1530 and CHEM 1540; and BIOS 1910 OR BIOS 2110; and BIOS 2400) and earn no less than a “C” (2.0) in all other courses to maintain their place in the professional nursing program. All prerequisite courses must be satisfactorily completed before beginning the professional nursing program. Failure to maintain these standards will result in the student being placed into pre-nursing. The student will need to reapply for the professional nursing program.
Pre-Nursing Admission

Students who declare nursing as their intended major and are accepted to WMU must complete the following pre-requisite courses in preparation for application to the professional nursing program.

**BIOS 1910 - Introduction to Human Anatomy and Biology**  Credits: 4 hours
**OR**
**BIOS 2110 - Human Anatomy**  Credits: 4 hours
**BIOS 2400 - Human Physiology**  Credits: 4 hours
**CHEM 1100 - General Chemistry I**  Credits: 3 hours
with
**CHEM 1110 - General Chemistry Laboratory I**  Credits: 1 hour
**OR**
**CHEM 1510 - Chemistry for Health Professionals I**  Credits: 3 hours
with
**CHEM 1520 - Chemistry for Health Professionals I Lab**  Credits: 1 hour
**CHEM 1540 - Chemistry for Health Professionals II Lab**  Credits: 1 hour
**ENGL 1050 - Thought and Writing**  Credits: 4 hours
**HSV 2250 - Growth, Development, and Aging**  Credits: 3 hours
**PSY 1000 - General Psychology**  Credits: 3 hours
**SOC 2000 - Principles of Sociology**  Credits: 3 hours

**Computer Literacy Requirement**
**FCS 2250 - Computer Applications**  Credits: 3 hours
**OR**
**CIS 1020 - Introduction to Business Computing**  Credits: 3 hours

Professional Nursing Admission

Pre-nursing students who have completed the pre-requisite courses must complete the formal application process to be considered for admission to the professional nursing program. Admission to the professional nursing program is highly competitive. Availability of space in nursing courses, including clinical settings, will limit the number of admissions possible each semester.

Selection criteria for admission to the professional nursing program include ALL of the following:

1. Complete all of the courses in the pre-nursing program curriculum (or equivalencies) with a minimum cumulative GPA of 3.0 (B).
2. Individual courses must be completed with a grade of 2.0 (C) or above.
3. Earn an average grade of 3.0 (B) or above in the four science prerequisites courses (or equivalencies.)
4. Science prerequisite courses considered in the admission decision may be repeated once. If a course is repeated the second course grade will be used to establish eligibility for admissions.

Applications for the fall semester are due by March 1; applications for the spring semester are due by October 1.

Professional Curriculum Requirements (125 credit hours)

The sequencing of the Professional Nursing curriculum is critical. Students must complete designated course requirements for each level in the nursing program before progressing to the next level. To remain in good standing within the Professional Nursing curriculum, students must achieve a grade of “C” or better in all nursing courses and maintain a cumulative grade point average of 2.0 or above. No nursing courses may be repeated without review and approval by the Bronson School of Nursing Student Affairs Committee. Further, students may only re-enroll in one nursing course during their program.

Supporting Courses (53 hours)
**Electives**  Credits: 4 hours
BIOS 1910 - Introduction to Human Anatomy and Biology  Credits: 4 hours
OR
BIOS 2110 - Human Anatomy  Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours
BIOS 2400 - Human Physiology  Credits: 4 hours
CHEM 1100 - General Chemistry I  Credits: 3 hours
with
CHEM 1110 - General Chemistry Laboratory I  Credits: 1 hour
OR
CHEM 1510 - Chemistry for Health Professionals I  Credits: 3 hours
with
CHEM 1520 - Chemistry for Health Professionals I Lab  Credits: 1 hour
CHEM 1530 - Chemistry for Health Professionals II  Credits: 3 hours
CHEM 1540 - Chemistry for Health Professionals II Lab  Credits: 1 hour
ENGL 1050 - Thought and Writing  Credits: 4 hours
HSV 2250 - Growth, Development, and Aging  Credits: 3 hours
PSY 1000 - General Psychology  Credits: 3 hours
SOC 2000 - Principles of Sociology  Credits: 3 hours
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours
General Education Area I (Fine Arts)  Credits: 3 hours
General Education Area III (U.S. Cultures and Issues)  Credits: 3 hours
General Education Area IV (Other Cultures and Civilizations)  Credits: 3 hours

Computer Literacy Requirement
FCS 2250 - Computer Applications  Credits: 3 hours
OR
CIS 1020 - Introduction to Business Computing  Credits: 3 hours

Nursing (72 hours)
NUR 2200 - Foundations of Nursing and Critical Thinking  Credits: 3 hours
NUR 2210 - Nursing Therapeutics  Credits: 5 hours
NUR 2220 - Health Assessment Throughout the Lifespan  Credits: 3 hours
NUR 2300 - Concepts of Health and Wellness in Nursing Practice  Credits: 4 hours
NUR 2310 - Nursing Care of the Older Adult  Credits: 4 hours
NUR 3200 - Nursing Care of the Childbearing Family  Credits: 5 hours
NUR 3210 - Nursing Care of Children and Families  Credits: 5 hours
NUR 3220 - Health Care Ethics  Credits: 3 hours
NUR 3300 - Nursing Therapeutics II  Credits: 2 hours
NUR 3310 - Care of Adults with Alterations in Health Status  Credits: 6 hours
NUR 3320 - Nursing Research  Credits: 3 hours
NUR 3330 - Health Informatics  Credits: 3 hours
NUR 3350 - Pharmacotherapeutics in Nursing  Credits: 3 hours
NUR 4200 - Psych-Mental Health Nursing  Credits: 5 hours
NUR 4210 - Nursing Care of Patients with Complex Conditions  Credits: 6 hours
NUR 4310 - Community Based Nursing  Credits: 6 hours
NUR 4320 - Nursing Leadership & Management  Credits: 6 hours

Baccalaureate Level Writing Requirement
Students enrolled in the Prelicensure Track of the nursing curriculum will satisfy the Baccalaureate-Level Writing requirement by successfully completing the following course:
NUR 3320 - Nursing Research  Credits: 3 hours

Nursing RN-BSN Track

Admission Requirements
To be considered for regular admission to the RN-BSN program, applicants must have achieved a minimum cumulative grade point average of at least 3.0 (on a four-point scale) in the nursing associate degree or nursing diploma program from which they graduated.

Students whose grade point average in their nursing program is from 2.00 to 2.99 will be admitted on a conditional basis provided they meet all other criteria. Conditionally admitted students must complete two (2) nursing courses designated as general education. A grade of at least 3.0 (B) must be earned in each course on the first attempt for the student to be offered regular admission. Students must not have failed other Bronson School of Nursing courses. Conditionally admitted students must gain regular admission before they will be allowed to enroll in program specific nursing courses.

All applicants must hold a current Registered Nurse license or must receive it within three (3) months of beginning the RN-BSN program. They must submit a general application to WMU and a departmental application to the Bronson School of Nursing. Applicants must also submit verification of their current Registered Nurse license.

Eligible Registered Nurse applicants will be admitted to the RN-BSN program. Prior to entering the nursing sequence of courses, student must complete the following general education/support course work:

- Fine Arts (Area I General Education) Credits: 3 hours
- Approved computer usage course Credits: 3 hours
- College-level writing (Proficiency 1) Credits: 3 to 4 hours
- Mathematics Credits: 3 hours

While enrolled in the prerequisite course work, students must schedule an appointment with the nursing advisor. Admission to the Nursing courses is determined by the successful completion of all prerequisite course work.

At the beginning of the first clinical nursing course, the student will be asked to present the following:
1. Current cardiopulmonary resuscitation certification
2. Immunization records

Curriculum Requirements for Associate Degree Graduates and Diploma Graduates

Academic Credit Transferred from Associate Degree or Diploma Program
Graduates of community college associate degree and diploma programs will be awarded transfer credit on a course-by-course basis in accordance with University policies for prior general education, science, and electives. An additional block of credits may be awarded for prior nursing study, clinical experience and successful NCLEX completion. Credits will be held in escrow until NUR 3400 has been completed with a grade of "C" or better.

Supporting Courses (25 hours)
- HOL 3000 - Exploring Practices in Integrative Health Care Credits: 3 hours
- STAT 3660 - Data Analysis for Biosciences Credits: 4 hours
- Approved computer usage course Credits: 3 hours
- General Education Area I (Fine Arts) Credits: 3 hours
- General Education Area III (U.S. Cultures and Issues) Credits: 3 hours
- General Education Area IV (Other Cultures) Credits: 3 hours
- Electives Credits: 6 hours

Nursing (27 hours)
- NUR 3420 - Health Assessment Throughout the Lifespan for RNs Credits: 3 hours
- NUR 3220 - Health Care Ethics Credits: 3 hours
- NUR 3430 - Nursing Research-RN Credits: 3 hours
(Satisfies General Education Proficiency 2: Baccalaureate-Level Writing)
- NUR 3330 - Health Informatics Credits: 3 hours
- NUR 3400 - Transition to Professional Nursing Credits: 3 hours
- NUR 4330 - Population Based Nursing-RN Credits: 6 hours
- NUR 4340 - Nursing Leadership and Management-RN Credits: 6 hours
Interdisciplinary Health Programs (School of)

Director

Amos Aduroja
Paula Andrasi
Robert Bensley
Susan Caulfield
John Coons
Betty Dennis
Kathryn Lewis Ginebaugh
Lori Gray
Cassie Jeng
Michele McGrady
Doris Ravotas
Jill Rowe
Mark St. Martin
Shannon McMorrow
Vivian Valdmanis
Delores Walcott
Robert Wertkin

Interdisciplinary Health Services (122 hours)
www.wmich.edu/healthservices

The Bachelor of Science in Interdisciplinary Health Services (BS-IHS) at Western Michigan University prepares students to take their place as interdisciplinary team members in today’s health services systems. A student in BS-IHS can focus their studies in a number of ways. These include:

a. The general program: This option can be paired with a minor or concentration to focus the program more clearly on student goals.

b. The clinical practice in health track: This option is specifically designed for those who have an associate's degree in a clinical area and are licensed in that area following a discipline approved licensing exam.

c. The Pre-Physician Assistant track: A preparatory program that prepares students to apply to WMU's PA program by including required prerequisites (these prerequisites are similar to other PA programs but not identical).

d. The Pre-Audiology Track: A preparatory program that prepares students to apply to WMU's Audiology doctoral program by including required prerequisites (these prerequisites are similar to other AuD programs but not identical).

e. The Blindness and Low Vision Studies track: A preparatory program that prepares students to apply to two of WMU's Blindness and Low Vision Studies programs, Orientation and Mobility for Adults or Vision Rehabilitation, by including required prerequisites (these prerequisites are similar to other programs but not identical).

f. The Pre-Occupational Therapy track: A preparatory program that prepares students to apply to WMU's graduate program by including required prerequisites (these prerequisites are similar to other OT programs but not identical).

The Pre-Audiology track, the Blindness and Low Vision track and the Occupational Therapy track can lead a student to combined undergraduate and graduate programs in those areas. These programs are collaborations between the School of Interdisciplinary Health Programs and the respective graduate department. Within these programs, some courses are utilized for both a BS-IHS degree and a graduate degree. Students must be accepted into the accelerated degree (for Audiology and Blindness and Low Vision Studies programs) or the 4+1 program in Occupational Therapy through the respective program before taking the courses that apply to both degrees.

For more information about the graduate level concentrations see the links under "Admission" below. Acceptance into these advanced programs is not automatic and if students are not accepted into the graduate program as undergraduates they must meet with their advisors to pursue a minor or concentration in their senior year.
BS-IHS Mission Statement

Students will be competent in working in interdisciplinary teams; providing patient and family centered services; building health literacy skills; developing quality improvements; and utilizing informatics for documentation, training, program development and evidence-based research.

The BS-IHS has four parts: (http://www.wmich.edu/healthservices/academics/)

1. The pre-professional sequence and general education requirements embraces a broad spectrum of natural, behavioral and social sciences as well as arts and humanities, providing students with the knowledge necessary to understand the determinants of health and social wellness.

2. The IHS professional core provides for a more in-depth study of the organization and delivery of health services, safety practices, health disparities, diversity in delivering services, and health policy. These core competencies that are needed across health services disciplines include delivering patient and family centered care, working in interdisciplinary teams, evidence-based practice, health literacy practices, quality improvement, informatics, and ethical decision making.

3. A capstone course that pulls together skills obtained throughout the program to be used in an internship placement, a professional project, or a research project.

4. Specialized knowledge obtained through a minor, a concentration, or a specialized track.

More about Capstone Coursework:

To graduate, students must complete a capstone experience: either an internship, capstone project or individual research. A capstone experience is one that integrates special studies with the IHS major and extends, critiques, and applies knowledge gained throughout the program. The capstone experience is typically completed in the final semester before graduation.

- Most students will complete an internship as their capstone experience.
- Students who have at least one year of paid experience in healthcare or in a health-related organization may opt to complete a capstone project instead of an internship.
- Occasionally a student with extensive healthcare experience may decide that their future goals are best supported by completing an individual research project.
- For students who are accepted into the Audiology accelerated degree program or the 4+1 program their clinical placements in those programs serve as an internship.

Health and Human Services Internship (HSV 4900) - Appropriate for most students

www.wmich.edu/healthservices/academics/internships

Students completing an IHS internship integrate and apply their knowledge and abilities, as well as hone skills in preparation for employment or graduate study in a healthcare or health-related organization.

In the semester prior to the internship, students meet with the internship coordinator to establish an appropriate, supervised placement that will further their education and professional objectives. A minimum of 200 clock hours is required for internships (some internships require more). A classroom seminar accompanies the internship placement (HSV 4900).

Student should read the guidelines in the student handbook when they first enter the program to begin to consider what type of internship would be the most helpful to them in their future careers and to familiarize themselves with background check information.

The requirements of the internship are:

1. Completion of all pre-requisites prior to enrollment in any of the capstone courses.
2. Application to the internship program. Application includes the application form, the student's resume and unofficial transcripts. All applications must be submitted via the Intern Placement Tracking (IPT) system found on the program website at www.wmich.edu/healthservices/academics/internships. Application must be made by the deadline for the semester in which a student wishes to begin the internship. See below for deadlines and please note that they are one academic school year ahead of the semester in which the student wants to complete the internship.
3. Students should review the listing of internship sites on the BS-IHS website [http://www.wmich.edu/healthservices/academics/internships/descriptions](http://www.wmich.edu/healthservices/academics/internships/descriptions) and mention any placements that they are interested in on their application.

4. After the application is received the student will meet with the internship coordinator to establish an appropriate, supervised placement that will further their education and professional objectives.

5. Students must enroll in HSV 4900 and attend the internship seminar.

6. Students engaged in an internship must give evidence of having health insurance at the time of course enrollment.

7. Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in HSV 4900.

8. Students must have the minimum of a 2.5 GPA to enroll in HSV 4900 and to complete an internship. If a student misses the minimum GPA the student will be given one semester to achieve the 2.5 before taking the course. If a student is unable to achieve the 2.5 GPA in one semester the student will be removed from the program barring hardship circumstances. If hardship circumstances are present the case will be reviewed by the Internship Coordinator, the Program Coordinator and the Director of the School of Interdisciplinary Health Programs.

Students who are registered, certified, or licensed healthcare professionals may pursue a clinical experience providing it exposes the student to the development of new skills, or is in a situation outside their usual employment.

**Capstone Project in Health Services (HSV 4895)**

The capstone project provides students an opportunity to design and complete a project in health services. It may be selected only by students who have completed at least one year of employment at a healthcare or health-related organization. The capstone project is completed over one semester, typically the student's final semester of his/her undergraduate career.

The capstone project requires students to conceive, plan, and implement a special project in an area within the scope of interdisciplinary health services. Capstone projects may take many different forms. Some examples are: analysis of a health informatics system, clinical review of a therapeutic intervention, implementation of community or public health services, review of ethical considerations in a specific healthcare setting, assessment of public health policy, or an educational program development.

Students will work in small groups under the supervision of an IHS capstone project instructor. Enrollment in the capstone project course requires departmental approval from the IHS internship supervisor. If you have at least one year of healthcare experience and desire to take the capstone project course, email Kathy Lewis Ginebaugh (kathy.lewis@wmich.edu) for more information.

Students must have the minimum of a 2.5 GPA to enroll in HSV 4895 to complete a capstone project. If a student misses the minimum GPA the student will be given one semester to achieve the 2.5 GPA before taking the course. If the student is unable to achieve the 2.5 GPA in one semester the student will be removed from the program barring hardship circumstances. If hardship circumstances are present the case will be reviewed by the Program Coordinator and the Director of the School of Interdisciplinary Health Programs.

**Health and Human Services Independent Research (HSV 4890)**

Restricted to certified, licensed, or registered health providers, this course requires the completion of a credible research project related to a current issue in health and human services.

If a healthcare provider chooses HSV 4890: Independent Research (3 hours), the project must conform to the following standards:

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The student must select a research committee consisting of a faculty mentor knowledgeable in the field of inquiry and a reader who will act as a resource person (the resource person may work outside of the University).

1. The research project must be approved by the Program Coordinator at the beginning of the senior year.
2. The completion of the research project must be documented in a paper written in the professional or academic style appropriate to the discipline and presented in a public forum approved by the Program Coordinator.
3. Students must have the minimum of a 2.5 GPA to enroll in HSV 4890 and conduct independent research. If a student misses the minimum GPA the student will be given one semester to achieve the 2.5 GPA before taking the course. If the student is unable to achieve the 2.5 GPA in one semester the student will be removed from the program barring hardship circumstances. If hardship circumstances are present the case will be reviewed by the Program Coordinator and the Director of the School of Interdisciplinary Health Programs.

Admission

General Program, Clinical Practice in Health Focus, and pre-clinical program tracks:
Students are admitted into the General, Clinical Practice in Health Focus, or the pre-clinical program tracks in consultation with their advisor once they complete a minimum of 30 academic credits and completion of the pre-professional requirements with a cumulative grade point average of 2.5.

Please contact your advisor for official admission into the program after completing the pre-professional requirements.

Audiology, Occupational Therapy (4+1 program), Orientation & Mobility and Vision Rehabilitation:
Admittance to any BS-IHS accelerated degree program requires acceptance into that graduate program. This usually occurs during the junior year, although students may apply to the Occupational Therapy 4+1 program earlier. All of the accelerated degree programs have some courses that count toward both the undergraduate degree and the graduate degree. Students are advised to consult information from the graduate departments for more information. Please see the links below.

Graduate Accelerated Degree Programs (all of the programs below require a separate application and are competitive)

Audiology [http://www.wmich.edu/speech-audiology/academics/grad/accelerated](http://www.wmich.edu/speech-audiology/academics/grad/accelerated)

Occupational Therapy (4+1) [http://www.wmich.edu/healthservices/academics/bs-ot](http://www.wmich.edu/healthservices/academics/bs-ot)
(Students must be accepted into the Occupational Therapy program; students begin occupational therapy courses as an undergraduate receiving a BS-IHS degree and an OT master's degree).

Orientation and Mobility (Blindness and Low Vision Studies) [http://www.wmich.edu/visionstudies/academics/accelerated](http://www.wmich.edu/visionstudies/academics/accelerated)

Visual Rehabilitation (Blindness and Low Vision Studies) [http://www.wmich.edu/visionstudies/academics/accelerated](http://www.wmich.edu/visionstudies/academics/accelerated)

Academic Advising
The College of Health and Human Services provides advising to all students who wish to enroll in and who are admitted to the Bachelor of Science in Interdisciplinary Health Services program. Students should contact an advisor as early as possible. Advisors will assist student in program planning, and in the selection of a particular program track, concentration, or academic minor. Failure to meet with an advisor on a regular basis may result in difficulty in completing the program in a timely manner.

Graduation Requirements
Students must meet the University's graduation requirements. In addition, students must maintain a grade point average of 2.5, with no less than a "C" in any IHS professional core course. Students may repeat no more than once, one course in the IHS professional core. Specific program requirements to follow.

The General BS-IHS Curriculum
Students must successfully complete the University's General Education Proficiencies and Distribution requirements.

Pre-Professional Requirements
Students must complete all the Pre-Professional Requirements.
BIOS 2110 - Human Anatomy  
Credits: 4 hours
BIOS 2400 - Human Physiology  
Credits: 4 hours
HSV 2250 - Growth, Development, and Aging  
Credits: 3 hours
MDSC 2010 - Medical Terminology  
Credits: 1 hour

**IHS Professional Core Requirements**
Students must complete all the courses in the IHS Professional Core Requirements.
HOL 4700 - Relationship-Centered Skills  
Credits: 3 hours
HSV 3650 - Information Literacy in the Health Sciences  
Credits: 2 hour
(or pass a proficiency examination)
HSV 3700 - The Health System and Its Environment  
Credits: 3 hours
HSV 3900 - Core Competencies and Contemporary Issues in Health Services  
Credits: 3 hours
HSV 4100 - Legal Issues in Health and Human Services  
Credits: 3 hours
HSV 4200 - Health and Human Services Research and Statistics  
Credits: 3 hours
HSV 4400 - Diversity and Inclusion in Health and Human Services  
Credits: 3 hours
HSV 4780 - U.S. Policy in Health and Human Services  
Credits: 3 hours
HSV 4800 - Health Services Practice Management  
Credits: 3 hours
HSV 4860 - Health Literacy Practices  
Credits: 3 hours
HSV 4880 - Psychosocial Issues in Health and Human Services  
Credits: 3 hours

**Ethics (one of the following)**
PHIL 2010 - Introduction to Ethics  
Credits: 4 hours
PHIL 3340 - Biomedical Ethics  
Credits: 4 hours

**Capstone Coursework** (see "More about Capstone Coursework" above)
Students must complete one of the following courses:
HSV 4890 - Health and Human Services Independent Research  
Credits: 3 hours
(restricted to certified or licensed health professionals)
HSV 4895 - Capstone Project in Health Services  
Credits: 3 hours
(restricted to students working in health care)
HSV 4900 - Health and Human Services Internship  
Credits: 4 hours
(appropriate for most students)

**Specialized Knowledge (minors or concentration)**
The Professional Core will be complemented by specialized knowledge in a concentration or academic minor.

**Academic Minors**
A variety of minors are available to students, here are some examples. Please choose carefully based on your plans for the future. The minors that are marked with an * are tied to specific roles in health care.

Addiction Studies (leads to a national certification)*
Communications
Gerontology
Health Informatics and Information Management (HIIM)*
Integrative Holistic Health and Wellness
Management*
Non Profit Leadership (leads to a national certification)*
Peace Corps Health Prep Minor*
Psychology
Spanish
Speech and Hearing Processes*

**Concentrations**
Students may focus on areas that reflect their interest. Students who elect a concentration will do so in consultation with their program advisor. This emphasis will be designed to fit the student's individual learning objectives. It must consist of a
minimum of 14 semester hours, at least 9 of which must be from 3000-, 4000-, or 5000-level course work. All plans must be pre-approved by an advisor.

**BS-IHS - Clinical Practice in Health track**
The specialized knowledge of the Clinical Practice in Health track optimizes the clinical training that students who are licensed, certified or registered in an allied health profession have previously received. Graduates of an accredited allied health associate's degree program who hold a professional license, certification, or registration (after having successfully passed a state and/or nationally recognized examination) are eligible for the BS-IHS Clinical Practice in Health track. Students choosing this option will be awarded transfer credit on a course-by-course basis in accordance with the University policies for prior general education, sciences, and electives. In addition, a prior learning assessment will determine the student's eligibility to receive up to 18 hours of upper division credit for the following two courses:

- HSV 3100 - Professional and Interpersonal Skills for Patient Centered Care Credits: 9 hours
- HSV 3200 - Clinical Practice in U.S. Health Care Delivery Credits: 9 hours

**Requirements:**
The BS-IHS Clinical Practice in Health track consists of the same pre-professional requirements, IHS professional core, and capstone requirements as the general program. HSV 3100 and HSV 3200 complete the specialized knowledge for this track. Students in this track also usually qualify for a transfer of credit that satisfy a capstone course among other coursework.

**BS-IHS - Pre-Physician Assistant**
The Western Michigan University Department of Physician Assistant recommends the following courses in the Bachelor of Science in Interdisciplinary Health Services to adequately prepare students to apply to the Physician Assistant program. However, completion of this track does not guarantee admission to the Physician Assistant Graduate program.

**Pre-Professional Requirements**
Students must complete all the courses in the Pre-Professional Requirements.
- BIOS 1600 - Biological Form and Function Credits: 3 hours
- BIOS 1610 - Molecular and Cellular Biology Credits: 4 hours
- BIOS 1620 - Ecology and Evolution Credits: 4 hours
- BIOS 2110 - Human Anatomy Credits: 4 hours (prerequisite to the WMU PA program)
- CHEM 1100 - General Chemistry I Credits: 3 hours
- CHEM 1111 - General Chemistry Laboratory I Credits: 1 hour
- HSV 2250 - Growth, Development, and Aging Credits: 3 hours (prerequisite to the WMU PA program)
- MDSC 2010 - Medical Terminology Credits: 1 hour

**IHS Professional Core Requirements**
Students must complete all courses in the IHS Professional Core Requirements.
- HOL 4700 - Relationship-Centered Skills Credits: 3 hours
- HSV 3700 - The Health System and Its Environment Credits: 3 hours
- HSV 3900 - Core Competencies and Contemporary Issues in Health Services Credits: 3 hours
- HSV 4100 - Legal Issues in Health and Human Services Credits: 3 hours
- HSV 4200 - Health and Human Services Research and Statistics Credits: 3 hours
- HSV 4400 - Diversity and Inclusion in Health and Human Services Credits: 3 hours
- HSV 4800 - Health Services Practice Management Credits: 3 hours
- HSV 4860 - Health Literacy Practices Credits: 3 hours
- HSV 4880 - Psychosocial Issues in Health and Human Services Credits: 3 hours

**Ethics (one of the following)**
- PHIL 2010 - Introduction to Ethics Credits: 4 hours
- PHIL 3340 - Biomedical Ethics Credits: 4 hours

**Capstone Courses (one of the following)**
Students must complete one of the following courses:
HSV 4890 - Health and Human Services Independent Research  Credits: 3 hours  
(restricted to certified or licensed health professionals)
HSV 4895 - Capstone Project in Health Services  Credits: 3 hours  
(restricted to students working in health care)
HSV 4900 - Health and Human Services Internship  Credits: 4 hours  
(A patient contact paid internship is recommended for any student pursuing this track who has not acquired at least 1000 hours of patient care that is needed for application to the PA program).

Pre-Physician Assistant Specialized Knowledge Courses
BIOS 2500 - Genetics Credits: 4 hours
BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours  
(prerequisite to the WMU PA program)
OR
BIOS 3120 - Microbiology  Credits: 5 hours  
(prerequisite to the WMU PA program)
BIOS 3500 - Human Physiology for Majors  Credits: 5 hours  
(prerequisite to the WMU PA program)
CHEM 1120 - General Chemistry II  Credits: 3 hours
CHEM 1130 - General Chemistry Laboratory II  Credits: 1 hour
CHEM 3700 - Introduction to Organic Chemistry  Credits: 3 hours
CHEM 3710 - Introduction to Organic Chemistry Lab  Credits: 1 hour
CHEM 3550 - Introductory Biochemistry  Credits: 3 hours  
(prerequisite to the WMU PA program)
CHEM 3560 - Introductory Biochemistry Laboratory  Credits: 1 hour  
(prerequisite to the WMU PA program)
MDSC 4390 - Pharmacology for Health Professionals  Credits: 3 hours
MDSC 4450 - Pathophysiology for the Health Professional  Credits: 3 hours
STAT 2600 - Data Analysis Using R  Credits: 4 hours  
(prerequisite to the WMU PA program)
OR
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours  
(prerequisite to the WMU PA program)

Pre-Audiology Track
Students pursuing the BS-IHS who are interested in applying to the Doctorate of Audiology (AuD) may take a set of courses through the Department of Speech, Language, and Hearing Sciences in preparation for that program. Once they have completed the BS-IHS Professional Core courses in their junior year they can apply for the accelerated degree program. If accepted into the graduate program through the Department of Speech, Language, and Hearing Sciences, their final 12 credits of the BS-IHS will also be applied to the Doctorate of Audiology (AuD) graduate degree. If not accepted students must meet with their advisor to plan for completion of the BS-IHS degree including a capstone course.

Admission to the undergraduate degree track does not guarantee admission to the doctorate program either as an accelerated degree student or as a regular graduate student.

Pre-Professional Requirements
BIOS 1120 - Principles of Biology  Credits: 3 hours
BIOS 2110 - Human Anatomy  Credits: 4 hours
BIOS 2400 - Human Physiology  Credits: 4 hours
ENGL 1050 - Thought and Writing  Credits: 4 hours
HSV 2250 - Growth, Development, and Aging  Credits: 3 hours
LANG 2500 - The Nature of Language  Credits: 4 hours
MDSC 2010 - Medical Terminology  Credits: 1 hour
PHYS 1070 - Elementary Physics  Credits: 4 hours
PHYS 1080 - Elementary Physics Laboratory  Credits: 1 hour
PSY 1000 - General Psychology  Credits: 3 hours
SPPA 2000 - Communication Disorders and Sciences  Credits: 3 hours
Professional Core Requirements
HOL 4700 - Relationship-Centered Skills  Credits: 3 hours
HSV 3650 - Information Literacy in the Health Sciences  Credits: 2 hours
(or pass a proficiency examination)
HSV 3700 - The Health System and Its Environment  Credits: 3 hours
(formerly HSV 4810)
HSV 3900 - Core Competencies and Contemporary Issues in Health Services  Credits: 3 hours
(formerly HSV 4850)
HSV 4100 - Legal Issues in Health and Human Services  Credits: 3 hours
HSV 4200 - Health and Human Services Research and Statistics  Credits: 3 hours
HSV 4400 - Diversity and Inclusion in Health and Human Services  Credits: 3 hours
HSV 4780 - U.S. Policy in Health and Human Services  Credits: 3 hours
HSV 4800 - Health Services Practice Management  Credits: 3 hours
HSV 4860 - Health Literacy Practices  Credits: 3 hours
HSV 4880 - Psychosocial Issues in Health and Human Services  Credits: 3 hours

Ethics (one of the following)
PHIL 2010 - Introduction to Ethics  Credits: 4 hours
PHIL 3340 - Biomedical Ethics  Credits: 4 hours

Audiology Specialized Knowledge
SIGN 1010 - American Sign Language I  Credits: 3 hours
SPPA 2030 - Normal Language Acquisition  Credits: 3 hours
SPPA 2060 - Hearing Science  Credits: 3 hours
SPPA 2080 - Introduction to Audiology  Credits: 3 hours
SPPA 4000 - Practicum in Speech Pathology and Audiology I  Credits: 2 hours
SPPA 4010 - Practicum in Speech Pathology and Audiology II  Credits: 2 hours
SPPA 4560 - Rehabilitative Audiology  Credits: 3 hours
SPPA 5800 - Psychoacoustics  Credits: 3 hours

Accelerated Degree - Doctorate of Audiology (AuD)
A student who has been admitted into the Accelerated Degree - Doctorate of Audiology (AuD) will take the following 12 credits during their senior year and apply the credits to both their undergraduate and graduate programs.
SPPA 5801 - Pediatric Audiology  Credits: 3 hours
SPPA 6030 - Anatomy of Audition and Balance  Credits: 2 hours
SPPA 6210 - Diagnostic Audiology I  Credits: 4 hours
SPPA 6220 - Hearing Aids  Credits: 3 hours

Pre-Blindness and Low Vision Studies Track
Students pursuing the BS-IHS who are interested in applying to the Master of Arts in Orientation and Mobility for Adults or Master of Arts in Vision Rehabilitation Therapy may take a set of courses in preparation for those programs. Once they have completed the BS-IHS Professional Core courses in their junior year, they can apply for the accelerated degree program of their choice. If accepted into the graduate program through the Department of Blindness and Low Vision Studies their final 12 credits of the BS-IHS will also be applied to the respective program, otherwise students will take an additional 12 credit hours toward a minor or advisor approved concentration.

Although the classes below are the same, the Master of Arts in Orientation and Mobility Services and the Master of Arts in Vision Rehabilitation Therapy are two different master's degrees. Please refer to the individual programs for specific information.

Pre-Professional Requirements
BIOS 1120 - Principles of Biology  Credits: 3 hours
BIOS 2110 - Human Anatomy  Credits: 4 hours
BIOS 2400 - Human Physiology  Credits: 4 hours
BLS 3050 - Introduction to Adults with Disabilities  Credits: 3 hours
HSV 2250 - Growth, Development, and Aging  Credits: 3 hours
MDSC 2010 - Medical Terminology  Credits: 1 hour

Professional Core Requirements
HOL 4700 - Relationship-Centered Skills  Credits: 3 hours
HSV 3650 - Information Literacy in the Health Sciences  Credits: 2 hours
(or pass a proficiency examination)
HSV 3700 - The Health System and Its Environment  Credits: 3 hours
(formerly HSV 4810)
HSV 3900 - Core Competencies and Contemporary Issues in Health Services  Credits: 3 hours
(formerly HSV 4850)
HSV 4100 - Legal Issues in Health and Human Services  Credits: 3 hours
HSV 4200 - Health and Human Services Research and Statistics  Credits: 3 hours
HSV 4400 - Diversity and Inclusion in Health and Human Services  Credits: 3 hours
HSV 4780 - U.S. Policy in Health and Human Services  Credits: 3 hours
HSV 4800 - Health Services Practice Management  Credits: 3 hours
HSV 4860 - Health Literacy Practices  Credits: 3 hours
HSV 4880 - Psychosocial Issues in Health and Human Services  Credits: 3 hours

Ethics (one of the following)
PHIL 2010 - Introduction to Ethics  Credits: 4 hours
PHIL 3340 - Biomedical Ethics  Credits: 4 hours

Capstone Courses (one of the following)
Students must complete one of the following courses:
HSV 4890 - Health and Human Services Independent Research  Credits: 3 hours
(restricted to certified or licensed health professionals)
HSV 4895 - Capstone Project in Health Services  Credits: 3 hours
(restricted to students working in healthcare)
HSV 4900 - Health and Human Services Internship  Credits: 4 hours

Accelerated Degree - Blindness and Low Vision Studies
A student who has been admitted into one of the Blindness and Low Vision Studies accelerated degree programs will take the following 12 credits during their senior year and apply the credits to both their undergraduate and graduate programs.
BLS 5770 - Services to Individuals with Blindness or Other Disabilities  Credits: 1 to 2 hours
BLS 5880 - Psychosocial Aspects of Disability  Credits: 2 hours
BLS 5890 - Medical and Functional Aspects of Disability  Credits: 2 hours
BLS 5900 - Physiology and Function of the Eye  Credits: 2 hours
BLS 5970 - Principles of Low Vision  Credits: 2 hours
BLS 6020 - Gerontology in Orientation and Mobility and Rehabilitation Teaching  Credits: 2 hours

Pre-Occupational Therapy Track
Students pursuing the BS-IHS who are interested in applying to the Master of Science in Occupational Therapy program may take a set of courses in preparation for that program. Once they have completed the BS-IHS pre-professional requirement courses they can apply for the 4+1 program. If accepted into the graduate program through the Department of Occupational Therapy they can apply the Occupational Therapy set of specialized knowledge courses to the 4+1 program. Students who are not accepted into the 4+1 program must meet with their advisors to plan for the completion of their BS-IHS degree. This plan must include a capstone course.

Pre-Professional Requirements
BIOS 1120 - Principles of Biology  Credits: 3 hours
BIOS 2110 - Human Anatomy  Credits: 4 hours
OR
OT 2000 - Human Functional Anatomy  Credits: 3 hours
AND

541
OT 2010 - Human Functional Anatomy Lab  Credits: 1 hour
BIOS 2400 - Human Physiology Credits: 4 hours
ENGL 1050 - Thought and Writing  Credits: 4 hours
HSV 2250 - Growth, Development, and Aging  Credits: 3 hours
OT 2020 - Orientation to Occupational Therapy  Credits: 3 hours
PSY 1000 - General Psychology  Credits: 3 hours
PSY 2500 - Abnormal Psychology  Credits: 3 hours

Professional Core Requirements
HOL 4700 - Relationship-Centered Skills  Credits: 3 hours
OR
SWRK 3200 - Social Work Interviewing and Assessment  Credits: 3 hours
HSV 3650 - Information Literacy in the Health Sciences  Credits: 2 hours
(or pass a proficiency examination)
HSV 3700 - The Health System and Its Environment  Credits: 3 hours
HSV 4100 - Legal Issues in Health and Human Services  Credits: 3 hours
HSV 4400 - Diversity and Inclusion in Health and Human Services  Credits: 3 hours
HSV 4780 - U.S. Policy in Health and Human Services  Credits: 3 hours
HSV 4800 - Health Services Practice Management  Credits: 3 hours
HSV 4860 - Health Literacy Practices  Credits: 3 hours
HSV 4880 - Psychosocial Issues in Health and Human Services  Credits: 3 hours
OT 4700 - Functioning of the Older Adult  Credits: 3 hours
PHIL 3340 - Biomedical Ethics  Credits: 4 hours

Occupational Therapy 4+1 program
A student who has been admitted into the 4+1 program through the Department of Occupational Therapy will begin 42 hours of professional occupational therapy education classes (listed below). Once these courses are completed students begin their 30 hours of graduate level courses.
OT: Approved Elective Credits: 3 hours
OT 3700 - Occupational Therapy Process in Physical Dysfunction  Credits: 3 hours
OT 3740 - Conditions in Occupational Therapy  Credits: 3 hours
OT 3750 - Applied Neurology  Credits: 4 hours
OT 3760 - Functional Assessment  Credits: 3 hours
OT 3810 - Occupational Therapy Practice I  Credits: 3 hours
OT 3820 - Occupational Therapy Practice II  Credits: 3 hours
OT 3830 - OT Practice Cases Through the Lifecourse  Credits: 3 hours
OT 3840 - OT Practice and Therapeutic Interaction Skills  Credits: 3 hours
OT 4720 - Occupational Analysis and Adaptation  Credits: 3 hours
OT 4750 - Occupational Therapy Practicum I  Credits: 4 hours
OT 4790 - Occupational Therapy in Mental Health  Credits: 3 hours
OT 4820 - Occupational Therapy Practicum II  Credits: 4 hours
OT 5735 - Cognition and Visual Perception in Occupational Therapy  Credits: 3 hours

Public Health
The Public Health program is a practical-based curriculum focused on primary prevention of negative public health issues within community settings and is based on responsibilities and competencies associated with becoming a Certified Health Education Specialist. Coursework focuses on public and global health needs and issues; psychosocial science and epidemiology; skills associated with planning, implementing, administering, and evaluating community and public health programs; modifying health behaviors; grant writing; advocating for health policies; and professional preparation in the field of public health and community health education.

The Public Health program integrates classroom study with hands-on practical experiences in order to provide the student with a comprehensive level of academic preparation. Many courses include practical experiences and all majors complete both a capstone experience and semester-long internship in order to gain experience in their chosen career path. The program prepares students for careers in government-based public health agencies, nonprofit organizations, managed care
organizations, medical and hospital centered education settings, and corporate health promotion settings. In addition, the program is appropriate for students interested in pursuing master's degrees in public health (MPH), community health (MS), and health promotion (MS).

Admission Requirements
Students who have completed PH 2310, PH 2320, and PH 2330 with a grade of "C" or higher and have a minimum overall GPA of 2.75, may apply to the Undergraduate Public Health Program. General information necessary for admission includes:

- Completion of the Public Health Undergraduate Application
- Submission of all academic transcripts
- Supplemental (personal) Statement

All applications are submitted to the Public Health Coordinator in the School of Interdisciplinary Health Programs. Deadlines for submitting applications are January 15, May 15, and October 1 of each year. Selection of students to be admitted to the program occurs after review of all applications by the Admissions and Student Services Committee composed of public health faculty. This is a competitive admissions process with a specific number of students admitted each year. Specific criteria for selection candidates are based upon:

- Competitive overall grade point average
- Participation in community services, leadership activities, and volunteer experience
- Written communication skills, personal qualifications, and knowledge of the profession as evidenced in the supplemental statement

Required Cognates (17-18 hours)
BIOS 1120 - Principles of Biology   Credits: 3 hours
PSY 1000 - General Psychology   Credits: 3 hours
SOC 2000 - Principles of Sociology   Credits: 3 hours
SOC 2100 - Modern Social Problems   Credits: 3 hours
SOC 3200 - Introduction to Social Psychology   Credits: 3 hours

Select:
HPHE 1110 - Healthy Living   Credits: 2 hours
OR
HOL 1000 - Choices in Living   Credits: 3 hours

Required Courses (39 hours)
PH 2310 - Public Health Needs and Issues   Credits: 3 hours
PH 2320 - Global and Environmental Health Issues   Credits: 3 hours
PH 2330 - Introduction to Epidemiology   Credits: 3 hours
PH 3310 - Planning Public Health Programs   Credits: 3 hours
PH 3320 - Applying Behavior Foundations in Public Health   Credits: 3 hours
PH 3330 - Grant Writing in Public Health   Credits: 3 hours
PH 4310 - Implementing and Administering Public Health Programs   Credits: 3 hours
PH 4320 - Public Health Intervention Strategies   Credits: 3 hours
PH 4330 - Advocating for Health Policies   Credits: 3 hours
PH 4410 - Evaluating Public Health Programs   Credits: 3 hours
PH 4910 - Public Health Capstone Proposal   Credits: 1 hour
PH 4920 - Public Health Capstone Project   Credits: 2 hours
PH 4930 - Public Health Seminar   Credits: 3 hours
PH 4940 - Public Health Internship   Credits: 3 hours

Emphasis (Minimum 18 hours)
Students must earn a minimum of 18 credit hours by selecting:

A minor from:
- Addiction Studies  Credits: 18 hours
- Communication  Credits: 18 hours
- Event Management  Credits: 18 hours
- Gerontology  Credits: 18 hours
- Integrative Holistic Health and Wellness  Credits: 18 hours
- Nonprofit Leadership  Credits: 18 hours

OR
At least 18 hours from the following list of public health science based courses:

- ANTH 3470 - Ethnicity/Multiculturalism  Credits: 3 hours
- BIOS 1050 - Environmental Biology  Credits: 3 hours
- BIOS 2320 - Microbiology and Infectious Diseases  Credits: 4 hours
- GEOG 3010 - Fundamentals of Geographic Information Systems  Credits: 4 hours
- GRN 1000 - Introduction to Aging Studies  Credits: 3 hours
- GRN 4000 - Public Policy and Aging  Credits: 3 hours
- HSV 3700 - The Health System and Its Environment  Credits: 3 hours
- HSV 4400 - Diversity and Inclusion in Health and Human Services  Credits: 3 hours
- HSV 4780 - U.S. Policy in Health and Human Services  Credits: 3 hours
- HSV 4860 - Health Literacy Practices  Credits: 3 hours
- HSV 4880 - Psychosocial Issues in Health and Human Services  Credits: 3 hours
- PH 3300 - Special topics in Public Health  Credits: 1 to 3 hours
- PH 4300 - Independent Study in Public Health  Credits: 1 to 4 hours
- PHIL 3340 - Biomedical Ethics  Credits: 4 hours
- PSY 3456 - Behavioral Approaches to Sustainability  Credits: 3 hours
- STAT 1600 - Statistics and Data Analysis  Credits: 3 hours
- STAT 2600 - Data Analysis Using R  Credits: 4 hours

Additional courses with consent of PH faculty

OR
At least 18 hours from the following list of public health education based courses:

- ADA 2250 - Drug Use: Personal and Social Impact  Credits: 3 hours
- ADA 3300 - Addiction and the Addiction Process  Credits: 3 hours
- ADA 3370 - Substance Abuse Treatment Strategies  Credits: 3 hours
- ADA 5200 - Family and Addiction  Credits: 3 hours
- ADA 5650 - Alcohol, Drug Abuse, and Violence  Credits: 3 hours
- COM 2000 - Human Communication Theory  Credits: 3 hours
- FCS 2100 - Human Sexuality  Credits: 3 hours
- FCS 2660 - Personal Nutrition  Credits: 3 hours
- FCS 3170 - Crisis and Resiliency in Families  Credits: 3 hours
- FCS 5100 - Teaching Sexuality Education  Credits: 3 hours
- GRN 1000 - Introduction to Aging Studies  Credits: 3 hours
- GRN 4000 - Public Policy and Aging  Credits: 3 hours
- HOL 4700 - Relationship-Centered Skills  Credits: 3 hours
- HOL 5350 - Holistic Approaches to Stress  Credits: 3 hours
- HOL 5550 - Successful Aging-Holistic Perspectives  Credits: 3 hours
- HOL 5560 - Understanding Grief and Loss  Credits: 3 hours
- HSV 2250 - Growth, Development, and Aging  Credits: 3 hours
- HSV 3550 - Perspectives in Women's Health  Credits: 3 hours
- HSV 3700 - The Health System and Its Environment  Credits: 3 hours
- HSV 4400 - Diversity and Inclusion in Health and Human Services  Credits: 3 hours
- HSV 4450 - Service-Learning in Community Health Care Settings  Credits: 3 hours
- HSV 4780 - U.S. Policy in Health and Human Services  Credits: 3 hours
- HSV 4860 - Health Literacy Practices  Credits: 3 hours
- PH 3300 - Special topics in Public Health  Credits: 1 to 3 hours
- PH 4300 - Independent Study in Public Health  Credits: 1 to 4 hours
PHIL 3340 - Biomedical Ethics  Credits: 4 hours
PSY 1400 - Introduction to Behavior Analysis  Credits: 4 hours
PSY 1600 - Child Psychology  Credits: 3 hours
PSY 2500 - Abnormal Psychology  Credits: 3 hours
PSY 4240 - The Psychology of Human Sexuality  Credits: 3 hours
PSY 4630 - Health Psychology  Credits: 3 hours
Additional courses with consent of PH faculty

Gerontology minor
Advising:
Room 2125, College of Health and Human Services
Telephone: (269) 387-2656

The Gerontology minor consists of an 18-credit hour course of study plus one 3-credit hour prerequisite. The minor is designed to enhance the knowledge and skills of individuals working with or studying older adults and aging processes. The minor is offered on-campus and it can also be completed entirely online.

Prerequisite:
GRN 1000 - Introduction to Aging Studies  Credits: 3 hours

Required Courses:
GRN 2000 - Health and Aging  Credits: 3 hours
GRN 3000 - Aging in all Environments  Credits: 3 hours
GRN 3500 - Issues in Aging: Service Learning in Gerontology  Credits: 3 hours
GRN 4000 - Public Policy and Aging  Credits: 3 hours

Elective courses (6 credits required):
The list of approved elective courses will be available through the Center for Gerontology but will include:
BIOS 2400 - Human Physiology  Credits: 4 hours
BIOS 5310 - Biology of Aging  Credits: 3 hours
BLS 3050 - Introduction to Adults with Disabilities  Credits: 3 hours
FCS 2170 - Diverse Children, Families, and Communities  Credits: 3 hours
FCS 3170 - Crisis and Resiliency in Families  Credits: 3 hours
FCS 4130 - Later Life Family Relationships  Credits: 3 hours
FIN 3720 - Estate Planning  Credits: 3 hours
GWS 2000 - Introduction to Gender and Women's Studies  Credits: 4 hours
HOL 1000 - Choices in Living  Credits: 3 hours
HOL 4700 - Relationship-Centered Skills  Credits: 3 hours
HOL 5300 - Special Topics in Holistic Health  Credits: 1 to 4 hours
Topic: Understanding Grief and Loss
HOL 5530 - Holistic Strategies for Illness and End of Life  Credits: 3 hours
HOL 5550 - Successful Aging-Holistic Perspectives  Credits: 3 hours
HPHE 4720 - Recreation for the Aging  Credits: 3 hours
HSV 3700 - The Health System and Its Environment  Credits: 3 hours
HSV 4100 - Legal Issues in Health and Human Services  Credits: 3 hours
HSV 4880 - Psychosocial Issues in Health and Human Services  Credits: 3 hours
OT 4540 - Special Topics in Occupational Therapy  Credits: 1 to 4 hours
OT 4700 - Functioning of the Older Adult  Credits: 3 hours
PHIL 3340 - Biomedical Ethics  Credits: 4 hours
PSY 4280 - Psychology of Aging  Credits: 3 hours
REL 3180 - Death, Dying, and Beyond  Credits: 4 hours
SPPA 2000 - Communication Disorders and Sciences  Credits: 3 hours
Integrative Holistic Health and Wellness Minor (18 hours)
Advising Office: Room 2125, College of Health and Human Services
Telephone: (269) 387-2656

Integrative Holistic Health and Wellness is based on the philosophy of working with the whole person and recognizing the contextual factors that influence health. It is a system of principles and multidisciplinary approaches that promote well-being by considering the inter-connectedness among a person's physical, psychological, social, spiritual and environmental levels of functioning.

The Integrative Holistic Health and Wellness program at Western Michigan University was established in 1982, and is one of the first academic programs of its kind in the United States. Along with offering a graduate certificate in holistic health, we offer an undergraduate minor.

The minor in Integrative Holistic Health and Wellness (IHHW) consists of an 18 credit hour course of study designed to meet the needs of students interested in learning about the theory and practice of integrative holistic health and wellness. Through a required sequence of courses students explore holistic concepts related to their individual health, including the interconnectedness of the body, mind and spirit. Concurrent with the study of how integrative holistic health and wellness practices impact the individual is the focus on how expression of these principles in our lives affect the broader community.

The minor meets the needs of two groups of undergraduate students: 1) those majoring in a related health care or human service field who wish to incorporate the principles and practices of integrative holistic health and wellness into their practice so they might become effective professionals and 2) anyone who might be interested in applying holistic theory to their profession and/or their personal life.

To declare a minor in Integrative Holistic Health and Wellness please contact advising at (269) 387-2656.

Program of Study

Prerequisite (3 credit hours)
HOL 1000 - Choices in Living Credits: 3 hours
OR
HOL 2801 - Health and Well Being Credits: 3 hours
(Honors only)

Required Courses (9 credit hours)
HOL 2000 - Choices in Global Living Credits: 3 hours
HOL 4700 - Relationship-Centered Skills Credits: 3 hours
HOL 4850 - Capstone in Holistic Health Credits: 3 hours

Elective Courses (9 hours)
Choose from courses listed below to total 9 credit hours.
HOL 2701 - Resiliency Training for Life Credits: 2 hours
HOL 3000 - Exploring Practices in Integrative Health Care Credits: 3 hours
HOL 3301 - Introduction to Meditation Credits: 1 hour
HOL 3305 - Intro to Mindfulness Skills Credits: 3 hours
HOL 3350 - Introduction to Stress Management Credits: 3 hours
HOL 3900 - Special Topics in Holistic Health Credits: 1 to 4 hours
HOL 3910 - Introduction to Spirituality Credits: 3 hours
HOL 3960 - Learning, Work, and Lifestyles: Holistic Perspectives Credits: 3 hours
HOL 5300 - Special Topics in Holistic Health Credits: 1 to 4 hours
Topic: Healing through Writing and Story Credits: 3 hours
Topic: Biofeedback Credits: 3 hours
Topic: Body-mind Nutrition Credits: 3 hours
Topic: Chi Gong Credits: 1 hour
Topic: Science and Spirit of Holistic Health Credits: 3 hours
HOL 5302 - Advanced Meditation to Enhance Living Credits: 1 hour
HOL 5303 - Tai Chi to Enhance Living  Credits: 1 hour
HOL 5304 - Yoga to Enhance Living  Credits: 1 hour
HOL 5320 - Holistic Approaches to Personal Relationships  Credits: 3 hours
HOL 5321 - Holistic Health Coaching  Credits: 3 hours
HOL 5340 - Holistic Health and Spirituality  Credits: 3 hours
HOL 5360 - Wellness Skills for Health Professionals  Credits: 3 hours
HOL 5370 - Health and Humor  Credits: 3 hours
HOL 5380 - Eastern Thought and Practice  Credits: 3 hours
HOL 5500 - Introduction to Holism and Expressive Arts  Credits: 3 hours
HOL 5510 - Holistic Approaches to Healing Through Visual Art  Credits: 3 hours
HOL 5520 - Healing through Movement  Credits: 3 hours
HOL 5530 - Holistic Strategies for Illness and End of Life  Credits: 3 hours
HOL 5540 - Love and Forgiveness  Credits: 3 hours
HOL 5550 - Successful Aging-Holistic Perspectives  Credits: 3 hours

Note: These classes may not be offered on a regular basis: HOL 3960, HOL 5300 (Healing through Writing and Story), HOL 5302, HOL 5370, HOL 5520, HOL 5550.

Independent Study and Readings
Permission of Program Coordinator
HOL 4970 - Independent Study in Holistic Health  Credits: 1 to 4 hours
HOL 5980 - Readings in Holistic Health  Credits: 1 to 4 hours

Peace Corps Health Preparatory Minor
The Peace Corps Health Preparatory Minor (PCHP) focuses on two elements, specifically:

1. Training and Experience in the Health Work Sector

Required Courses
HSV 2350 - Special Topics in Interdisciplinary Health Services  Credits: 1 to 4 hours
Topic: Global Health
HSV 3550 - Perspectives in Women's Health  Credits: 3 hours
HSV 4450 - Service-Learning in Community Health Care Settings  Credits: 3 hours

Hands-On Experience in Health Education (must total 50 hours)
This component will be satisfied through completion of HSV 4350. It will consist of a hands-on/service learning opportunity in health education, supervised by the course instructor. Possible opportunities include:

1. Community AIDS Resource and Education Services (CARES) volunteer educator
2. Sindecuse Sexual Health Peer Education Volunteer
3. Communities in Schools K-12 Health Education Volunteer Program
4. Van Buren ISD Migrant Worker Health Education Volunteer Program
5. Senior Center Health Education volunteer
6. Kalamazoo Literacy Center Health Education Volunteer

2. Intercultural Competence

Core Course
HSV 4400 - Diversity and Inclusion in Health and Human Services  Credits: 3 hours

Two Approved Electives
Electives should be planned by reviewing the requirements in the country you want to go to.

Possible Electives:
In addition to HSV 4400 please select two courses from the following list to continue to build your cultural agility. Select a course that is relevant to your planned Peace Corps service (country, culture, religion, economic circumstances, etc.) Students should consult with their advisors regarding the prerequisites required for some of the courses listed below:

**ANTH 1200** - Peoples of the World  Credits: 3 hours
**ANTH 1500** - Race, Biology, and Culture  Credits: 3 hours
**ANTH 2400** - Principles of Cultural Anthropology  Credits: 3 hours
**ANTH 2600** - Sex, Gender, Culture  Credits: 3 hours
**ANTH 2800** - Language in a Global World  Credits: 4 hours
**ANTH 3390** - Cultures of Latin America  Credits: 3 hours
**ANTH 3400** - Cultures of Asia  Credits: 3 hours
**ANTH 3410** - Global Africa Past and Present  Credits: 3 hours
**ANTH 3470** - Ethnicity/Multiculturalism  Credits: 3 hours
**ANTH 3580** - The African Diaspora: Peoples and Cultures  Credits: 3 hours
**ARAB 2750** - Life and Culture of the Arabs  Credits: 3 hours
**BUS 2200** - Introduction to Global Business  Credits: 3 hours
**CHIN 2750** - Chinese Life and Culture  Credits: 3 hours
**ENGR 3400** - Engineering Global Practices in Non-Western Countries  Credits: 3 hours
(Study abroad)
**ENGR 3700** - Engineering Global Practices in Western Countries  Credits: 3 hours
(Study abroad)
**ENGL 2110** - Folklore and Mythology  Credits: 4 hours
**ENGL 3130** - Asian Literature  Credits: 3 hours
**ENGL 3140** - African Literature  Credits: 3 hours
**ENGL 3160** - Storytellers  Credits: 3 hours
**FCS 3150** - Global Ecology of the Family  Credits: 3 hours
**FREN 2750** - Francophone Culture  Credits: 3 hours
**GEOG 1000** - World Ecological Problems and Man  Credits: 4 hours
**GEOG 1020** - World Geography through Media and Maps  Credits: 3 hours
**GEOG 2050** - Human Geography  Credits: 3 hours
**GEOG 2440** - Economic Geography  Credits: 3 hours
**GEOG 3810** - South America  Credits: 3 hours
**GEOG 3820** - Mexico and the Caribbean  Credits: 3 hours
**GEOG 3860** - Geography of Africa  Credits: 3 hours
**GEOG 3890** - Monsoon Asia  Credits: 3 hours
**GEOG 3900** - China, Japan, and Korea: Lands and Cultures  Credits: 3 hours
**GRN 1000** - Introduction to Aging Studies  Credits: 3 hours
**GWS 3200** - Women, Globalization and Social Change  Credits: 3 hours
**GWS 3400** - Race, Gender and Science  Credits: 3 hours
**HIST 3020** - World History to 1500  Credits: 3 hours
**HIST 3030** - World History since 1500  Credits: 3 hours
**HIST 3325** - History of Healthcare in the World  Credits: 3 hours
**HIST 3330** - The World since 1945  Credits: 3 hours
**HIST 3660** - Russia Yesterday and Tomorrow  Credits: 3 hours
**HIST 3760** - Modern East Asia  Credits: 3 hours
**HIST 3850** - Modern Middle East  Credits: 3 hours
**HIST 3880** - Introduction to African Civilization  Credits: 3 hours
**HOL 2000** - Choices in Global Living  Credits: 3 hours
**GIST 2000** - Introduction to Global and International Studies  Credits: 3 hours
**IPE 3050** - Study Abroad and Global Learning in Health and Human Services  Credits: 1 to 6 hours

Or alternate study abroad programs (variable credit)

**MUS 3120** - Explorations in World Music  Credits: 3 hours
**PHIL 3150** - Race and Gender Issues  Credits: 3 hours
**PSCI 2400** - Comparative Politics  Credits: 3 hours
**PSCI 2500** - International Relations  Credits: 4 hours
**PSCI 3410** - The Politics of Sub-Saharan Africa  Credits: 4 hours
**PSCI 3440** - Russian and Central Asian Politics  Credits: 4 hours
PSCI 3450 - Latin American Politics  Credits: 4 hours
PSCI 3460 - Women in Developing Countries  Credits: 4 hours
PSCI 3500 - American Foreign Policy  Credits: 4 hours
REL 1000 - Religions of the World  Credits: 4 hours
REL 2010 - Buddhism  Credits: 4 hours
REL 2020 - Religion in China  Credits: 4 hours
REL 2040 - Religion in India  Credits: 4 hours
REL 2050 - Christianity  Credits: 4 hours
REL 2060 - Islam  Credits: 4 hours
REL 2070 - Judaism  Credits: 4 hours
REL 3025 - The Qur'an  Credits: 4 hours
REL 3155 - Religion and Conflict  Credits: 4 hours
REL 3165 - Religion and Globalization  Credits: 4 hours
REL 3170 - Religion and Gender  Credits: 4 hours
REL 3180 - Death, Dying, and Beyond  Credits: 4 hours
REL 3190 - Religion and Health  Credits: 4 hours
REL 3320 - Religion and Social Ethics  Credits: 4 hours
SOC 3040 - Nonwestern World  Credits: 4 hours
SOC 3340 - East Asia and the World  Credits: 3 hours
SOC 3350 - Modern Latin American Societies  Credits: 3 hours
SWRK 3500 - Human Behavior and the Social Environment  Credits: 3 hours
SWRK 3510 - Social Work Concepts in Group, Community and Organizational Behavior  Credits: 3 hours
SWRK 4600 - Social Work with Communities  Credits: 3 hours
Occupational Therapy
Carla Chase, Interim Chair
Main Office: 3419 CHHS (Oakland Campus)
Telephone: (269) 387-7260
Fax: (269) 387-7262

Ann Chapleau
Sara Clark
Diane Dirette
Kieran Fogarty
Nancy Hock
Debra Lindstrom
Maureen Mickus
Berit Miller
Michelle Suarez
Jaclyn West-Frasier
Physical Therapy

Stacie Fruth, Chair
Main Office: CHHS (Oakland Campus)
Telephone: (269) 387-
Fax: (269) 387-

Donald Hoover
Daren Webb
Physician Assistant
Denise Bowen, Interim Chair
Main Office: 3425 CHHS (Oakland Campus)
Telephone: (269) 387-5311
Fax: (269) 387-5319

David Areaux
Amy Curtis
Susan King-Barry
Tiffany Lee
C. Dennis Simpson
Kathy Tuinhoff
Phillip Walcott
Evelyn Winfield

The Department of Physician Assistant offers a Master of Science in Medicine, an undergraduate minor and a graduate certificate program in Alcohol and Drug Abuse. Please see the Graduate Catalog for more information about the graduate programs and courses offered by the department.

While most of the department's courses are open to graduate students only, some courses are open to qualified undergraduates; see the program advisor for more information.
School of Social Work
Héctor Luis Díaz, Director
Main Office: 4425 CHHS (Oakland Campus)
Telephone: (269) 387-3171
Fax: (269) 387-3183

Advising Office: 2137 CHHS
Telephone: (269) 387-2656

Donald Cooney
Linwood Cousins
Mioara Diaconu
Roxanna Duntley-Matos
Richard Grinnell
Jennifer Harrison
James Henry
Gary Mathews
Robin McKinney
Linda Reeser
Mary Ellen Sartoris
Linda Schmidt
Dee Ann Sherwood
Marian Tripplett
Yvonne Unrau
Karen VanDeusen
Earlie Washington
Donna Weinreich
Bridget Weller

The School of Social Work offers both undergraduate and graduate professional programs leading to a B.S.W. and M.S.W., respectively. Both programs are accredited by the Council on Social Work Education. Further information about the graduate program, designed to educate students for interpersonal practice and policy, planning, and administration positions in the field of social welfare, may be found in the Graduate Catalog.

Social Work Major (122 hours)

The Undergraduate Professional Program
Bachelor of Social Work
Minimum Hours Required for Graduation: 122 hours

The undergraduate professional program is designed to prepare students for beginning generalist social work practice and to provide preparation for graduate training in social work and related professions. Emphasis is placed on a conceptual framework of systems theory, the ecological model, and a strengths-based approach to problem solving. Generalist social workers are taught to address a range of social issues, to work in a variety of practice settings, and to facilitate positive change that will enhance the social functioning of individuals, groups, families, organizations, and communities.

The BSW program utilizes the development of knowledge and skills in the areas of human behavior in the social environment, social work practice, research, social policy, diversity, ethics, and values. A personalized instructional approach is used to engage students in a learning process that promotes critical thinking and self-reflection. Commitment to educating students to work towards the creation of a more just and humane society by advocating for services and resources for oppressed, vulnerable, and other at-risk populations is a main emphasis of the program. All students must demonstrate mastery of a set of competencies and practice behaviors, as required by our accrediting body, the Council on Social Work Education.
Students enrolled in the undergraduate social work curriculum are required to complete a major consisting of 38 hours, 23 hours of support courses, and 6 hours of research, totaling 67 hours. As part of the program, students complete a 400-hour field placement in a social work practice setting.

Social Work majors can obtain specialty certificates offered by the College of Health and Human Services in conjunction with their social work degree. Students with other majors can obtain a 15-hour minor in social work. For further information about certificate programs and the social work minor, please consult with the College of Health and Human Services academic advisor.

The BSW program is offered at the Kalamazoo main campus, as well as at the Southwest Regional Site in Benton Harbor as a BSW degree completion program.

Admission Requirements
Students interested in the social work major will be admitted into the pre-social work curriculum at the time of admission to the University. This does not guarantee admission to the social work major. Students who have completed SWRK 2100: Social Work Services and Professional Roles and completed a minimum of 45 credit hours with a minimum overall grade point average of 2.5 may apply to the Undergraduate Social Work Major. General information necessary for admission includes:

- Completion of the Social Work Undergraduate Application
- Submission of all academic transcripts
- Supplemental (personal) Statement

All applications are submitted to the Director of Admissions and Student Services of the School of Social Work. Deadlines for submitting applications are, May 1 and October 1 of each year. Selection of students to be admitted to the major occurs after review of all applications by the Admissions Committee composed of social work faculty. This is a competitive admissions process with a specific number of students admitted each year. Specific criteria for selection of candidates are based upon:

- Competitive overall grade point average
- Work and life experiences in the field of social work
- Participation in community services, leadership activities, and volunteer experience
- Written communication skills, personal qualifications, and basic knowledge of the profession as evidenced in the supplemental statement

Field Education
The field practicum provides students with opportunities to learn and apply generalist knowledge and beginning level skills in working with individuals, families, groups, organizations, and communities. Students in the social work major complete two consecutive semesters of field education (SWRK 4100/4110) in a human service agency. Field education and the courses taken concurrently, SWRK 4010, 4020, and 4600 are open only to students formally admitted to the B.S.W. program.

Placement is made through the School of Social Work, following the application and interview process established and conducted by the Director of Field Education. The timing of each student's field education internship is determined upon admission to the major during the program planning process. Students complete a field placement application at least one semester prior to the scheduled start of field education. The application is due according to the time frame established for each field cohort by the Director of Field Education. Failure to complete the application process according to the established deadline may result in delaying the start of field education.

Field education consists of required components in field work and classroom study: on-campus field seminars and associated assignments, and 400 hours of work at the agency where the student is placed. Each student works with a field instructor at the agency and a faculty liaison at the University. During the field hours at the agency, students work with a professional, their field instructor, to develop social work skills and gain hands-on experiences. The Council on Social Work Education guidelines require a minimum of 200 hours per semester at the agency. Field education is graded on the standard University grading system.

Social Work Curriculum Requirements
General Education Requirements (37 hours)

Requirements for the Social Work Major (38 hours)
SWRK 2100 - Social Work Services and Professional Roles Credits: 3 hours
SWRK 3000 - Social Welfare as a Social Institution Credits: 3 hours
SWRK 3200 - Social Work Interviewing and Assessment Credits: 3 hours
SWRK 3330 - Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice Credits: 3 hours
SWRK 3500 - Human Behavior and the Social Environment Credits: 3 hours
SWRK 3510 - Social Work Concepts in Group, Community and Organizational Behavior Credits: 3 hours
SWRK 4000 - Social Work Practice with Individuals and Families Credits: 3 hours
SWRK 4010 - The Problem Solving Process with Task Groups and Organizations Credits: 3 hours
SWRK 4020 - Social Welfare Policy Credits: 3 hours
SWRK 4100 - BSW Field Education I Credits: 4 hours
SWRK 4110 - BSW Field Education II Credits: 4 hours
SWRK 4600 - Social Work with Communities Credits: 3 hours

Required Research Component (6 hours)
Any undergraduate STAT course Credits: 3 hours
SWRK 3650 - Social Work Research Methods Credits: 3 hours

Required Support Courses (23 hours)
Includes:
COM 1040 - Public Speaking Credits: 3 hours
ECON 2010 - Principles of Microeconomics Credits: 3 hours
OT 2000 - Human Functional Anatomy Credits: 3 hours
PSCI 2000 - National Government Credits: 3 hours
PSY 1000 - General Psychology Credits: 3 hours
SOC 2000 - Principles of Sociology Credits: 3 hours
HSV 4780 - U.S. Policy in Health and Human Services Credits: 3 hours
HSV 3650 - Information Literacy in the Health Sciences Credits: 2 hours

Electives (20 to 26 hours)
Students are encouraged to elect additional courses in any area of their specific interest. Particularly recommended in preparation for social work practice are: anthropology, communications, economics, history, philosophy, political science, psychology, sociology, Spanish, or gender and women's studies. The following social work courses are also available as electives for undergraduate students.

SWRK 4130 - Social Policy and Service Delivery in Selected Problem Areas Credits: 3 hours
SWRK 4650 - Special Studies in Social Welfare Practice Credits: 3 hours
SWRK 5970 - Teaching Apprenticeship in Selected Social Work Curriculum Areas Credits: 1 to 4 hours
SWRK 5980 - Readings in Social Work Credits: 1 to 4 hours

Grade Requirements
Any student who fails to meet the following criteria will be notified in writing by the School of Social Work undergraduate advisor that he/she is in jeopardy of being terminated from the social work major:
1. A student must receive a “C” or higher in each required social work course to remain in the major. A student may repeat one required social work course to raise his/her grade.
2. The student must maintain an overall average of 2.0 in the required support courses. Transfer students should be aware that courses transferring into the minor are accepted with no grade (so an “A” at a two-year college can't be used to balance a lower grade in a course at WMU).

The School may refuse to permit a student to continue in the curriculum if at any time it is deemed that the student is exhibiting a pattern of professionally incompetent or inappropriate behavior as determined by the standards of the National Association of Social Work Code of Ethics. Further details on this policy and procedure may be obtained from the School of Social Work Director of Admissions and Student Services.
Social Work Minor (15 hours)

Requirements
SWRK 2100 - Social Work Services and Professional Roles Credits: 3 hours
SWRK 3000 - Social Welfare as a Social Institution Credits: 3 hours

Plus three of the following social work courses:
SWRK 3200 - Social Work Interviewing and Assessment Credits: 3 hours
SWRK 3330 - Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice Credits: 3 hours
SWRK 3500 - Human Behavior and the Social Environment Credits: 3 hours
SWRK 4200 – Ethical Issues in Substance Abuse Services Credits: 3 hours
Any 5000-level social work course.
Speech, Language and Hearing Sciences
Ann Tyler, Interim Chair
Main Office: 4477 CHHS (Oakland Campus)
Telephone: (269) 387-8045
Fax: (269) 387-8044

Judith Seymour, Administrative Assistant II
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Jan Bedrosian
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Teresa Crumpton
Suma Devanga
Heidi Douglas-Vogley
Sandra Glista
James M. Hillenbrand
Kathryn Hillenbrand
Yvette Hyter
Bharti Katbamna
Mary Peterson
Linda Shuster
Stephen Tasko

Speech Pathology and Audiology Undergraduate Pre-Professional Program
Communication is the most complex aspect of human behavior. Impairments in the processes of communication — speech, language, and hearing — can significantly affect the lives of children and adults across the age span. Speech-language pathology and audiology are the areas of professional specialization that have developed out of concern for individuals with disorders of communication.

The mission of the Department of Speech, Language, and Hearing Sciences is to educate speech, language, and hearing professionals for a diverse and changing population, to advance knowledge through research, to deliver quality clinical services, and to serve as a resource for the community and professions. It is the vision of the department to continue recognition as a national leader for advancing knowledge in human hearing and communication processes and disorders through education, research, and service.

The undergraduate major in Speech Pathology and Audiology is a pre-professional curriculum designed to prepare students for graduate professional education in speech-language pathology, audiology, or related disciplines. Students must earn a graduate degree to be employed as an audiologist (AuD) or speech-language pathologist (MA or MS). Students entering the professions of speech-language pathology or audiology must adhere to a code of conduct and professional standards. National data suggest that admission to a graduate program typically requires a grade point average higher than the minimum for the undergraduate major, as well as a similar grade point average in the cumulative undergraduate GPA. Information about the professions and current admission statistics can be obtained from the American Speech Language Hearing Association: www.asha.org or www.asha.org/edfind, and the Academy of Audiology: www.audiology.org.

Admission
Students who wish to major in speech pathology and audiology will declare the pre-speech (PRSA) major at the time of admission to the University. Declaring the pre-speech major does not guarantee admission to the speech pathology and audiology major, as admission is competitive and the strongest applicants are admitted to the major. Information necessary for admission includes the following documents:

- Speech Pathology and Audiology Undergraduate Application
- All academic transcripts
All applications are submitted to the undergraduate advisor of the Department of Speech, Language, and Hearing Sciences. The deadline for submitting applications is February 1 of each year. Selection of students to be admitted to the major occurs after review of all applications by the Department Admissions Committee. This admission process is competitive, and students with the strongest academic record are admitted each year. Selection of candidates is based on the following criteria:

- Minimum cumulative grade point average of 3.0 for all coursework after high school
- Grade in an introductory course in communication disorders, and grades in required non-departmental coursework (college-level writing course, college-level biology/anatomy course, college-level general physics course, required math course, college-level statistics course)
- Participation in observation and volunteer experiences

Students must be advised by the College of Health and Human Services undergraduate department advisor prior to application. For an advising appointment call (269) 387-2656.

**Transfer Students**

It is recommended that transfer students enroll at Western at the beginning of the first semester of the sophomore year. Those applicants who enroll at a later stage may find that an additional period of study will be required to complete the undergraduate curriculum.

**Speech Pathology and Audiology Major**

A major in speech pathology and audiology consists of a minimum of 39 hours in speech pathology and audiology (SPPA) courses, a minimum of 27 credits of required non-departmental courses and an academic minor.

**Required Non-Departmental Courses**

The minimum requirements below specify college-level coursework (i.e., not AP or CLEP credit)

**Social/Behavioral Sciences minimum requirement**

PSY 1000 - General Psychology Credits: 3 hours and at least one additional course in social/behavioral sciences: psychology, sociology, anthropology or public health (Credits: 3 hours minimum)

**Biological Sciences minimum requirement**

BIOS 1120 - Principles of Biology Credits: 3 hours

OR

BIOS 1600 - Biological Form and Function Credits: 3 hours

BIOS 2110 - Human Anatomy Credits: 4 hours (is strongly recommended)

**Physical Sciences minimum requirement**

PHYS 1070 - Elementary Physics Credits: 4 hours

and

PHYS 1080 - Elementary Physics Laboratory Credits: 1 hour

OR

PHYS 1130 - General Physics I Credits: 4 hours

and

PHYS 1140 - General Physics I Laboratory Credits: 1 hour

**Math minimum requirement**

MATH 1160 - Finite Mathematics with Applications Credits: 3 hours

**Statistics minimum requirement**

STAT 1600 - Statistics and Data Analysis Credits: 3 hours

OR

STAT 3660 - Data Analysis for Biosciences Credits: 4 hours
Language minimum requirement
LANG 2500 - The Nature of Language  Credits: 4 hours

Education/Special Education/Literacy Studies minimum requirement
at least one course in education, special education and/or literacy  Credits: 3 hours

Required Departmental Courses (minimum 39 hours)
SPPA 2000 - Communication Disorders and Sciences  Credits: 3 hours
SPPA 2030 - Normal Language Acquisition  Credits: 3 hours
SPPA 2040 - Phonetics  Credits: 3 hours
SPPA 2041 - Phonetics Laboratory  Credits: 1 hour
SPPA 2050 - Speech Anatomy and Physiology  Credits: 3 hours
SPPA 2051 - Speech Anatomy and Physiology Lab  Credits: 1 hour
SPPA 2060 - Hearing Science  Credits: 3 hours
SPPA 2070 - Clinical Laboratory  Credits: 3 hours
SPPA 2080 - Introduction to Audiology  Credits: 3 hours
SPPA 3510 - Phonemic Disorders  Credits: 2 hours
SPPA 3540 - Language Disorders in Children  Credits: 3 hours
SPPA 4000 - Practicum in Speech Pathology and Audiology I  Credits: 2 hours
(25 hours of observation must be completed)
SPPA 4560 - Rehabilitative Audiology  Credits: 3 hours
SPPA 4590 - Special Studies in Communication Disorders  Credits: 3 hours
SPPA 5010 - Principles of Speech Science  Credits: 3 hours

Elective options
SPPA 5530 - Stuttering and Other Fluency Disorders  Credits: 2 hours
SPPA 5801 - Pediatric Audiology  Credits: 3 hours
IPE 3050 - Study Abroad and Global Learning in Health and Human Services  Credits: 1 to 6 hours

Baccalaureate-Level Writing Requirement
Students who have chosen the Speech Pathology and Audiology major will satisfy the Baccalaureate-Level Writing requirement by successfully completing:
SPPA 4590 - Special Studies in Communication Disorders  Credits: 3 hours

Examples of Academic Minors
Anthropology
Biological Sciences
Communications
Gerontology
Global and International Studies
Integrative Holistic Health and Wellness
Psychology
Spanish

Continuance Policies for the undergraduate major in Speech Pathology and Audiology

1. A student must maintain a cumulative grade point average of 2.8 in the University to remain in the Speech Pathology and Audiology undergraduate program. If a student's cumulative GPA falls below 2.8, the student will be placed on Departmental Probation and will have one semester to raise the cumulative GPA to at least 2.8.

If after a semester of Departmental Probation, a student restores the cumulative GPA to at least 2.8, the student will continue to progress in the undergraduate major. The student will be dismissed from the undergraduate program if, after a semester of Departmental Probation, the student fails to achieve at least a 2.8 cumulative GPA.

2. Students in the major must receive a grade of "C" or higher in each required Speech Pathology and Audiology course. Students in the major may repeat one required Speech Pathology and Audiology course one time to raise a
grade; no more than two registrations for the same SPPA course will be permitted. The student will be dismissed from the undergraduate program in Speech Pathology and Audiology if a grade lower than "C" is earned upon repeating the course.

3. A student must maintain professional behavior as determined by the Code of Ethics of the American Speech-Language Hearing Association (www.asha.org/Code-of-Ethics) and the WMU Student Conduct Code (www.wmich.edu/conduct/code). Violations of these standards shall be cause for sanctions including dismissal from the program.

A student who fails to meet any of the above criteria will be notified that they have not met the continuance policy conditions, in writing, by the Speech Pathology and Audiology undergraduate program coordinator.

Honors in Speech Pathology and Audiology

Students admitted to the undergraduate major who are members of the Lee Honors College and/or who meet the academic requirements listed below are eligible to join the Departmental Honors Program for undergraduate majors in the Department of Speech, Language, and Hearing Sciences. The academic requirements include 1) completion of a minimum of 40 semester hours, and 2) a minimum university GPA of 3.5. Further information and specific requirements of the departmental honors program are available through the departmental undergraduate advisor.

Licensure and Certification

Completion of the curricular requirements, together with the completion of a master's degree program in speech pathology or doctoral program in audiology, typically satisfies all academic and practicum requirements of the American Speech-Language-Hearing Association for a Certificate of Clinical Competence in the emphasis area (speech-language pathology or audiology). In addition, as individuals, states regulate the practice of speech-language pathology and audiology, students must consult with the state's regulatory boards and department of education for licensure requirements.

American Sign Language Studies Minor

The Department of Speech, Language and Hearing Sciences offers an academic minor in "American Sign Language Studies" which may be of particular interest to students majoring in areas such as communication arts and sciences, business, education, linguistics, music therapy, vocal music, occupational therapy, interdisciplinary health services, nursing, psychology, social work, and others. Pre-professional studies in such curricula as pre-dentistry and pre-medicine can also be augmented meaningfully through inclusion of studies in American Sign Language.

The minor in American Sign Language Studies requires a minimum of 18 hours. Students will learn communication competency in a visual language and gain a better understanding of the Deaf and Hard of Hearing culture. This minor builds a solid foundation of ASL language and skills but does not lead to interpreter or Deaf Education certification.

Students are required to take the following courses: SIGN 1010, 1020, 2010, 2020 and 2030. In addition, students must select a 3-hour elective from the listed options to complement the student's educational and vocational goals. Credit for one course, SIGN 1010, may be transferred if the course is approved for equivalency by Western Michigan University and a grade of "C" or higher is received. Students should check with the ASL program coordinator if they have questions about transfer equivalents for SIGN 1010. All remaining course work must be completed at Western Michigan University with a grade of "C" or better.

Required Courses
SIGN 1010 - American Sign Language I Credits: 3 hours
SIGN 1020 - American Sign Language II Credits: 3 hours
SIGN 2010 - American Sign Language III Credits: 3 hours
SIGN 2020 - American Sign Language IV Credits: 3 hours
SIGN 2030 - Deaf Culture and History Credits: 3 hours

Electives
SPPA 2000 - Communication Disorders and Sciences Credits: 3 hours
BLS 3050 - Introduction to Adults with Disabilities Credits: 3 hours
Speech-Language-Hearing Processes Minor

The Department of Speech, Language, and Hearing Sciences offers an academic minor (minimum of 15 credit hours) in speech, language and hearing processes which may be of particular interest to students majoring in areas such as biology, chemistry, communication arts and sciences, engineering, linguistics, music therapy, vocal music, occupational therapy, nursing, psychology, social work, and others. Pre-professional studies in such curricula as pre-dentistry and pre-medicine also can be augmented meaningfully through inclusion of studies in human communication science and disorders, with particular reference to the study of anatomic, physiologic, neurologic, psycho-social and physical bases of speech, language and hearing.

In consultation with a departmental advisor, students may design minor options which emphasize speech-language-hearing science, communication disorders, or other individually-tailored areas complementary to the student's educational and vocational goals. Ten hours of observation of speech, language and hearing therapy in the Charles Van Riper Language, Speech and Hearing Clinic are required, to provide exposure to the clinical aspects of the fields of speech-language pathology and audiology. Suggested examples of SPPA course sequences follow:

Speech-Language-Hearing Processes
SPPA 2030 - Normal Language Acquisition Credits: 3 hours
SPPA 2040 - Phonetics Credits: 3 hours
SPPA 2041 - Phonetics Laboratory Credits: 1 hour
SPPA 2050 - Speech Anatomy and Physiology Credits: 3 hours
SPPA 2051 - Speech Anatomy and Physiology Lab Credits: 1 hour
SPPA 2060 - Hearing Science Credits: 3 hours
SPPA 5010 - Principles of Speech Science Credits: 3 hours

Human Communication Disorders
SPPA 2030 - Normal Language Acquisition Credits: 3 hours
SPPA 2040 - Phonetics Credits: 3 hours
SPPA 2041 - Phonetics Laboratory Credits: 1 hour
SPPA 2080 - Introduction to Audiology Credits: 3 hours
SPPA 3510 - Phonemic Disorders Credits: 2 hours
SPPA 4590 - Special Studies in Communication Disorders Credits: 3 hours
SPPA 5530 - Stuttering and Other Fluency Disorders Credits: 2 hours

Additional Information
For additional information about a minor in Speech-Language-Hearing Processes, or for an advising appointment, contact an advisor in the College of Health and Human Services. Because most departmental offerings are sequential and offered once per year, advising is critical for students interested in pursuing this minor Speech-Language-Hearing Processes.
Interdisciplinary Programs

Alcohol and Drug Abuse
Advising:
Room 2125, College of Health and Human Services
Telephone: (269) 387-2656

Western Michigan University's Addiction Studies provides professional education for all those who are interested in the addictions field. Multidisciplinary in nature, Addiction Studies provides a balanced orientation to theory and practice, considers a breadth of contemporary issues, and emphasizes a variety of methods for dealing with the problems of addictions.

Minor in Addiction Studies (18 hours)

The Minor in Addiction Studies is meant to supplement formal training in other fields such as education, psychology, sociology, social work, occupational therapy, and others. The Minor is offered on-campus and it can also be completed entirely online.

Program Requirements
ADA 2250 - Drug Use: Personal and Social Impact Credits: 3 hours
OR
ADA 3300 – Addiction and the Addiction Process Credits: 3 hours
ADA 3360 – Clinical Approaches to Substance Use Disorders Credits: 3 hours
ADA 3370 – Substance Abuse Treatment Strategies Credits: 3 hours
ADA 3380 – Addiction Assessment, Recovery, and Illness Management Credits: 3 hours
CECP 4840 – Community Diversity in Substance Abuse Services Credits: 3 hours
SWRK 4230 – Ethics in Substance Abuse Treatment Credits: 3 hours

Health Informatics and Information Management (HIHJ)

Health Informatics and Information Management (HiIM) major is a cross-disciplinary academic program that integrates courses from multiple colleges at Western Michigan University (WMU). It is a major that is developed to prepare students from multiple colleges to meet the rising need in health information management and technology professions. This major is to be administered at the university level and it can be hosted by any college at WMU. At present, HiIM major is offered by two colleges (i.e., College of Health and Human Services and Haworth College of Business). The HiIM major curriculum will be continuously improved and governed by faculty representatives from all hosting colleges. The HiIM major curriculum is composed of three components: 1) The pre-HiIM required courses, 2) The HiIM major core courses, and 3) The elected specialty courses from the hosting college at which the HiIM major receives his/her baccalaureate degree. Altogether, a HiIM major will be required to complete a minimum of 51 or a maximum of 55 credit hours of coursework, depending on the actual courses taken by the student.

To ensure that students are able to complete the baccalaureate degree with sufficient knowledge and skill timely (i.e., within four years for a student admitted to WMU as a freshman), each HiIM major will follow the advice to take courses based on each college proposed four-year curriculum model. With no unforeseen delay or exceptional causes, each HiIM major shall complete his/her baccalaureate degree by taking no more than 122 credit hours at WMU.

A HiIM major will receive his/her baccalaureate degree from the hosting college in which he/she is admitted as a WMU student. Students who complete HiIM major from the Haworth College of Business (HIBJ) will receive a Bachelor of Business Administration (B.B.A.) degree, whereas HiIM majors graduating from the College of Health and Human Services (HIHJ) will receive a Bachelor of Science (B.S.) degree.

Admission Requirements
Only the Office of Admissions and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained from that office or the University’s website at www.wmich.edu.

The Health Informatics and Information Management (HiIM) major is meant to be a niche undergraduate program that provides quality education and high career placement when students complete their degree at WMU. Because the resources required for this major are integrated across colleges and are limited, there is an application process for students seeking admission to the HiIM program. Admission criteria will be determined by a committee that is composed of HiIM faculty advisors from each hosting college.

Applicants will be evaluated for admission at least twice (i.e., fall and spring semesters) based on each applicant’s academic performance. Acceptance will only be confirmed when the student completes the application process and is accepted into the HiIM program. Students who either do not complete the application process or who are not accepted into the program will be removed from any classes that are restricted to HiIM majors. Students accepted into the HiIM program will be designated at a HiIM major (i.e., HIBJ at Haworth College of Business and HIHJ at College of Health and Human Services) to facilitate registration for courses.

To seek admission to the HiIM program in fall semester, student applications must be completed by May 1 and students will be notified of their status no later than June 1. For spring semester admission, students must complete the application process by September 1 and will be notified of their status no later than October 1. Students must begin the application process in the Office of Student Advising and Admissions housed within each hosting college. Any HiIM major applicant must be an eligible WMU student who has been admitted to the hosting college and has completed all pre-HiIM course requirements, and has a minimum GPA of 2.75.

Due to limited program capacity, all applicants are evaluated on a competitive basis in terms of academic performance. In addition, the following materials and criteria may be reviewed and applied:

- Resume
- Statement of Purpose
- HiIM Advisor Interview
- Overall GPA

Acceptance standards are dynamically adjusted based on the available program capacity. Applicants that miss the application deadline will be considered in the next application cycle.

**Baccalaureate Writing**

College of Health and Human Services:
Students completing the HiIM degree through the College of Health and Human Services will meet the baccalaureate writing (proficiency 2) by taking one of the following courses:

- BCM 3700 - Integrated Communication in Business Credits: 3 hours
- HSV 4780 - U.S. Policy in Health and Human Services Credits: 3 hours

Haworth College of Business:
Students completing the HiIM degree through the Haworth College of Business will meet the baccalaureate writing (proficiency 2) through the following course:

- BCM 3700 - Integrated Communication in Business Credits: 3 hours

**Program Requirements:**

Pre-HiIM Core Courses (12 courses - 32-36 Credits)
The following courses or their equivalents must be completed by each applicant for a HiIM major at the College of Health and Human Services. Each course shall be completed with a grade of "C" or above.
CIS 1020 - Introduction to Business Computing  Credits: 3 hours
Or
CIS 1100 - Business Computing  Credits: 1 hour
MDSC 2010 - Medical Terminology  Credits: 1 hour
BIOS 1120 - Principles of Biology  Credits: 3 hours
BIOS 2400 - Human Physiology  Credits: 4 hours
ACTY 2100 - Principles of Accounting I  Credits: 3 hours
BUS 1750 - Business Enterprise  Credits: 3 hours
ECON 2010 - Principles of Microeconomics  Credits: 3 hours
ECON 2020 - Principles of Macroeconomics  Credits: 3 hours
MGMT 2500 - Organizational Behavior  Credits: 3 hours
NUR 1040 - Introduction to the Health Disciplines and Inter-professional Practice  Credits: 2 hours

Human Anatomy
Select one of the following:
BIOS 2110 - Human Anatomy  Credits: 4 hours
OT 2000 - Human Functional Anatomy  Credits: 3 hours

Statistics
Select one of the following:
STAT 2160 - Business Statistics  Credits: 3 hours
STAT 2600 - Data Analysis Using R  Credits: 4 hours
STAT 3660 - Data Analysis for Biosciences  Credits: 4 hours

HiIM Core Courses (8 courses - 24 or 25 credits)
All of the following courses must be completed by an admitted HiIM major at Western Michigan University with a grade of “C” or above.

Health Info Systems and Management
Select one of the following cross-listed courses:
NUR 2350 - Special Topics in Nursing  Credits: 1 to 4 hours  (Credits: 3 hours needed)
HSV 2350 - Special Topics in Interdisciplinary Health Services  Credits: 1 to 4 hours  (Credits: 3 hours needed)
CIS 2700 - Business-Driven Information Technology  Credits: 3 hours  (customized content)

Health Care Ethics
Select one of the following:
NUR 3220 - Health Care Ethics  Credits: 3 hours
PHIL 2010 - Introduction to Ethics  Credits: 4 hours
PHIL 3340 - Biomedical Ethics  Credits: 4 hours
And
NUR 3330 - Health Informatics  Credits: 3 hours
CIS 3600 - Systems Analysis and Design  Credits: 3 hours
CIS 3660 - Information Assurance and Compliance  Credits: 3 hours
CIS 4600 - Business Database Applications  Credits: 3 hours
HSV 4800 - Health Services Practice Management  Credits: 3 hours

HiIM Capstone Project
Select one of the following cross-listed courses:
NUR 4300 - Special Topics in Nursing  Credits: 1 to 6 hours  (Credits: 3 hours needed)
HSV 4350 - Special Topics in Health and Human Services  Credits: 1 to 4 hours  (Credits: 3 hours needed)
CIS 4990 - Enterprise Project Credits: 3 hours

College Elective Specialty Courses (a minimum of 9 credits)
Each course in the specialty track must be completed with a grade of “C” or above.
Haworth College of Business
Each HiiM major from Haworth College of Business must elect one of the following specialty tracks to complete his/her HiiM major, and take a minimum of nine (9) hours of coursework from the elected specialty track.

A. Data Analysis (DAN)
Elect three courses from the following list:
CIS 2640 - Business Analytics I  Credits: 3 hours
CIS 3620 - Practical Project Management  Credits: 3 hours
CIS 3640 - Business Analytics II  Credits: 3 hours
CIS 4640 - Business Data Mining  Credits: 3 hours

B. Health Information Networking (HIN)
Elect three courses from the following list:
CIS 2660 - Networking and Data Communications  Credits: 3 hours
CIS 5550 - Topics in Computer Information Systems  Credits: 3 hours
   Topics for CIS 5550:
   Advanced Networking  Credits: 3 hours
   Network Security  Credits: 3 hours
   Health Information Networking  Credits: 3 hours

C. Management (MGMT)
Take all three courses from the following list:
MGMT 2520 - Human Resource Management  Credits: 3 hours
MGMT 3010 - Project Management  Credits: 3 hours
MGMT 4540 - Employment Relations  Credits: 3 hours

College of Health and Human Services
Each HiiM major from College of Health and Human Services must take a minimum of nine (9) hours of coursework from the specialty track.

A. Health Services (HSV)
Elect three courses from the following list:
HSV 4150 - Administrative Functions in the Health Care Setting  Credits: 3 hours
HSV 4860 - Health Literacy Practices  Credits: 3 hours
HSV 4890 - Health and Human Services Independent Research  Credits: 3 hours

Health Informatics and Information Management minor
Health Informatics and Information Management (HiiM) minor is designed for all WMU undergraduate students who have been accepted by any college at Western Michigan University with any academic major other than the HiiM major. To ensure the academic success, each applicant for a HiiM minor must have completed two necessary and basic pre-HiiM courses with a minimum individual grade of “C” with an average grade performance of 2.75 at WMU. In addition, each accepted HiiM minor must take two required HiiM core courses and two elective HiiM courses. Altogether, a HiiM minor is required to take 16 credit hours of coursework.

Due to enrollment capacity limited by existing faculty resources a controlled access policy will be applied to all HiiM core courses. That is, for any HiiM core course, if offered, seats will first be reserved for students with a HiiM major. If extra seats remain after a defined enrollment deadline for the HiiM major, then those seats will be made available to students with a HiiM minor, then to any other legitimate students.

Admission Requirements:
The Health Informatics and Information Management (HiiM) minor is designed for any WMU student to complement his/her academic major(s) at Western Michigan University. Due to the enrollment capacity constraints and the assurance of academic success for HiiM minors to complete the required coursework in HiiM curriculum, students who are interested in pursuing a HiiM minor must apply for acceptance after they have completed the pre-HiiM requirements with acceptable performance.

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To seek acceptance to the HiiM minor in fall semester, students must complete the application process by May 1 and students will be notified of their status no later than June 1. For spring semester admission, students must complete the application process by September 1 and will be notified of their status no later than October 1.

Students must submit the application to the HiiM program director with a verified document from his/her college that indicated 1) the applicant has completed at least 48 credit hours or equivalent coursework, including the two pre-HiiM courses, at Western Michigan University, and 2) each pre-HiiM course has a minimum of “C” grade. Any HiiM minor applicant must be an eligible WMU student who has been admitted to a college at WM with a minimum GPA of 2.75. Acceptance standards are dynamically adjusted based on the available program capacity. Applicants who missed the application deadline will be considered in the next application cycle.

Program Requirements:

Pre-HiiM Core Courses
Each HiiM minor applicant must complete the following two courses before applying for acceptance to the HiiM program as a HiiM minor. Each course shall be completed with a grade of “C” or above.

MDSC 2010 - Medical Terminology   Credits: 1 hour
OT 2000 - Human Functional Anatomy   Credits: 3 hours

Required HiiM courses
Each HiiM minor must take the following:

Health Info Systems and Management – Select one of the following cross-listed courses:
NUR 2350 - Special Topics in Nursing   Credits: 1 to 4 hours   (Credits: 3 hours needed)
HSV 2350 - Special Topics in Interdisciplinary Health Services   Credits: 1 to 4 hours   (Credits: 3 hours needed)
CIS 2700 - Business-Driven Information Technology   Credits: 3 hours (customized content)

And
NUR 3330 - Health Informatics   Credits: 3 hours

Elective HiiM Core Courses
Each HiiM minor must elect two (2) courses from the following:

NUR 3220 - Health Care Ethics   Credits: 3 hours
Students may only receive credit for one Health Care Ethics course: NUR 3200, PHIL 2010, or PHIL 3340.
PHIL 2010 - Introduction to Ethics   Credits: 4 hours
Students may only receive credit for one Health Care Ethics course: NUR 3200, PHIL 2010, or PHIL 3340.
PHIL 3340 - Biomedical Ethics   Credits: 4 hours
Students may only receive credit for one Health Care Ethics course: NUR 3200, PHIL 2010, or PHIL 3340.
CIS 3600 - Systems Analysis and Design   Credits: 3 hours
CIS 3660 - Information Assurance and Compliance   Credits: 3 hours
CIS 4600 - Business Database Applications   Credits: 3 hours
HSV 4800 - Health Services Practice Management   Credits: 3 hours
The Carl and Winifred Lee Honors College

Gary H. Bischof
Dean

Jane Baas
Associate Dean

The mission of the Carl and Winifred Lee Honors College is to offer an exceptional undergraduate experience for high achieving students, to inspire in our graduates a thirst for the lifelong pursuit of creative inquiry and discovery, to provide our students with the skill and passion to address critical challenges, and to foster personal responsibility informed by a global perspective.

Lee Honors College students pursue majors and minors in all seven of the WMU academic colleges, and engage in honors courses, internships, research and creative endeavors, community work and social activities. The Lee Honors College promotes critical thinking and active learning through small enrollment honors courses taught by expert faculty.

Honors students are encouraged to engage in study abroad, independent study, internships or field experiences, as well as original research and creative activities. The Study in the States program allows honors students to travel with their peers and exceptional instructors to complete honors study outside of Michigan while earning academic credit. Competitive scholarships available only to honors students provide financial assistance for them to pursue study abroad, research and creative activities, and to travel to present scholarly work at national or international venues.

Honors students are encouraged to participate in honors-college sponsored lectures, events and trips. These include the weekly Lyceum Lecture series and Mix It Up - an evening series of professional workshops and social events. Honors students may also choose to live in our honors residence communities.

The Lee Honors College actively supports students through the Peer Student Success Team, a group of upper-level honors students who serve as academic and social mentors for incoming first year honors students. The honors college serves as the campus office for the WMU chapter of the national freshman honorary Alpha Lambda Delta and the Honor Society of Phi Kappa Phi for upper classmen. These organizations sponsor academic, social and volunteer opportunities throughout the academic year, both across campus and in the larger Kalamazoo community. The Lee Honors College is a member of the National Collegiate Honors Council, Honors Education at Research Universities and the Mid-East Honors Association.

Admission to the Lee Honors College

The Carl and Winifred Lee Honors College admits students as incoming first year students, institutional transfer students and current WMU students. Incoming first year students are invited to join the college based on high school grade point averages and American College Test (ACT) or Scholastic Aptitude Test (SAT) scores. Transfer students and current WMU students are invited to the college based on college or university grade point averages. Students may also apply for admission to the honors college. Detailed admission information is available on the Lee Honors College website: wmich.edu/honors/admission.

Requirements for Graduation from the Lee Honors College

To successfully graduate from the Lee Honors College, each student must meet the following requirements:

1. Maintain a minimum cumulative G.P.A. of 3.50.
2. Successfully complete a prescribed number of honors approved semester credit hours as detailed in the letter of acceptance to the honors college.
3. Earn a minimum grade of "C" in courses counted toward the honors credit requirement.
4. Complete and defend a faculty-mentored and evaluated honors thesis or approved equivalent.
5. Complete a minimum of twenty hours of approved community service per year.
6. Attend a minimum of four honors college sponsored events during the first year and two during the second year. Transfer students must attend two honors college sponsored events during their first year in the honors college.
7. Complete one credit of HNRS 4980 and one credit of HNRS 4990 or approved equivalent courses or experiences.
8. Complete specific requirements for graduation outlined in the honors college student handbook in effect at the time of initial admission to the honors college as well as in the letter of acceptance to the honors college.

The Academic Program of Study

The Lee Honors College partners with each of the academic colleges to provide a well-rounded curriculum. Honors students choose one or more major(s) and minor(s), and honors classes and programs serve to complement and enrich the undergraduate experience. Students joining the honors college in their first year are required to complete a minimum of 18 credit hours of honors-approved coursework. Students joining the college after their first year have their honors credit hour requirement prorated based on total hours earned at the time they join the college. A wide variety of honors courses and seminars are offered each semester, many of which may be used to fulfill general education or other curriculum requirements. Honors students may also be eligible to receive honors credit for approved independent study, study abroad and field experiences, study of a foreign language, varsity sports or specified courses in fine arts. Available honors courses change each semester, and are described in the Lee Honors College course catalog, which is available online. Honors courses are typically taught in small seminar formats to foster discussion and dialogue among professors and fellow students. These courses are intended to encourage dynamic interchanges of viewpoints and ideas and emphasize experiential learning, teamwork and communication skills, rather than rote memorization of facts. For the current honors course catalog please see: wmich.edu/honors/advising/courses.

Students must complete 1 credit of HNRS 4980: How and Why to Write an Undergraduate Thesis at least one year in advance of their expected date of graduation. The culmination or capstone of the honors experience is HNRS 4990: Honors Thesis. Students must complete one credit of HNRS 4990 or an approved equivalent course or experience. The honors thesis is an original work of scholarship or a creative activity, appropriate to a student's field of study and career interests. The thesis should reflect the academic standards of the field of study, and must be guided and approved by a full-time WMU faculty mentor who serves as the honors thesis committee chair, and at least one additional committee member with significant expertise in the area of study or a closely related discipline. Examples of honors theses include senior engineering design projects, creative works of fiction, original documentaries, novel educational curricula, original performances or works of art and traditional research papers. The thesis project is expected to serve as a valuable component of a student's portfolio for employment or admission to graduate and professional schools.

Honors courses are indicated as such on student transcripts. Graduation from the Lee Honors College is also noted on WMU transcripts and diplomas, as well as in the University Commencement Program.

For further information on specific aspects of the Lee Honors College, please visit the honors college website at: wmich.edu/honors or contact the college via phone: (269) 387-3230.
Extended University Programs
Dr. Dawn Gaymer
Associate Provost

Dr. Edwin Martini
Associate Dean

Mr. Andrew J. Holmes
Executive Director of Technology

Main Office: 3rd floor Ellsworth Hall
Telephone: (269) 387-4200
Fax: (269) 387-4204
URL: wmich.edu/extended

Extended University Programs (EUP) extends Western Michigan University's educational resources throughout Michigan and beyond by partnering with academic departments to deliver undergraduate and graduate degrees, certificate programs and non-credit conferences and workshops. These programs are delivered in a time, place, and format that address the needs of the adult learner. EUP is comprised of regional locations in Battle Creek, Grand Rapids, Lansing, MetroDetroit, Muskegon, Southwest, and Traverse City, Michigan and Tampa and Punta Gorda, Florida. EUP delivers Online Education, University Studies, Professional Development, and the Osher Lifelong Learning Institute at WMU as well.

EUP Vision Statement
To inspire, enable, and encourage lifelong learning, through educational access, personal growth, and professional development opportunities - one individual, one class, and one preferred learning style at a time.

EUP Mission Statement
To extend the mission, brand, and reach of WMU beyond Kalamazoo, through innovation, access and outreach. Leading innovation through branding, community engagement, and the delivery of responsive contemporary programming, EUP seeks to identify, develop, and provide access to learner-centered pathways for diverse populations.

Regional Locations
Regional locations have environments that are tailored to the busy, working adult, including comfortable seating, computer labs, wireless Internet access, and courses scheduled on evenings and weekends. In addition to academic programming, regional locations provide the connection to WMU offices including financial aid, advising, university libraries, and other university services.

Auburn Hills
WMU Cooley Law School
2630 Featherstone Road
Suite 115
Auburn Hills, MI 48326
(248) 485-4500

WMU-Auburn Hills is located within Cooley Law School's Auburn Hills facility, surrounded by a blend of nature and commerce on all sides. Modern classrooms outfitted with current instructional technology provide students with a more robust experience and the building's study rooms offer students access to secluded areas to study and collaborate. WMU's office is open Monday to Friday from 8am until 5pm. Admissions or Human Resource office paperwork can also be verified and submitted at the front desk as an alternative to traveling to main campus. Parking in two large lots is always free and students can reach the campus by riding SMART Bus Routes 465 or 756. The security and safety of our guests is always a top concern. Parking lots and campus grounds are maintained daily and a facility guard is posted at the building entrance during all open hours, from 8am until 12pm Monday to Thursday and until 10pm Friday to Sunday.

Battle Creek, Michigan Campus
Kendall Center
This completely renovated 24,000 square foot facility houses twelve beautifully furnished classrooms, two computer labs, advising offices, an executive conference room and a state-of-the-art interactive compressed video conference room, as well as satellite downlink connections. The Kendall Center is completely wireless, allowing web access from anywhere in the building. Free three-hour parking is available in a parking deck on the east side of the building. For day-long events, parking in the deck next to the Kellogg Arena, across the street to the south of the building is encouraged.

Clinton Township, Michigan Campus
Macomb Community College University Center
44575 Garfield Road
Building UC1, Room 225
Clinton Township, MI 48038
(586) 226-4838

WMU-Clinton Township is proud to be a part of the Macomb Community College University (MCC) Center located on the center campus of MCC. As a partner with the University Center WMU-Clinton Township not only builds a bridge for MCC students but also offers Macomb county and the surrounding area residents the convenience and flexibility to earn a WMU degree close to home. The MCC University Center offers students access to a computer lab with pay-by-page printing, quiet and large study lounge spaces as well as a convenient hours of operation - until 10pm most evenings and some weekends. Students also have access to the MCC library and other MCC resources if needed. Parking is free and plentiful at the MCC University Center and MCC has their own college police department to keep the campus safe.

Grand Rapids Beltline, Michigan Campus
2333 East Beltline, SE
Grand Rapids, MI 49546
(616) 771-9470

The Beltline location is a beautiful campus that offers a multitude of services for both the adult student and conference planner in a comfortable and professional conferencing environment. The facility features numerous classrooms and computer labs, satellite downlink connections, and a state-of-the-art interactive, compressed video conference room. We have more than 550 spaces available in our parking lot at the WMU-Grand Rapids, Beltline location.

Grand Rapids Downtown, Michigan Campus
200 Ionia Avenue, SW
Grand Rapids, MI 49503
(616) 771-4100

The Downtown location is situated in the historic Cherry Street Landing district, two blocks south of the Van Andel Arena. This exceptional facility features a cyber cafe, a multi-functional Grand Hall, classrooms, a computing lab for online research, a compressed video/distance education classroom, and offices for faculty, advisors, and administrative staff. The Center for Counseling and Psychological Services, a community based counseling clinic, is also housed at the Downtown location.

The Cherry/Commerce city parking ramp, located across from WMU on Cherry Street, is available for daytime or evening parking. This is a totally automated ramp so please follow directions carefully when handling your payment. When you enter the ramp you will receive a ticket and you can pay when you leave. The Area 5 Lot, one block south of Van Andel Arena, is a City-owned surface lot on Ionia Avenue between Oakes and Cherry Streets. This lot is not available for daytime hourly parking but can be used for evening (set rate) parking after 6 p.m.

Benefits when using these City lots: The City's red Parking Services Security Service vehicles patrol these lots during the day and the evening. The City provides an optional, but free, escort service to your car after class, and they will help with dead car batteries. Lots are kept plowed and salted. Please check at the WMU Security Desk Downtown for more information.
Free Parking - On-street parking meters after 5 p.m. are available within one block of the WMU-Grand Rapids, Downtown location. Ionia Avenue and Cherry Street offer several spaces with parking meters. After 5 p.m. these metered spaces are free, but they fill up fast. Use common sense when storing valuable personal property in your vehicle.

**Lansing, Michigan Campus**
Lansing Community College University Center  
MC 8200W  
210 W. Shiawassee St.  
Lansing, MI 48901-7210  
(517) 483-9728

Located in the University Center at Lansing Community College, WMU-Lansing features a welcoming environment as well as a dedicated staff that is committed to making your experience a positive one. Computer labs, which offer high speed internet access, are available in multiple locations with multiple hours open for use.

**Muskegon, Michigan Campus**
Stevenson Center for Higher Education  
221 S. Quarterline Road  
Muskegon, MI 49442  
(231) 777-0500

WMU-Muskegon is located at the Stevenson Center for Higher Education on the MCC campus. The facility provides numerous amenities to make your life easier, including computer access for self-registration, payment, record access, email, research, and online library services. Students also have access to additional computer labs located in the Hendrik Meijer Library / Information Technology Center, and the library is open Monday through Thursday until 10 p.m. The campus bistro is open until 8 p.m. Monday through Thursday. Parking is free and plentiful at MCC. For your safety, lots are also well lit.

**Southwest, Michigan Campus**
On the campus of Lake Michigan College  
2785 E. Napier Avenue  
Benton Harbor, MI 49022  
(269) 934-1500

The WMU-Southwest regional location marks the first time a Michigan university has chosen to build a facility on a community college campus. The promise of WMU-Southwest is to provide the benefits of Western Michigan University's main campus in Southwest Michigan, in conjunction with our valued partnership with Lake Michigan College. The facility includes multiple classrooms, science and computer labs, conference rooms and study areas, and a reading clinic. Faculty, advising, and administrative offices are also housed within the facility.

Students have access to WMU computer services, including Internet, email, and online library services. Being in close proximity to LMC gives our students the opportunity to use the LMC library and other key resources. Students can also participate in the child care services offered at Lake Michigan College on a fee-for-services basis.

The Mendel Center for Arts and Technology at LMC offers a complete catering service so groups meeting at Southwest can order anything from snacks and meals to specially designed menus.

**Traverse City, Michigan Campus**
Northwestern Michigan College University Center  
2200 Dendrinos Dr., Suite 201  
Traverse City, MI 49684  
(231) 995-1846

The NMC University Center is a leading-edge facility with interactive classrooms and computer labs, and open wireless access is available throughout the center. Student lounges, snack areas, and a student café provide an environment conducive
to studying, research, and collaboration. The University Center is open Monday through Friday from 9 a.m. to 8 p.m. and Saturday from 8 a.m. to 4 p.m. For additional information about the University Center, visit http://www.nmc.edu/ucenter.

Punta Gorda, Florida Campus
Florida Southwestern State College Campus
26300 Airport Road
Punta Gorda, FL
(269) 387-44200

The Punta Gorda facility operates on the campus of Florida Southwestern State College located in Charlotte County. The campus sits on a 204-acre site that consists of 12 buildings and 151,823 square feet of space. WMU operates primarily in "Building E" on campus, which consists of two classrooms, a flight simulation system, and three offices. Additionally, WMU has access to all library resources, computer labs, student collaboration space, a science classroom (including a wet lab) and auditorium space.

Licensed by the Commission for Independent Education, Florida Department of Education. Additional information regarding this institution may be obtained by contacting the Commission at 325 West Gaines Street, Suite 1414, Tallahassee, FL 323099-0400, toll-free telephone number (888) 224-6684.

Tampa, Florida Campus
WMU Cooley Law School
9445 Camden Field Parkway
Riverview, FL 33578
(269) 387-4200

The Tampa Bay facility is a newly renovated 130,000 square foot facility in Riverview, Florida. It has 24 classrooms with 1,374 seats that include four distance education classrooms with 204 seats, and a computer laboratory with 28 seats. All classrooms are equipped with contemporary instructional technology and the entire building is wireless.

The Riverview area is conveniently located for commuters who travel on Interstate 75, Interstate 4, or the Florida 618 Toll Expressway. The location has ample onsite parking.

Licensed by the Commission for Independent Education, Florida Department of Education. Additional information regarding this institution may be obtained by contacting the Commission at 325 West Gaines Street, Suite 1414, Tallahassee, FL 323099-0400, toll-free telephone number (888) 224-6684.

Online Education
Online Education offers a variety of courses, degrees, and certificate programs entirely online. Online Education also offers hybrid courses and hybrid degree programs, offered through WMU regional locations, that utilize contemporary online learning technologies and methodologies. Additional services include instructional design and course development support for instructors, technical support for students, and on-campus proctored testing.

University Studies Degree
The University Studies bachelor's degree completion program integrates prior coursework into a personalized degree, providing students with an opportunity to complete a bachelor's degree from WMU in a manageable and straightforward fashion without the constraints of a specialized curriculum. Either a B.S. or a B.A. degree can be awarded based on the topical areas applied.

Professional Development (PD)
Professional Development is dedicated to providing an increased selection and availability of non-credit learning experiences designed with a client centric approach for personal enrichment and career elevation. This unit offers training, preparatory programs and certificates for professionals seeking continuing education credentialing. Additionally, it provides and coordinates the approval of Western Michigan University Continuing Education Units (CEU) and State Continuing Education Clock Hours (SCECH) for the State of Michigan.

Osher Lifelong Learning Institute (OLLI)
The Osher Lifelong Learning Institute at WMU offers educational opportunities for mature adults who have a passion for learning. This volunteer organization works with WMU emeriti, faculty and staff to offer courses and trips year-round. The purpose of the Institute is to:

- Provide intellectual and cultural stimulation, personal growth, and social engagement for participants in an informal, lively, learning atmosphere.
- Enrich and extend the quality of life for participants.
- Create an academy of learners who can share what they have learned and experienced during their lives.

**University Studies**

The University Studies degree completion program is designed primarily for students with 56 or more credit hours who want to finish their bachelor's degree. Students design their own curriculum and work closely with an academic advisor to integrate prior coursework and map out a specific plan to degree completion according to WMU requirements. The program can be completed both face-to-face and online, includes academic emphasis areas, and 15 credit hours of core competencies focused on leadership communication, global citizenship, health, science and a capstone course. Either a B.S. or a B.A. will be awarded depending upon the subject areas selected.

University Studies is considered a degree-completion program. As such, students will not be able to declare University Studies as a second major. Likewise, students who have completed an undergraduate degree will not be able to enroll in University Studies as a second bachelor's degree.

**WMU University Studies Program - Accelerated Degree Program with WMU Thomas Cooley Law School**

Students with a declared major in University Studies who are accepted into the WMU Thomas Cooley Law School may enroll in an accelerated degree program, allowing them to count credits earned from their first-year law school courses toward both their law degree and their bachelor's degree.

Application for this program is required. Students should apply through their University Studies academic advisor. Minimum requirements include acceptance into the WMU Thomas Cooley Law School, junior or senior standing, and a cumulative undergraduate GPA of 3.0 or better. In collaboration with a parallel program in the College of Arts and Sciences, applications will be reviewed by a joint admissions committee consisting of CAS and University Studies advising staff, CAS faculty, associate deans from CAS and Extended University Programs, and representatives from Cooley Law School.

Students accepted into this program will enroll in 18 credits of A-S 5100 at WMU: Topics in Legal Studies, which will be scheduled in partnership with the following first-year courses at the Cooley Law School:

- CIVP 105 LECT - Civil Procedure I  Credits: 3 hours
- CONL 404 LECT - Constitutional Law I  Credits: 3 hours
- CONL 503 LECT - Constitutional Law II  Credits: 3 hours
- CONT 108 LECT - Contracts I  Credits: 3 hours
- CONT 213 LECT - Contracts II  Credits: 3 hours
- CRLP 107 LECT - Criminal Law  Credits: 3 hours
- PRSE 109 LECT - Property Law I  Credits: 3 hours
- PRSE 207 LECT - Property Law II  Credits: 3 hours
- TOEQ 106 LECT - Torts I  Credits: 3 hours
- TOEQ 304 LECT - Torts II  Credits: 3 hours

Students in this program will receive WMU credit for 18 of the 24 credits successfully completed (with a grade of "C" or better) during their first year at Cooley. Successful completion (with a grade of "C" or better) of 18 credits of A-S 5100 will also constitute the successful completion of a University Studies concentration in Legal Studies. Students should be aware that these credits are applicable to University Studies and Arts and Sciences, but may not be accepted by other WMU programs.
Students in this program still need to complete all of their University Studies requirements, and their general education requirements, and still need a minimum of 122 credits to receive their bachelor's degree. Students interested in pursuing this option should contact their University Studies academic advisor to learn more.

**Student Planned Curriculum**

Student Planned Curriculum is designed for students at the beginning of their college career. This option lets students design a customized degree, based on specific needs and goals in two or more academic disciplines. Students identify courses and work closely with faculty advisors to create a plan that is endorsed by academic departments.
The Graduate College offers a wide variety of programs leading to the master's, specialist, and doctoral degrees.

Accelerated degree programs allow eligible students the opportunity to complete both an undergraduate degree and a master's degree in less time because the student may begin taking graduate courses while still an undergraduate. During their senior year of their undergraduate careers, students in the accelerated program may substitute up to 12 credit hours of graduate course work for undergraduate course work. Once they enter graduate school, they're able to quickly move through their master's degree (or Au.D.) requirements because they've already taken several graduate classes. Accelerated degrees are offered for the following master's programs: Aerospace Engineering; Blindness and Low vision Studies – Orientation and Mobility; Chemical Engineering; Civil Engineering; Communication; Computer Engineering; Computer Science; Earth Science; Electrical Engineering; Family and Consumer Sciences; Industrial Engineering; Mechanical Engineering; Music; Paper and Printing Science; Spanish; Statistics; and Vision Rehabilitation Therapy. The Au.D. in Audiology is also offered as an accelerated program.

The Master of Arts is awarded in the following programs: Art Education; Biological Sciences; Career and Technical Education; Coaching Sport Performance; Communication; Comparative Religion; Counseling Psychology; Counselor Education; Earth Science; Economics, Applied; Educational Foundations; Educational Leadership; Educational Technology; English; Evaluation, Measurement, and Research; Family and Consumer Sciences; History; Literacy Studies; Mathematics; Mathematics Education; Medieval Studies; Music; Organizational Learning and Performance; Orientation and Mobility; Philosophy; Physical Education; Physics; Political Science: Practice of Teaching; Psychology; Science Education; Sociology; Spanish; Special Education; Special Education and Orientation and Mobility; Speech; Spirituality; Culture and Health; Sport Management; Teaching: Teaching Children With Visual Impairments and/or Orientation and Mobility; Teaching English to Speakers of Other Languages; and Vision Rehabilitation Therapy.

The University also offers the Master of Science in the following areas: Accountancy; Aerospace Engineering; Applied and Computational Mathematics; Athletic Training; Biological Sciences; Chemical Engineering; Chemistry; Civil Engineering; Computer Engineering; Computer Science; Electrical Engineering; Engineering Management; Exercise Physiology; Geography; Geosciences; Industrial Engineering; Manufacturing Engineering; Mechanical Engineering; Nursing; Occupational Therapy; Paper and Printing Science; Physician Assistant; and Statistics.

Other master's degrees include Social Work (MSW); International Development Administration (MIDA); Public Affairs and Administration (MPA); Public Health (MPH).

In addition:

The Specialist in Education is offered in Educational Leadership.

The Doctor of Education is offered in Special Education.

The Doctor of Audiology is offered in Audiology.

Joint Juris Doctor and Master of Public Administration degrees are offered in partnership with the WMU Thomas M. Cooley Law School.

The WMU Homer Stryker M.D. School of Medicine offers an M.D. Degree.
The Doctor of Philosophy is offered in Biological Sciences; Chemistry; Collegiate Math Education; Computer Science; Counseling Psychology; Counselor Education; Economics, Applied; Education and Human Development; Educational Leadership; Electrical and Computer Engineering; Engineering and Applied Sciences; English; Evaluation (Interdisciplinary); Evaluation, Measurement, and Research; Geosciences; History; Industrial Engineering; Interdisciplinary Health Sciences; Interdisciplinary Studies; Mathematics; Mathematics Education; Mechanical Engineering; Paper and Printing Science; Physics; Political Science; Psychology; Public Administration; Science Education; Sociology; Spanish; and Statistics.

Graduate certificate programs are offered in the following areas: Alcohol and Drug Abuse; Applied Hydrology; Applied Statistics-Interdisciplinary, BioStatistics; Early Childhood Special Education; Educational Technology; English as a Second Language; Geographic Information Science; Gerontology; Higher Education and Student Affairs; History of Monastic Movements; Integrative Holistic Health and Wellness; Learning for Sustainability; Low Vision Rehabilitation for the Occupational Therapist; Music Performance; Positive Behavioral Intervention and Supports (PBIS); and Spirituality, Culture and Health.

Please refer to the Graduate Catalog for further information on these programs, as well as on admission and graduation requirements. Or visit the Graduate College website http://www.wmich.edu/grad.
Course Descriptions
(Alphabetical by Course Prefix)
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<td>WFED</td>
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African American and African Studies

AAAS 2000  Introduction to African American and Africana Studies  Provides an overview of the culture, history and experience of people of African ancestry, particularly in the U.S. and the Caribbean. This includes the philosophical underpinnings and the evolution of the discipline, methods of research and exploration, and its theoretical and practical applications. Historically oriented, the course involves both interpretation and chronology as it addresses African civilization in the western hemisphere, including the U.S., including folklore, mythology, language, customs and traditions, and the rise and role of Black Nationalism and Black consciousness and their contemporary manifestations. This course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours

AAAS 2100  Comparative Approaches to Forms of Black Consciousness  This course focuses on the history of Black consciousness in the African Diaspora from the seventeenth to twenty-first century. It is concerned with forms of Black expression and social action as they are manifested in specific historical, cultural, and political contexts using comparative approaches. Some of the themes include Africa in African American thought and culture, naming and identity, feminism and gender, movement and migration, and the rhetoric of freedom in Black ideology. This course satisfies General Education Area V: Social and Behavioral Sciences.  3 hours

AAAS 2800  Topics and Themes in African American and African Studies  This course builds upon the African diaspora experiences through selected topics and themes that address complex social and historical issues such as gender, politics, economics, slavery, civil/human rights, affirmative action, sexual identity/orientation, lynching, genocide, gentrification, cultural mutilation, and modes of cultural production. The course will interrogate theories of race, ethnicity, gender diversity, multiculturalism, colonialism/post-colonialism, modernism/post-modernism, structuralism/post-structuralism, neo-conservatism and neo-liberalism in tandem with the proposed topic(s) and theme(s) being examined. This course satisfies General Education Area II: Humanities. This course is repeatable under a different topic.  3 hours

AAAS 3000  African and African American History, Culture and Experience to 1865  This course will examine the myriad patterns of adaptation and adjustment of enslaved Africans and free people of African ancestry in the context of the history of oppression in the U.S. prior to 1865. Slave narratives and abolitionists tracts written by freed people, and other documents and historical and contemporary evidence, will be explored to consider their interpretation of African American culture and experience in a new world and a world Africans and African Americans made anew. Issues include culture, race, gender, social/economic status, and political economy among other factors within the context of institutional and non-institutional life in the U.S. This course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours

AAAS 3010  African American History, Culture and Experience from 1866 to the Present  The culture, history and experience of African Americans from 1866 are the central focus of this course. As the second sequence in a two-part course, this course explores the history and evolution of life after reconstruction to the present. It includes an examination of the dynamics of culture, race, gender, social/economic status and political economy in the context of industrialization, post-industrialization, the concomitant systematic oppression of people of African descent, and the response of African Americans to these circumstances. Contemporary components of Black/African American popular culture as expressed in music, literature, film, art and the like will also be addressed. This course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours

AAAS 3010  African American History, Culture and Experience from 1866 to the Present  The culture, history and experience of African Americans from 1866 are the central focus of this course. As the second sequence in a two-part course, this course explores the history and evolution of life after reconstruction to the present. It includes an examination of the dynamics of culture, race, gender, social/economic status and political economy in the context of industrialization, post-industrialization, the concomitant systematic oppression of people of African descent, and the response of African Americans to these circumstances. Contemporary components of Black/African American popular culture as expressed in music, literature, film, art and the like will also be addressed. This course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours

AAAS 3100  The Black Woman: Historical Perspective and Contemporary Status  This course is an examination of the historical perspective and contemporary status of the Black woman and her story, paying critical attention to her image as reflected in her role in the American society. The course emphasizes the problems, issues, and concerns of the Black woman. Students will participate in securing visiting Black female speakers and documenting their story as Black women. This course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours

AAAS 3140  The Black Community: Historical and Contemporary Perspectives  An investigation of the cultural, social, economic and political forms and structures that interface to influence the experiences, conditions, and perspectives of members of the Black or African American community. The course addresses sociological, political, economic, psychological, and physical aspects of community building by members within the Black or African American community, inclusive of internal and external forces. This course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours
AAAS 3900 Women Writers in Contemporary Black Literature from the 19th Century to the Present
An interdisciplinary course that focuses attention on the creative and critical writing by major women writers from Africa, the
U.S., and the Caribbean. It meets a need for majors in African American and African Studies, Gender and Women's Studies,
and English. This course satisfies Area IV: Other Cultures and Civilizations.

AAAS 4650 Internship in African American and African Studies
Students will participate in an internship/practicum where they will apply their knowledge of African American and African Studies to conditions,
circumstances, and programming in a particular institutional or organization setting. Students will be guided through this experience in a concurrent seminar led by an approved faculty member from AAAS and, where appropriate, a person from
the student's disciplinary major department. May be repeated for credit. Prerequisite: Completion of a minimum of
15 credit hours in the AAAS major. Call number obtained from AAAS administrative assistant.

AAAS 4980 Directed Independent Studies
A program of independent study, directed by an approved African American and African Studies faculty member/advisor, that allows the student to pursue readings relating to the African American and African Experience not dealt with in other courses. The initiative for describing the project, planning the method(s) of investigation, determining the appropriate outcomes, and securing the participation of a faculty member to advise the work is the responsibility of the student. Applications are available in the AAAS office and must be approved by the director.

AAAS 5100 Foundational Theories in Diversity Leadership
The course focuses on developing an understanding of diversity and difference, power and privilege, and oppression. Emphasis will be given on understanding of one's self within these systems as an essential foundation for culturally competent practices in any environment. Students will learn: (i) systems that maintain differential access to power and privilege at the expense of marginalized others, (ii) skills for understanding and interrogating their own multiple social identities (i.e., social locations), (iii) knowledge and skills for appropriate training practices in bias, (iv) strategies for interrupting systems of oppression and other ways to work for the core value of social justice. Students may enroll in their junior or senior year or as part of a graduate program. There are no prerequisites, however, students are encouraged to contact their advisor or the instructor of record before enrolling to make sure this is a good fit. May be repeated for credit. Open to upperclass and graduate students.

ACTY 2000 Careers in Accounting
This course is designed to help student explore and manage the professional expectations and career potential of the accounting major. Students will be introduced to the various opportunities in public accounting, private accounting and government accounting. Students will participate in resume building activities, pre-interview research, practice interviews, and career management strategies. Students will learn about Broncojobs and internship opportunities as ways to prepare for successful transitions from Western Michigan University to their professional career. Graded on a Credit/No Credit basis.
Corequisite: ACTY 2100

ACTY 2100 Principles of Accounting I
This is an introductory course in accounting, which includes an examination of the recording and reporting of business transactions, and the measurement of business income, assets, liabilities and equities. Emphasis is placed on financial reporting for decision-makers outside the organization.

ACTY 2110 Principles of Accounting II
A study of the role of accounting information in the planning and decision-making of business organizations. The course focuses on financial analysis, manufacturing cost flows, budgeting, and planning for long-term financing and investing activities. Prerequisite: ACTY 2100 with a minimum grade of "C" or better.

ACTY 3100 Financial Accounting I
This course examines the underlying concepts of financial accounting. It reviews the accounting cycle, related accounting records, and the financial statements. Accounting principles and reporting requirements for current assets, plant and equipment, intangibles, and other assets are also studied. This course is restricted to the following: minors in Accountancy; or majors in Accountancy, General Business, or Integrated Supply Management. Prerequisite: ACTY 2100 and ACTY 2110 with a grade of 2.5 ("CB") in both.

ACTY 3110 Financial Accounting II
This course is a continuation of Accounting 3100. Accounting principles and reporting requirements for liabilities, long-term investments, and stockholders' equity are studied. Other topics
included are accounting for pensions, income taxes, leases, accounting changes, and the Statement of Cash Flows. This course is restricted to the following: minors in Accountancy; or majors in Accountancy or General Business.

Prerequisite: ACTY 3100 with a grade of "C" or better. 3 hours

ACTY 3130 Accounting Information Systems This is an introductory survey course in accounting information systems. It includes consideration of issues such as transaction processing and transaction processing cycles, the use and effects of computers and other relevant technology on accounting, database and file systems, internal accounting and administrative controls, and information technology audits. The course emphasizes use of common business software, which may include spreadsheets, flowcharting software, communications, general ledger, and database management systems. This course is restricted to the following: minors in Accountancy; or majors in Accountancy or General Business.

Prerequisite: ACTY 3100 with a grade of "C" or better. 3 hours

ACTY 3220 Managerial Accounting – Concepts and Practices A study of the accounting methodology and concepts that have been developed to serve managers in decision-making for planning and control. This course covers budgeting, standard cost variance analysis, incremental analysis, cost and profit analysis, relevant costing, and product costing concepts and practices. This course is restricted to the following: minors in Accountancy; or majors in Accountancy, General Business, Management, Integrated Supply Management or Public Administration: Business.

Prerequisite: ACTY 2100 and ACTY 2110 with a grade of 2.5 ("CB") or better. 3 hours

ACTY 3240 Introductory Tax Accounting A study of the federal tax laws that apply to business entities. The course focuses on concepts of income, deductions, and credits that apply to all reporting entities and emphasizes tax planning as well as tax compliance. This course is restricted to the following: minors in Accountancy; or majors in Accountancy, Personal Finance Planning, Public Administration: Business. Prerequisite: ACTY 2100 and ACTY 2110 with a grade of 2.5 ("CB") or better in both. 3 hours

ACTY 3990 Sustainability Accounting This course provides students with an understanding of how accounting information and reporting is essential for sustainable operations. Accounting information forms the basis for evaluating the ability of an organization to address current business needs, successfully develop a long-term strategy and manage risk for all products, systems, supply chains, and processes to preserve resources for future generations. Topics covered may include: financial statements understanding and analysis; short-term budgeting and control for economic sustainability; evaluation of sustainable projects using capital budgeting techniques, considering potential tax credits and externality costs; short-term sustainable decision making; mandatory accounting and reporting of environmental contingencies; activity based and life cycle costing of sustainable operations. Conventional cost and managerial accounting concepts are discussed, with a focus on sustainability issues. Not for accounting credit. Prerequisites: Junior standing or instructor approval; MATH 1100 and STAT 3660 with a minimum grade of "C" or better in any prerequisite. 3 hours

ACTY 4100 Internship in Accounting Under the direction of a faculty coordinator, students obtain full-time, accounting-related employment. Participation is limited to available internships and competitive selection by the faculty coordinator and prospective employers. Students are required to write a final report. Each employer will provide an evaluation of the student. A student must be enrolled in ACTY 4100 while meeting the requirements of the course. This course must be taken on a credit/no credit basis and does not count toward the accounting major. Prerequisite: Written approval of the faculty coordinator. 3 hours

ACTY 4110 Advanced Accounting The study of entities and special transactions not covered in Financial Accounting I and II. Particular emphasis is given to partnership equity accounting, governmental accounting, business combinations, reporting by parent-subsidiary consolidated entities (including foreign subsidiaries), and accounting for foreign currency transactions. This course is restricted to minors or majors in Accountancy. Prerequisite: ACTY 3110 with a grade of "C" or better. 3 hours

ACTY 4130 Advanced Accounting Systems This course examines the types of accounting systems used by business enterprises. It includes in-depth examinations of database accounting systems, including the analysis of information, database design and implementation, and the creation of applications. This course is restricted to minors or majors in Accountancy. Prerequisite: ACTY 3130 with a grade of "C" or better. 3 hours
ACTY 4140 Governmental and Nonprofit Accounting  A comprehensive study of the recording of transactions by governmental units and the financial statements required by generally accepted accounting principles for governmental units. Governmental units are the basic unit of study; however, colleges and universities, healthcare entities, and other not-for-profit organizations are given brief coverage to illustrate accounting and financial reporting for all not-for-profit entities. This course is restricted to the following: minors in Accountancy; or majors in Accountancy or Public Administration: Business. Prerequisite: ACTY 2110 with a grade of “C” or better.  3 hours

ACTY 4160 Auditing  A study of auditing of business and non-business organizations. Topics include audit risk, audit procedures during the planning and performance phase of an audit, internal control concepts, ethics and the legal environment, statistical audit tools, types of audit reports, auditing standards, and the relationship of internal auditing to financial statement auditing. This course is restricted to minors or majors in Accountancy. Prerequisites: ACTY 3130 and ACTY 3110 with a grade of “C” or better in both.  3 hours

ACTY 4220 Cost Accounting - Theory and Practice  A study of the use of cost accounting information within a planning and control framework. Topics include the information needs of managers, costing of products and services, cost allocations among departments of an enterprise, activity-based costing, the theory of constraints, cost of quality, budgeting, income effects of absorption and variable costing, transfer pricing, and performance measurement. This course is restricted to minors or majors in Accountancy. Prerequisite: ACTY 3220 with a grade of “C” or better. 3 hours

ACTY 4240 Advanced Tax Accounting  A study of the federal tax laws that govern the transactions during a corporation's life cycle. The tax effects of organizing, operating, making distributions, reorganizing, and liquidating corporations are analyzed. The differences in the taxation of corporations, partnerships, and limited liability companies also are addressed. This course is restricted to minors or majors in Accountancy. Prerequisite: ACTY 3240 with a grade of “C” or better. 3 hours

ACTY 4310 Special Topics in Accountancy  The study of special topics within the discipline of accountancy. Repeatable for credit under different topics. This course is restricted to minors or majors in Accountancy. Prerequisites: ACTY 3100 with a grade of “C” or better, or Department Chair approval. 3 hours

ACTY 5980 Readings in Accounting  Directed individual study of topics not covered in other departmental courses. This course is restricted to majors in Accountancy. Open to upperclass and graduate students. Prerequisite: Written approval of instructor. 1 to 4 hours

Alcohol and Drug Abuse

ADA 2250 Drug Use: Personal and Social Impact  This course is designed to increase understanding of substance abuse, alcohol and other drug use through the public health disease model with an emphasis on psychological, physiological and social consequences of use and abuse. An overview of prevention, case finding and treatment strategies are provided. This course satisfies General Education Area VIII: Health and Well-Being. 3 hours

ADA 3300 Addiction and the Addiction Process  This foundational course will focus on the various models and theories of addiction as well as the behavioral, psychological, physical, and social effects of substance abuse. In addition, students will be provided an overview of the various medical and mental health conditions that may mimic or coexist with addiction. 3 hours

ADA 3360 Clinical Approaches to Substance Use Disorders  This course examines the various aspects of substance use disorder treatment processes and interventions. Students will learn about the development of an individualized treatment plan through the screening and intake process that addresses an identified substance use disorder, as well as other issues related to treatment progress. The importance of referral and service coordination with civic groups, agencies, and other professional or governmental entities to help address the individual’s needs is also addressed. Students will gain an understanding and an appreciation of the contributions of various addiction counseling models as they apply to modalities of care for individuals, groups, families, couples, and significant others. 3 hours

ADA 3370 Substance Abuse Treatment Strategies  This course will introduce students to a variety of helping strategies to use with substance abuse clients. The course will focus on treatment services, medical and pharmacological resources, and crisis management. 3 hours

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**ADA 3380 Addiction Assessment, Recovery, and Illness Management**  
This course will introduce students to different philosophies, procedures, policies, and outcomes most generally accepted for the treatment, recovery, relapse prevention, and continuing care of addiction. There will also be a strong focus on how to include all the resources within an individual’s life system to help them with their addictions.  
3 hours

**ADA 5200 Family and Addiction**  
This course provides students with knowledge on the effects of substance abuse on the family. Included is theory and practice regarding dysfunctional relationships, children of substance abusers, and resulting disorders. Open to upperclass and graduate students.  
3 hours

**ADA 5370 Constructive Confrontation and Referral in Substance Abuse Services**  
This course provides students with knowledge of intervention strategies for active substance abusers. Emphasis is placed on strategic constructive confrontation techniques and effective referral processes. Open to upperclass and graduate students.  
3 hours

**ADA 5650 Alcohol, Drug Abuse, and Violence**  
This course provides the student with knowledge of the multiple relationships of substance abuse and violence. Open to upperclass and graduate students.  
3 hours

**ADA 5700 Field Education: Substance Abuse**  
A clinical, prevention, research, or administrative field experience meeting practice requirements in certification of substance abuse services. The field experience involves direct supervision by faculty and clinical supervisors. Open to upperclass and graduate students. Graded on a Credit/No Credit basis. Students should enroll in ADA 5700 only if they are also concurrently enrolled in an internship with another WMU master's degree program. The site must be approved by the SPADA field coordinator.  
Prerequisite: Admission to certificate program and permission of instructor.  
1 to 6 hours

**ADA 5980 Readings in Substance Abuse Services**  
Individualized, independent study and readings under guidance of a faculty member. Initiative for planning topic for investigation and seeking the faculty member comes from the student with consultation of the advisor. Open to upperclass and graduate students.  
Prerequisite: Instructor and program advisor approval.  
1 to 4 hours

**Aerospace Engineering**

**AE 2610 Introduction to Aerospace Engineering**  
An overview of aerospace engineering disciplines; the history of aerospace, fundamental elements of aerodynamics and aerodynamic experiments, airfoils and wings, performance, stability and control, propulsion, and structures leading toward the aerospace vehicle conceptual design. This course restricted to pre-aerospace engineering students.  
Prerequisite: Phys 2050 with a grade of "C" or better (may be taken concurrently).  
3 hours

**AE 3610 Aerodynamics I**  
A study of incompressible aerodynamics with emphasis on combined application of the basic theory and experiments for solving practical aerodynamic problems in the design of flight vehicles. Flow similarity, governing equations, potential flows, thin airfoil theory, lifting line theory, and basic aerodynamic measurement techniques.  
Prerequisites: MATH 2720, (AE 2610 or ME 3560), PHYS 2050; PHYS 2060; with a grade of “C” or better in all prerequisites.  
4 hours

**AE 3710 Aerodynamics II**  
An introduction to compressible aerodynamics and boundary layer theory, including subsonic and supersonic flows over wings and bodies and viscous flows. Emphasis is placed on application of the basic theory for solving practical aerodynamic problems in the design of flight vehicles.  
Prerequisites: AE 3610; MATH 3740; ME 2580; with a grade of “C” or better in all prerequisites.  
3 hours

**AE 3800 Flight Vehicle Performance**  
A study of flight vehicle performance with an emphasis on the effect of aerodynamics on vehicle design. Computer applications to the solution of the problems of flight vehicle performance.  
Prerequisite: AE 3710, may be taken concurrently.  
3 hours

**AE 4590 Flight Test Engineering and Design**  
Analysis and design of in-flight experiments, excluding expansion of the aircraft's flight envelope. Includes microprocessor based data acquisition system and electronic sensor interfacing. Laboratory projects emphasize the pre-test, flight and post-flight phases of flight testing with an emphasis on safety of flight issues.  
Prerequisites: AE 4600  
3 hours (1 – 6)
AE 4600 Aircraft Stability and Control  A study of fixed wing aircraft stability and control; estimation of fixed wing stability and control derivatives, longitudinal and lateral/directional static stability and control analysis and synthesis. Introduction to dynamic stability and control characteristics including stability and mode shapes, responses to control input, and handling/flying qualities. This course restricted to majors in aerospace engineering or aeronautical engineering. Prerequisite: AE 3710 and ME 3600. 3 hours

AE 4630 Aerospace Structural Design  Structural design of aircraft and spacecraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints. Prerequisite: ME 2570 with a grade of "C" or better. 3 hours

AE 4660 Aerospace Propulsion I  Thermodynamics and fluid dynamics of aeronautical rotating turbomachines, including axial turbines, compressors, mixed flow, and centrifugal machines. Analytical and computational methods will be used to design and determine performance of aircraft propulsion systems. This course restricted to majors in aerospace engineering or aeronautical engineering. Prerequisites: ME 2320; and either (ME 3560 or AE 3710). 3 hours

AE 4690 Aircraft Design  Conceptual and preliminary design of aircraft emphasizing performance, stability and control, and total vehicle efficiency. This course acts as the capstone design course for the BS Aerospace Engineering program. Prerequisites: AE 3800 and AE 4600, with a grade of "C" or better in all prerequisites. 3 hours

AE 4700 Orbital mechanics  Introduction to astrodynamics, including the two-body problem and restricted three-body problem, orbital trajectories, transfers and targeting, and orbit determination. Computer modeling and simulation of orbital trajectories. Prerequisite: ME 2580, with a grade of "C" or better. 3 hours

AE 4760 Aerospace Propulsion II  Analysis of liquid and solid propellant rocket engines, propellant thermochemistry and storage, system considerations such as heat transfer and material properties, multi-stage rockets, and trajectories in powered flight. Introduction of electric propulsion and advanced propulsion concepts. This course restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisite: AE 4660, with a grade of "C" or better. 3 hours

AE 4990 Independent Study  An independent study assignment available only by special arrangement with an instructor and approved by the department curriculum committee. A written report will be required and filed with the department on completion. May be repeated for up to a total of six hours. This course restricted to majors in aerospace engineering. Prerequisite: Departmental approval. 1 to 6 hours

AE 5100 Foundations of Structural Mechanics  Fundamental analysis techniques for aerospace structures. Analysis of stress and strain including linear elastic anisotropic materials. Multi-axial yield. Boundary value problems and an introduction to variational calculus. Energy methods for structural analysis including minimum potential. Castigliano's theorems and other approximate methods. Open to upperclass and graduate students. Prerequisite: AE 4630 with a grade of "C" or better; or graduate standing. 3 hours

AE 5200 Advanced Aerodynamics  Fundamental mathematical skills in vector analysis and perturbation methods. Theoretical studies of thin airfoils, finite wings, wing-body and vorticities. Low and high Reynolds aerodynamics. Boundary layer and viscous flow control. High lift aerodynamics. V/STOL and UAV Aerodynamics. Open to upperclass and graduate students. Prerequisite: AE 3710 with a grade of "C" or better, or instructor approval; or graduate standing. 3 hours

AE 5400 Aerospace Vehicle Dynamics  Three-dimensional kinematics and dynamics with a focus on aerospace vehicles. Newton/Euler and Lagrangian formulations for systems of particles and rigid bodies. Translating and rotating reference frames. Aircraft static stability, aircraft equations of motion, orbital mechanics for the two-body problem, spacecraft rotational dynamics. Open to upperclass and graduate students. 3 hours

AE 5760 Advanced and Electric Propulsion Systems  Introduction to electric propulsion with an overview of electricity and magnetism, atomic physics, non-equilibrium flows and electrothermal, electromagnetic, and electrostatic
electric propulsion systems. Brief introduction to other types of advanced propulsion methods. Open to upperclass and graduate students. Prerequisite: AT 4760 with a grade of "C" or better, or instructor approval; or graduate standing. 3 hours

AE 5950 Topics in Aerospace Engineering A specialized course dealing with some particular area of aerospace engineering not included in other course offerings. Open to upperclass and graduate students. Prerequisite: Instructor approval. 3 hours

Anthropology

ANTH 1100 Lost Worlds and Archaeology An introduction to the archaeological record relating to the development of culture from its stone age origins through the development of village agriculture and the beginnings of urban life. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

ANTH 1200 Peoples of the World A survey of the rich variety and range of non-Western peoples throughout the world, with emphasis on the role of culture in shaping human thought and behavior. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

ANTH 1500 Race, Biology, and Culture This course is an introduction to the anthropological study of human biological variation in modern populations. We will examine from a biocultural perspective how human populations adapt to life in difficult environments (e.g., tropics, high altitude, arctic) and in so doing, we will explore the biological and social meanings of human racial variation. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

ANTH 2100 Introduction to Archaeology The science of archaeology is explored in terms of the methods and concepts used to discover and interpret past human behavior. Select portions of the Old and New World prehistoric cultural sequences provide the frame of reference. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

ANTH 2400 Principles of Cultural Anthropology An introduction to the basic concepts, theoretical approaches, and methodological strategies employed in the study of traditional and contemporary sociocultural systems throughout the world. Attention given to research techniques and the insights derived from detailed case studies and cross-cultural comparisons. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

ANTH 2500 Introduction to Biological Anthropology A survey of physical anthropology; evolutionary theory; hominid and primate evolution; the living primates, human osteology, human genetics and population variation. This course satisfies General Education Area VI: Natural Science with Laboratory. 4 hours

ANTH 2510 Forensic Anthropology This course introduces the fundamentals of forensic anthropology, an applied field of anthropology involved in the recovery, identification, and assessment of human skeletal/dental remains in a medico-legal context. We survey the basics of identifying bones of the human skeleton, forensic science method and theory, and research methods. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

ANTH 2600 Sex, Gender, Culture Sexual differences around the world are culturally elaborated into gender-specific behaviors, normed relations between gender-coded people and objects, and various ideologies supporting the differences. In this course, biological and cross-cultural data will be used to explore the foundation of this process and the social, cultural, and psychological consequences of gender coding on men and women in different cultural settings. Satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

ANTH 2800 Language in a Global World This introductory course in linguistic anthropology presents languages and speech practices around the world as cultural phenomena. The lecture component covers a sampling of topics and approaches to studying language as cultural practice, including cases from U.S. society and from diverse language communities around the world and considering contemporary issues including language rights, language shift, bilingual education, and language revitalization. The lab component allows students to develop an understanding of basic linguistic
principles and apply linguistic and discourse analyses to diverse cross-cultural examples. This course satisfies General Education Area V: Social and Behavioral Sciences.

ANTH 3010 Anthropology through Film
Anthropology through Film is designed to introduce students to the concepts, methods, and practices of cultural anthropology through the viewing and analysis of ethnographic films and the reading of select ethnographic writings. A principal course objective is to learn how to analyze what the filmmaker has done well and what is lacking in the ethnographer's portrayal of other cultures. Consequently, more general issues of representing other cultures will be considered in relation to the themes of power, the legacy of colonialism, and the world economic system.

ANTH 3030 Historical Archaeology
Investigates the role of the material world in the colonial encounter and the development of capitalism. The course will integrate theoretical, methodological and substantive issues with an emphasis, though not exclusive focus, on North America. Prerequisite: ANTH 2100 or instructor approval.

ANTH 3060 Archaeology of Civilization
The course discusses the forces leading to the rise of the state and the emergence of centers of civilization. It investigates state emergence cross-culturally, examining shared characteristics and innovative pathways, social accomplishments and social costs, New World and Old World, far-flung and more recent past. Prerequisite: ANTH 2100 or instructor approval.

ANTH 3090 Archaeology of Inequality and Resistance
The course examines the dynamics of historical and archaeologically known forms of control and domination based upon status, class, gender, and ethnicity. The course focuses on the social relation of oppressor and oppressed, the ideologies of control and the forms of social resistance. Prerequisite: ANTH 2100 or instructor approval.

ANTH 3390 Cultures of Latin America
This course offers an introduction to contemporary life in Latin America from an ethnographic perspective. Readings and class discussions will highlight the intersections of colonialism, nationalism and globalization among selected groups in different areas in the region. By locating contemporary societies within broader contexts this class aims to replace cultural stereotypes with anthropological analysis. This course satisfies General Education Area IV: Other Cultures and Civilizations.

ANTH 3400 Cultures of Asia
This course will provide an introduction to contemporary cultures and societies of Asia. Emphasis will be placed on topics such as education, family, workplaces, gender, popular culture, and identity. By locating contemporary institutions and idioms within a historical context, this class aims to replace cultural stereotypes with anthropological analysis. This course satisfies General Education Area IV: Other Cultures and Civilizations.

ANTH 3410 Global Africa Past and Present
This course offers an introduction to the study of contemporary life in sub-Saharan Africa. Students will engage with issues relating to colonialism, post-colonialism, and globalization as they explore several regions and ethnic groups in depth. A special emphasis will be placed on recognizing and dispelling long-held myths and negative stereotypes about Africa. This course satisfies General Education Area IV: Other Cultures and Civilizations.

ANTH 3440 The First Americans
Examines indigenous or native cultures of North America from the initial peopling of the continent by immigrants from Asia during the Terminal Pleistocene (Ice Ages) into the period of European exploration and colonization. Selected topics illustrating the ingenuity and diversity of human responses to both changing landscapes and social circumstances over time and in space will be presented. This course satisfies General Education Area IV: Other Cultures and Civilizations.

ANTH 3450 Topics in Anthropology
An intensive study of selected topics or emerging fields in anthropology. Topics will vary and be announced each semester. May be repeated for credit with different topics.

ANTH 3470 Ethnicity/Multiculturalism
A study of the diverse perspectives of the many different ethnic groups in the United States. In the course we will analyze the social tensions, group dynamics, and consequences resulting from the cultural and ethnic diversity existing here. Some of the discussion will focus on the medical, legal, social, and political institutions that exist in a multicultural environment. This course satisfies General Education Area III: The United States: Cultures and Issues.
ANTH 3480 Gender and Plastic Bodies In U.S. society we tend to assume that there are two sexes – male and female. Even if we have learned that gender roles can change, as in expecting men to be more nurturing, while more and more women pursue careers for example, we tend to accept that this is simply social change based on natural sexes. In this course we will question this assumption of “natural” sexes as we explore physiological variations as they are culturally interpreted and understood, and cultural interventions of “natural” sex. Focusing our attention at and beyond the limits of sex and gender, we will consider cyborg bodies, virtual bodies, tattooed and pierced bodies, or bodies surgically altered in a stunning variety of ways, in order to ask what is “natural” and “unnatural” about the assumed biological categories of male and female. This course satisfies General Education Area III: The United States: Cultures and Issues 3 hours

ANTH 3510 Human Osteology A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, palaeopathology, and reconstruction of the individual and the population. Prerequisite: ANTH 2500 or instructor approval. 4 hours

ANTH 3530 Bioarchaeology This course introduces students to the biocultural, interdisciplinary and integrative study of human remains recovered from archaeological contexts. Students will examine the reconstruction of skeletal populations for patterns of subsistence, stress, disease, paleodemography, biological relatedness, occupational indicators, trauma, and warfare. Students will learn how to recognize the manifestations of these patterns on human remains, and will be able to describe and critique the methods used by bioarchaeologists to gather and interpret information from human skeletal data. This course is approved as a writing-intensive course which satisfies the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: ANTH 2100 or ANTH 2500, or instructor approval. 3 hours

ANTH 3540 Growth and Development Descriptive, analytical, and evolutionary approaches to the study of the physical growth and development of humans. Postnatal growth, endocrinology of growth, dental and skeletal development, and human diversity will all be explored from an anthropological and an evolutionary perspective. 3 hours

ANTH 3560 Food and Culture Are we what we eat or how we eat? How do we determine what is food and is not food? This course will examine food cross-culturally and explore the different ways in which human beings produce, distribute, consume and think about food. Special consideration will be given to issues such as the origins of food surpluses and famines, the emergence of global food commodity chains, and the rise of the organic industry. 3 hours

ANTH 3580 The African Diaspora: Peoples and Cultures The African Diaspora in the Americas, product of the transatlantic slave trade has, impacted every society in North America, the Caribbean, and Central and South America and had produced a diverse array of distinctive cultures and communities. And yet, the communities, cultures, and cultural influences of the African Diaspora are often neglected within the usual regional divisions of area studies courses, despite a solid tradition of anthropology dealing with the peoples and cultures of the African Diaspora. This body of research raises many issues at the cutting edge of anthropological thinking about the nature of cultural continuity and change, identity, consciousness and tradition, and the co-construction of race and nation, to list but a few. This course will introduce the work of pioneering anthropologists of the African Diaspora throughout the Americas, situating their work in the context of various intellectual and political currents of the 20th century, and tracing their legacy in contemporary anthropology and related fields, such as cultural studies and ethnohistory. Much of this recent work reconceptualizes an Atlantic World or “Black Atlantic” that is rich with contemporary interconnections and movements of people between points in the Americas, Europe, and Africa that complicate earlier notions of unidirectional influences from Africa to the New World. We will attempt to map a dialogue between anthropological work on African diasporic culture(s) (situated within the predominantly white/Euro academy) and the political and social concerns and consciousness of Afro-American people themselves (not just U.S. African-American, but all of the Americas). This course satisfies General Education Area IV: Other Cultures and Civilizations. Cross-listed with AFS 3580. 3 hours

ANTH 4040 Early Technologies This course deals with the analysis and interpretation of early technologies and technological organization and their relationship to social, political, and economic dimensions of cultural systems. Prerequisite: ANTH 2100 or instructor approval. 3 hours

ANTH 4400 Ethnography Examines various methods, problems, and issues in ethnographic research and writing, as well as the interaction between ethnographic practice and the development of anthropological theory. This course
ANTH 4500 Primate Behavior and Ecology  
An advanced survey of the primates. Topics include: primate characteristics; taxonomy, constraints of body size on locomotion and diet; and primate social behavior in an ecological context. The behavioral ecology of individual species will be explored through readings, films, and when possible, direct behavior observation at a zoo.  
Prerequisite: ANTH 2400 or instructor approval.  
3 hours

ANTH 4510 Paleopathology  
This course examines disease processes in past human populations using an evolutionary and multidisciplinary perspective. Through studies of archaeological skeletal remains, we explore local and global patterns of disease and response to environmental stresses in ancient times, which are also relevant to today’s health concerns.  
Prerequisite: ANTH 2400 (may be taken concurrently), or instructor approval. ANTH 3510 is also recommended.  
3 hours

ANTH 4750 Language and Identity  
This course explores the links between identity and language. Students will examine how different types of identity get mobilized by different ways of speaking and by judgments about the social value of different speech styles. A semester-long research project comprised of short field research assignments will allow students to apply linguistic anthropology methods to examine the speech differences that surround us. This course is approved as a writing-intensive course which satisfies the baccalaureate-level writing requirement of the student’s curriculum.  
3 hours

ANTH 4800 Garbage: Humans and their Refuge  
What happens when you flush the toilet? Why does that question make Americans squeamish? This course examines the various ways that human societies have categorized polluting substances and the various technologies and symbolic practices they have used to place materials outside the boundaries of acceptable sociality.  
3 hours

ANTH 4900 Archaeological Field School  
Archaeological investigation of specific problems relating to the prehistory or history of a particular area (e.g. southwest Michigan, Lower Mississippi Valley). Participants will receive instruction in collecting and evaluating background information, creating a research design and implementing archaeological field-work (i.e., logistics, site location survey, mapping, recovering objects from archaeological contexts), and processing and curating data for analysis and interpretation in the laboratory. May be repeated with permission of instructor, but does not count toward the anthropology major or minor twice. Prerequisite: ANTH 2100 or instructor approval.  
6 hours

ANTH 4950 Topics in Anthropology  
The advanced study of selected topics or emerging fields in anthropology. Topics will vary and be announced each semester. May be repeated for credit with different topics.  
Prerequisite: Junior standing and 12 hours of anthropology, or instructor approval.  
3 hours

ANTH 4970 Directed Experiential Learning  
Students may contact a faculty member to supervise an individually-designed experiential learning project through field research, laboratory research, an internship, or applied anthropology service in the community. The purpose of the course is to allow students to explore real-world applications of anthropology. May be repeated for credit. Restricted to majors in Anthropology.  
Prerequisite: Junior standing and instructor approval.  
3 hours

ANTH 4980 Independent Readings in Anthropology  
Students may contact a faculty member to undertake independent readings on a specific topic of interest. The student should have some familiarity with the topic in advance. The purpose of the course is to allow the student to gain a greater depth of knowledge in a topic not offered in a formal course. Restricted to majors or minors in Anthropology.  
Prerequisite: Junior or senior standing.  
1 to 3 hours

ANTH 4990 Independent Research in Anthropology  
Students may contact a faculty member to conduct research under the guidance of the faculty member. Before the initiation of the research a literature search and a written proposal must be prepared. At the conclusion of the research project, a written report will be submitted to the guiding faculty member. Restricted to majors or minors in Anthropology.  
Prerequisite: Junior or senior standing.  
1 to 3 hours

ANTH 5000 Topics in Archaeology  
A consideration of the prehistory of a particular geographic area (e.g. the southwestern United States, the Circumpolar) or of selected theoretical problems (e.g. artifact typology, prehistoric ecology). The topic to be studied will be announced each semester. May be repeated for credit under different topics. Open to
upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology, including either (ANTH 1100 or ANTH 2100) or instructor approval. 3 hours

ANTH 5010 The Rise of Civilization The archaeological sequence in one or more of the nuclear centers of prehistoric civilization will be considered in some detail. The course may focus intensively upon one area (e.g. the Near East or Meso-America), or it may give equal emphasis to two or more areas in a comparative framework. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology, including either (ANTH 1100 or ANTH 2100) or instructor approval. 3 hours

ANTH 5030 Anthropology in the Community Students in the course apply anthropological methods and understandings to a community based research and/or service project. The focus of the class rotates among different sites and topics depending upon the semester it is offered. The experiential learning component of this course facilitates student understandings about the relevance of anthropology to problems and projects outside of the university setting and strengthens community connections with the university. May be repeated for credit. Open to upperclass and graduate students. 4 hours

ANTH 5040 Archaeological Research Methods An in-depth exploration of archaeological research methods, emphasizing how archaeologists analyze and interpret the material record. Students learn the complexity of archaeological methods through a practice oriented approach to topics such as research design, sampling, typology, classification, database management, lithic, ceramic, faunal and floral analytical techniques, archaeological illustrations, writing, curation, and collections management. Open to upperclass and graduate students. Prerequisite: ANTH 2100 3 hours

ANTH 5060 The Archaeology of Gender Gender constructs, a critical organizing principle for human interaction, are becoming an important focus for archaeological investigation. This course will explore the multiple ways archaeologists have attempted to use gender relations as a means to gain insights into individual societies. We will follow gender as an archaeological concept historically and conceptually. Participants will explore the attempts and successes of a gendered understanding of the archaeological record. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology, including ANTH 2100. 3 hours

ANTH 5070 Gender Theories This course examines the dialogue between anthropologists, feminists theorists and post-structuralists over the course of the 20th century. Beginning with path-breaking works by Margaret Mead and Simone de Beauvoir the course teases out the role that ethnographic scholarship has played in some of the major intellectual debates of the late 20th century, including subjectivity/objectivity and sex/gender. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology. 3 hours

ANTH 5090 Cultural Resource Management Archaeology Cultural Resource Management is an important aspect of modern American archaeology; it is in this context that most sites are excavated, archaeological data is collected, and where most archaeologists work. The goal of this course is to consider larger issues of Historic Preservation and Cultural Resource Management in archaeology by focusing on topics including the history, politics, and legal structure of preservation, the structure and practical realities of the CRM industry, looting, public presentation and outreach, global heritage, and heritage tourism. Open to upperclass and graduate students. Prerequisite: ANTH 2100 3 hours

ANTH 5220 Poverty, Power, and Privilege This course critically explores anthropological approaches to understanding poverty as well as racial, class, and sexual inequalities. The course emphasizes inequalities within the contemporary United States, but situates those dynamics within an analysis of global processes and conditions. Particular emphasis is placed on analyzing ways that everyday practices, neoliberal social policies, economic restructuring, resistance efforts, and institutional practices play in producing, challenging, and maintaining structural violence. Feminist, post-structuralist, Marxist, cultural studies, and hegemony studies approaches are covered. Both ethnographic case studies and theoretical analysis are explored to inform collaborative required applied community based anthropological research on power, race, and class relations within the Kalamazoo region. Open to Upperlevel and Graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology, including either (ANTH 1200 or ANTH 2400). 3 hours

ANTH 5250 Spirits and Medicine This course explores how healing is linked to belief and in turn how beliefs about well-being, illness, and treatment are culturally prefigured. Students will examine healing practices in the United States and cross-culturally as they related to belief and consciousness, including western medicine and alternatives,
spirit possession and trance, and methods of divination. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology, including ANTH 2400. 3 hours

ANTH 5300 Research Methods An in depth consideration of the research methods and tools of the modern anthropologist. An emphasis on methods and techniques of data collection, statistical analysis, and graphic presentation of a wide variety of anthropological data. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology. 3 hours

ANTH 5330 Museums and Material Culture This course comprises: a critical consideration of museum practices, including processes of collection, archives, and exhibition; and critical approaches to material culture more broadly. It is also meant to be an exploratory course, dependent on full engagement between participants – instructor as well as students. We will be actively engaged in a process of discovery in terms of how to understand objects in cultural and historical context, how to critically interrogate a variety of anthropological approaches to objects over time, and how to understand anthropology’s responsibility to the public through museum practices. Open to upperclass and graduate students. Prerequisite: ANTH 2100 3 hours

ANTH 5400 Ethnographic Research Methods An exploration of the complexity of ethnographic research methods through a practice oriented approach to training in ethnographic approaches. Students learn a range of qualitative research methods as well as the political, ethical, methodological, and theoretical dilemmas of anthropological fieldwork and writing through supervised fieldwork projects as well as classroom assignments. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology or consent of instructor. 3 hours

ANTH 5450 Topics in Sociocultural Anthropology An intensive study of the cultures of an area of the world or selected problems. Topics will be announced each semester. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology, including ANTH 2400 or consent of instructor. 3 hours

ANTH 5500 Human Evolution This course is designed to provide students with an intensive examination of the human fossil record from the initial divergence of the hominid lineage to the origin of modern homo sapiens. Emphasized in this course will be paleontological theory, issues relating to species definition and recognition, functional anatomical complexes, adaptive processes, and human morphological variation. Open to upperclass and graduate students. Prerequisite: Junior standing and 12 hours of course work in anthropology, including ANTH 2500. 3 hours

ANTH 5550 Topics in Biological Anthropology A consideration of the biological relationships of specific population groups or general problems in human biology (e.g. human genetics, human growth and constitution, palaeopathology, dental anthropology). Topic will be announced each semester. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of course work in anthropology, including ANTH 2500 or consent of instructor. 3 hours

ANTH 5900 Anthropology as a Profession The course provides a survival guide for the world of professional anthropology. Students will develop the core skills needed to work in academia or applied fields. These skills include creating and maintaining a CV and resume; grant-writing; developing research designs; literature reviews; thesis research; writing proposals; oral and written presentations of research; publication of books; articles and reports; negotiating with ethics boards and other bureaucracies; teaching pedagogy; and course development. The goal of this course is to prepare students to use their anthropological training in whatever career trajectory they hope to pursue; university settings or applied fields such as museums, Cultural Resource Management firms, forensics laboratories, non-profit organizations, etc. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 hours of coursework in Anthropology or instructor approval. 3 hours

Arabic
ARAB 1000 Basic Arabic I Fundamentals of modern Arabic with emphasis on listening and speaking skills. This course satisfies General Education Proficiency 4: Foreign Languages. 4 hours

ARAB 1010 Basic Arabic II Continuation of ARAB 1000. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: ARAB 1000. 4 hours
ARAB 2000 Intermediate Arabic I  The development of written and spoken expression in modern Arabic with an emphasis on grammar review. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisite: ARAB 1010.  4 hours

ARAB 2010 Intermediate Arabic II  Continuation of ARAB 2000. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisite: ARAB 2000.  4 hours

ARAB 2750 Life and Culture of the Arabs  This course introduces specific elements of life and culture in the Arab World, past and present. Those elements include history, religions, geography, languages, arts, politics, and literatures. The course will be offered in English with no prerequisites and will be open for the general student body. The course seeks to create a link between the Arabic language and the culture that provides its natural context. The aim is to provide students with an informed and balanced view of some of the pressing aspects of Arab life and culture, and to do so in such a way as to demonstrate the uniqueness and yet diversity of Arabic sub-cultures on the one hand, and the universality of the Arab culture(s) on the other. This course satisfies General Education Area IV: Other Cultures and Civilizations.  3 hours

ARAB 3000 Advanced Standard Arabic I  Emphasis on increasing the student’s command of Modern Standard Arabic with focus on media and expository writing.  Prerequisite: ARAB 2010 or instructor approval.  4 hours

ARAB 3010 Advanced Standard Arabic II  Continuation of Arabic 3000 with achievement of advanced-level communicative competence in Modern Standard Arabic with focus on literature and research writing.  Prerequisite: ARAB 3000 or instructor approval.  4 hours

ARAB 4760 Foreign Study – non WMU  Student participation in pre-approved program of study abroad that is not through Western Michigan University. Repeatable for credit up to 32 credit hours.  Prerequisite: Prior approval of departmental advisor and chairperson.  1 to 16 hours

ARAB 4770 Arabic Foreign Study  Student participation in a departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours.  Prerequisite: Prior approval of departmental advisor and chairperson.  1 to 16 hours

ARAB 5020 Arabic for Graduate Study  Arabic instruction for graduate students enrolled in a degree program who need knowledge of Arabic for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field.  Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.  3 to 4 hours

ARAB 5030 Arabic – English Translation Practicum  This is a practical course to teach the skills for translating texts from Arabic into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of Arabic texts, such as news, essays, documents, poetry, and short fiction. May be repeated for credit. Open to upperclass and graduate students.  Prerequisite: ARAB 2010 or instructor approval.  1 to 4 hours

ARAB 5200 Topics in Arabic Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upper-class and graduate students.  3 hours

ARAB 5500 Independent Study in Arabic  Directed individual study of a specific topic in Arabic literature or linguistics. May be repeated for credit. Open to upperclass and graduate students.  Prerequisite: ARAB 1010 and department approval.  1 to 3 hours

Art
ART 1040 Object Drawing  This course focuses on drawing as a vehicle for thinking, seeing and communicating. Work includes drawing from direct observation. Students learn to analyze drawings and improve compositional skills, drawing techniques and methods. The properties of line, value, texture, shape and space are dealt with as elemental to the drawing process. An ability to render and draw expressively, in a variety of materials, is stressed. Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design. 3 hours

ART 1050 Drawing Studio  This course focuses on the drawing experience as a vehicle for art-making, as a process and to convey ideas. Different types of image-making processes are studied, along with their potentials for meaning. Students learn to invent from observation and imagination, and to assemble disparate information in various types of space. There is also an introduction to historical and contemporary drawing practice from many traditions. Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design. 3 hours

ART 1070 Form and Surface  This course places emphasis on the development of creative thinking as a vehicle to achieve both communication of content and visual expression. A focus is placed on two-dimensional problem solving, conceptualization and implementation through exposure to a variety of materials, processes, and methodologies. Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design. 3 hours

ART 1080 Form and Space  This course places emphasis on the development of creative thinking as a vehicle to achieve both communication of content and visual expression. A focus is placed on three-dimensional problem solving, conceptualization and implementation through exposure to a variety of materials, processes and methodologies. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Interior Design. 3 hours

ART 1200 Introduction to Art  A topical introduction to the visual arts: painting, architecture, sculpture and the crafts. Discussions and slide presentations on such themes as the meaning of modern art, art as cultural and sociological expression, as symbol, as play and as form. This course will enable the non-art student to develop an art vocabulary and gain insights into our human quest for creative expression. This course satisfies General Education Area I: Fine Arts. 3 hours

ART 1300 Studio Experience - (3-D)  A course designed for the non-art student as an enriching experience in three-dimensional media to include clay, wood, metal, and other sculptural material. This course may not be elected by majors or minors in art or art education. It is designed primarily for the general university student who wishes to have some experience in art. This course satisfies General Education Area I: Fine Arts. 3 hours

ART 1400 Studio Experience - (2-D)  A course designed for the non-art student as an enriching experience in two-dimensional media to include painting, drawing and other graphic media. May not be elected by majors or minors in art or art education. This course satisfies General Education Area I: Fine Arts. 3 hours

ART 1480 Direct Encounter with the Arts  A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of areas: cinema, photography, theatre, sculpture, music, poetry, dance and architecture. Classroom discussions are held following the student's participation in the various art events scheduled each semester, with students expected to write journals and response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross-listed with DANCE 1480, MUS 1480, THEA 1480. May be taken only once from College of Fine Arts Departments. This course satisfies General Education Area I: Fine Arts. 4 hours

ART 1600 Design Studio  This course provides an overview of the product development process. It focuses on the design process (which includes, but is not limited to: process definition, research, analysis, ideation, articulation, development, feedback, iteration, testing, and production). Lectures will explore current trends and issues in the field. Students will learn about the history of product design, design concepts, and methodology through discussions. In addition, the course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. Historical and contemporary case studies will be examined and analyzed. Repeatable for credit, minimum of 4 hours required. Restricted to majors in Product Design. Prerequisites: ART 1040, ART 1080, and either (ART 2200 or ART 2210 or ART 2220 or ART 2230.) A grade of "C" or better is required in all prerequisites. 1 hour

ART 1610 Drawing for Design  Drawing for Design provides the transitional training from general drawing skills taught in foundation studio art courses to industry-specific methods of visual communication relevant to a
career in product design. Students will develop specialized skills for design-based drawing that will help them communicate appearance, function, material and style. Restricted to majors in Product Design. Prerequisites: ART 1040 and ART 1050, with a grade of "C" or better in all prerequisites.

ART 1650 Product Design I This course provides an overview of the innovative product development process and focuses on problem definition, articulation, and resolution. The course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. Students will learn about design concepts and methodology through lectures, discussions, and problem-solving assignments. Historical and contemporary case studies will be examined and analyzed. Restricted to majors in Product Design. Prerequisites: ART 1040, and ART 1080, and either (ART 2200 or ART 2210 or ART 2220 or ART 2230). A grade of "C" or better is required in all prerequisites.

Corequisite: ART 1600 3 hours

ART 2100 Life Drawing The study of the essential aspects of life drawing (such as gesture, contour, proportions, anatomy, structure, and articulation) and their synthesis into a coherent drawing attitude. Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design. Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours

ART 2160 Black & White Photography I An introductory course that explores considerations of equipment and materials related to the black & white darkroom such as the function of the camera, lenses, black & white films, printing and/or studio lighting. Emphasis is placed on conceptual development and technical proficiency towards the creation of a portfolio. Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080 with a grade of “C” or better in all prerequisites. 3 hours

ART 2200 History of Art An historical survey of art from prehistoric ages to the Renaissance. This course satisfies General Education Area I: Fine Arts. 3 hours

ART 2210 History of Art An historical survey of art from the Renaissance through the contemporary period. This course satisfies General Education Area I: Fine Arts. 3 hours

ART 2220 Art of Africa, Oceania, and the Americas A survey of the diversity of media forms and context within which Africans, Pacific Islanders and Native Americans make and use art, including contemporary expressions. Art will be discussed in relation to wider cultural contexts, historical and political ideas, and aesthetic approaches. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

ART 2230 Introduction to Asian Art History This course will investigate the history of Asian art from the prehistoric to the modern periods, including arts of the cultures of China, Japan, Korea, East Asia and India. Art will be discussed in relation to wider cultural contexts, historical and political ideas, and aesthetic approaches. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

ART 2300 Ceramics A course devoted to a survey of pottery processes, including handbuilding, technical information and a limited experience with the potter's wheel. Restricted to majors or minors in Art, or majors in Art Education, Graphic Design, or Industrial Design. Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours

ART 2310 Sculpture A fundamental course in sculpture exploring the theories and concepts of three-dimensional art forms in space. Mechanical, structural and compositional principles will be studied. An overview of historical sculptural forms will be presented. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design. Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours

ART 2380 Jewelry and Metalsmithing A survey of jewelry projects with instruction in design and metal craft. Copper, brass, and sterling are the principal materials. Basic stone setting and casting procedures are usually included. Students generally fashion several jewelry pieces in this class. Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design. Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours
ART 2400 Painting I  A fundamental course in oil painting to assist the student in realizing visual observations, compositional sensitivities, and personal expression through basic painting techniques. Seeing color, mixing color, and making specific color decisions are the vehicles for studying basic painting methods and space. An overview of historical painting styles will be presented. Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design.
Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours

ART 2410 Intaglio and Relief  A fundamental exposure to the techniques of Intaglio and Relief printing and an introduction to print aesthetics. Restricted to majors or minors in Art; or majors in Art Education or Graphic Design.
Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours

ART 2430 Lithography  A basic introduction to Lithography through aluminum plate techniques. Fundamental discussion of stone lithography and aesthetic possibilities of the medium. Restricted to majors or minors in Art Education, or Graphic Design. Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080.
3 hours

ART 2450 Graphic Design-Non BFA in Graphic Design  An introduction to problem-solving for visual communication through typographic images. The fundamentals of calligraphy, typography, and typographic design are investigated in experimental and practical projects. Incorporates research in the communicative potential of color and structure. Restricted to majors in Art, Art Education, or Graphic Design. Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours

ART 2460 Screenprint  Introduction to screenprint fundamentals, techniques and procedures, exploring at length the expressive potentials of the medium-to include basic color printing procedures. Restricted to majors or minors in Art; or majors in Art Education or Graphic Design. Prerequisites: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours

ART 2500 Color for Graphic Design  Studies in color theory emphasizing issues and problem solving related to graphic design. This includes investigations in additive and subtractive color theories as applied to reflective and transmitted media, as well as color systems used in graphic reproduction. Restricted to majors in Graphic Design.
Prerequisites: ART 1040, ART 1050, ART 1070, ART 1080, and either (ART 2200 or ART 2210); and acceptance into BFA in graphic design by portfolio review. 3 hours

ART 2510 Typography I  Studies in the design of letterforms and typographic structure. Emphasis is on developing an understanding of typographic form through drawing and compositional exercises and discussion of perceptual, historical, and technological influences. Computer technology will be investigated. Restricted to majors in Graphic Design.
Prerequisites: ART 2500, ART 2600. 3 hours

ART 2600 Graphic Design I: Visual Aesthetics  Theoretical visual studies in graphic design involving point, line and shape, dealing with formal values and composition. Emphasis on problem solving, skill development, perceptual acuity and an understanding of visual aesthetics. Restricted to majors in Graphic Design. Prerequisites: ART 1040, ART 1050, ART 1070, ART 1080, and either (ART 2200 or 2210); and acceptance into BFA in graphic design by portfolio review. 3 hours

ART 2610 Graphic Design II: Graphic Form  A continuation of Graphic Design I. Studies in space, form and composition involving an integration and application of formal values and problem solving. Visual systems of pictorial and symbolic form are explored through organic and geometric drawing exercises. Computer technology will be investigated. Restricted to majors in Graphic Design.
Prerequisites: ART 2500 and ART 2600. 3 hours

ART 2650 Product Design II  This course focuses on developing a better understanding of design processes through making and learning specific fabrication materials and methods. Students gain experience in giving form to objects and products. Prototyping techniques and digital design tools will be explored. In addition, the course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. Restricted to majors in Product Design.
Prerequisites: ART 1610 and ART 1650; with a grade of "C" or better in all prerequisites. Corequisite: ART 1600. 3 hours
ART 2660 Materials and Processes  Materials and Processes introduces students to a broad sampling of materials and methods available for industrial manufacturing. Through an understanding of both fundamental and innovative materials, students will develop a rich palette from which to develop industry-leading products. Through a combination of studio coursework in state of the art labs and trips to the region's many top manufacturing companies, students will develop a comprehensive understanding of the progression from final prototype to the production of market-ready goods, systems and services. Additionally, through a series of product simulations, historical case studies, and critiques from working professionals, students will be trained to consider relevant concerns that may affect the manufacturing process, such as sustainability, ethical sourcing, and best practices for developing robust systems that can succeed in a global business environment. Restricted to majors in Product Design.  Prerequisites: ART 1040 and ART 1050 and ART 1070 and ART 1080 and ART 1650; with a grade of "C" or better in all prerequisites.  3 hours

ART 2700 Monoprint I  This course will investigate a variety of monoprinting processes and current image-making methods utilizing printmedia, drawing, collage and painting techniques. There is no printmedia experience required.  Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080.  3 hours

ART 2750 Video Art I  An introductory course that explores considerations of equipment and materials related to the moving image such as digital video camera, sound recorders, data workflow, editing software and/or emerging lens-based technologies. Emphasis is placed on conceptual development and technical proficiency towards the creation of a portfolio.  Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080 with a grade of “C” or better in all prerequisites.  3 hours

ART 2800 Printmedia I  This beginning studio course introduces students to a variety of basic printmedia processes and equipment with equal emphasis on conceptual and technical development. Students are introduced to a variety of printmedia methods, such as screenprint, relief, intaglio and lithography.  Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080.  3 hours

ART 2900 The Skilled Observer in Art, Science, and Engineering  This course bridges the gap between science, technology and engineering - and the arts. Connecting research practice and education in a wide spectrum of the sciences and engineering with the methodologies and engagement found in arts learning. This course enables students to understand the interdisciplinary worlds transforming their chosen fields of study, and to successfully pursue their subsequent academic work using tools they will find essential in their professions. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications.  3 hours

ART 3000 Special Topics in Printmedia  This intermediate studio course focuses on traditional and contemporary materials and methods in printmedia. Course topic varies from semester to semester. May be repeated for credit.  Prerequisites: ART 2410, ART 2430, ART 2460, ART 2700, or ART 2800; with a grade of "C" or better in all prerequisites.  3 hours

ART 3100 Intermediate Drawing  Drawing as the study of form and as a conclusive aesthetic statement. Model available during approximately one-half of the class meetings. Restricted to majors or minors in Art; or majors in Art Education or Graphic Design  Prerequisite: ART 2100.  3 hours

ART 3160 Black & White Photography II  An intermediate course that expands upon the working knowledge and considerations of equipment, materials and activities related to the black & white darkroom such as medium format camera, hand held light meters, advanced printing and archival processing. Emphasis is placed on the implementation of research, conceptual development and technical proficiency towards the creation of a portfolio.  Prerequisite: ART 2160 with a grade of “C” or better.  3 hours

ART 3210 Topics in Art History: Variable Topics  Investigation of changing topics in art history in class or seminar sessions at an undergraduate level. Course topics are variable. Repeatable for credit under a different topic.  3 hours

ART 3250 Writing About Art  Development of the ability to think, verbalize, and write about art and design. Instruction will address technical issues of writing (syntax, compositional structure, editing format, etc.) and critical evaluation of artistic issues (analysis of the visual experience, research and development of a thesis). Each student will write a series of essays which will form the basis for class discussions. This course is approved as a writing-intensive course which
may satisfy the baccalaureate-level writing requirement of the student's curriculum. Restricted to majors in Art or Graphic Design. Prerequisite: Junior standing. 3 hours

ART 3270 Writing About Art History Development of the ability to think, verbalize, and write about art history, art criticism and aesthetics. Instructor will stress research techniques, critical thinking; correct grammar; syntax and spelling; and professional presentation. Writing exercises will include, but are not limited to, a research paper, book review, and a conference abstract and paper. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Restricted to majors in Art History. Prerequisites: ART 2200 or ART 2210. 3 hours

ART 3300 Ceramics Continuation of ART 2300 with opportunity for concentration in the medium. Some experimentation in glazing. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design. Prerequisite: ART 2300. 3 hours

ART 3310 Sculpture Development of individual sculptural direction in all media. Advanced welding, molding and casting techniques are among the media explored. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design. Prerequisite: ART 2310 or instructor approval. 3 hours

ART 3380 Jewelry and Metalsmithing Intermediate level metalsmithing work. Continued skill development in jewelry design, stone setting, and solder fabrication. Basic lapidary work usually included. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design. Prerequisite: ART 2380. 3 hours

ART 3400 Painting II Continuation of ART 2400. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design. Prerequisite: ART 2400. 3 hours

ART 3410 Intaglio and Relief An intermediate course continuing the investigation of basic and advanced Intaglio and Relief techniques with the introduction of color printing. The artist-student should begin to discover and adapt media and/or techniques (or synthesis of media and/or techniques) appropriate to individual aesthetic intentions. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design or Industrial Design. Prerequisite: ART 2410. 3 hours

ART 3430 Lithography An intermediate investigation of Lithography based on basic skills with the introduction of color printing and other advanced techniques. The artist-student should begin to discover methods and techniques adaptable and appropriate to his aesthetic intent. Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design. Prerequisite: ART 2430. 3 hours

ART 3460 Screenprint II An intermediate course continuing the investigation of basic and advanced screenprint stencil techniques with the introduction of photo-stencil methods. The artist/students should begin to discover and apply methods of technique appropriate to their aesthetic intent. Restricted to majors or minors in Art; or majors in Art Education, or Graphic Design. Prerequisite: ART 2460. 3 hours

ART 3470 Digital Photography I An introductory course that explores considerations of equipment and materials related to the digital darkroom such as color theory, the digital camera, printing, studio lighting, data workflow, related software and/or output of still imagery. Emphasis is placed on conceptual development and technical proficiency towards the creation of a portfolio. Prerequisites: ART 1040, ART 1050, ART 1070 and ART 1080 with a minimum grade of “C” or better in all prerequisites. 3 hours

ART 3500 Typography II Exploring compositional relationships involving the single word, line, column, page arrangement and structural systems. Semantic and syntactic issues will be investigated in projects and exercises. Computer technology will be investigated. Restricted to majors in Graphic Design. Prerequisites: ART 2610 and ART 2510. 3 hours

ART 3510 Typography III Dealing with systems, sequence and series as complex typographic problems. Application of theoretical, pragmatic and technical issues to problems common in publication and institutional communication. Computer technology will be investigated. Restricted to majors in Graphic Design. Prerequisites: ART 3500 and ART 3600. 3 hours
ART 3520 Art, Education, and Child Development  Theories, philosophies, research and practice in art and education at the childhood level. Methods and procedures of developmentally appropriate art education for children. Restricted to majors in the Frostic School of Art. Prerequisite: ART 1040, ART 1050, ART 1070, and ART 1080. 3 hours

ART 3560 Web Art  An intermediate course, that explores the technical and conceptual applications of equipment and software for art made expressly to be experienced on the Internet such as user interface, data workflow and/or related software. Emphasis is placed on the implementation of research, conceptual development and technical proficiency towards the creation of a portfolio. Restricted to majors in Art, Art Education, and Graphic Design. Prerequisite: ART 2750 with a grade of “C” or better. 3 hours

ART 3600 Graphic Design III: Visual Systems  The study of grids and other systems in graphic design and their application to communication problems. Functions as a transitional phase from theoretical issues to applied problems. Computer technology will be investigated. Restricted to majors in Graphic Design. Prerequisites: ART 2610. 3 hours

ART 3610 Graphic Design IV: Design Applications  Continuation of Graphic Design III as a transitional phase from the theoretical to the applied design problem. The evolution of design process is explored and developed. Involves the visual study of grids and systems and their applications. Computer technology will be investigated. Restricted to majors in Graphic Design. Prerequisites: ART 3500 and ART 3600. 3 hours

ART 3620 Product Design III  This course prepares students to apply and connect previously acquired skills and research methods in response to design problems, production constraints, and techniques. The course will also focus on an understanding of how design relates to people and the growing importance of social and environmental responsibilities within the field of product design. In addition, the course will also investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. Restricted to majors in Product Design. Prerequisites: ART 2650 with a grade of "C" or better. Corequisite: ART 1600 3 hours

ART 3680 Special Topics in Design  Any of the following topics could be offered: furniture design, medical equipment design, transportation design, experience design, interaction design, graphic design, and the design of consumer appliances, tools, computer devices, or any additional topic of interest. May be repeated for credit. Restricted to majors in Product Design. Prerequisites: ART 2650 and ART 2660, with a minimum grade of "C" or better in all prerequisites; or faculty approval for non-majors. 3 hours

ART 3700 Monoprint II  This course is a continued investigation of the monotype and monoprint techniques developed in Monoprint I. Students will learn current techniques while continuing to develop and expand their conceptual and formal approaches to the medium with an emphasis on interdisciplinary practices. Prerequisite: ART 2700 3 hours

ART 3710 Special Topics  Topics offered could be any of the following: package design, exhibit design, sign/symbol design, interactive electronic media, photographics, type as image, applied color, visual translation, and any additional topic of interest. Repeatable for credit under different topics. Restricted to majors in Graphic Design. Prerequisites: ART 3500 and ART 3600. 3 hours

ART 3750 Video Art II  An intermediate course that expands upon the working knowledge and considerations of equipment, materials and techniques related to the moving image such as non-linear editing techniques, studio lighting, advanced software application and/or emerging lens based technologies. Emphasis is placed on the implementation of research, conceptual development and technical proficiency towards creation of a portfolio. Prerequisite: ART 2750 with a minimum grade of “C” or better. 3 hours

ART 3800 Printmedia II  This intermediate studio course builds on basic printmedia processes and techniques including multiple color printing, digital and photomechanical processes, and interdisciplinary practices. Emphasis will be placed on the development of a personal visual language through the use of research and technical exploration. Students will be introduced to critical theory relevant to the discipline. Prerequisite: ART 2800 with a grade of "C" or better. 3 hours
ART 3810 Greek and Roman Art  Discussion of Greek and Roman art from 3000 BCE to 400 CE. Material covered will include Cycladic, Minoan, and Mycenaean, as well as the many stylistic divisions of the Greek and Roman periods. Prerequisite: Art 2200.  3 hours

ART 3830 Medieval Art  Presentation of art and architecture from the decline of the Roman Empire through the Gothic Period. Special attention will be paid to the intersection between Medieval religious traditions and the visual arts. Prerequisite: Art 2200.  3 hours

ART 3850 Renaissance Art  Presentation of Renaissance art from the thirteenth through the sixteenth centuries, including the pre-Renaissance, Renaissance, and Mannerist styles. Special attention will be paid to the intersection between contemporary religious and political traditions and the visual arts. The class will focus on the Italian tradition, but will include examples from the Northern Renaissance. Prerequisite: ART 2200.  3 hours

ART 3900 Twentieth-Century Art: 1945 to Present  Major trends in art since World War II are discussed. Emphasis is placed upon contemporary methods of art theory and criticism. Prerequisite: ART 2210.  3 hours

ART 4470 An intermediate course that expands upon the working knowledge and considerations of equipment, materials and activities related to the digital darkroom such as acquisition, digital manipulation and/or output of still imagery. Emphasis is placed on the implementation of research, conceptual development and technical proficiency towards the creation of a portfolio. Prerequisites: ART 2160 and ART 3470 with a minimum grade of “C” or better in all prerequisites.  3 hours

ART 4520 Art, Education, and Adolescent Development  Theories, philosophies, research and practice in art and education at the adolescent level. Methods and procedures of developmentally appropriate art education for adolescents. Restricted to majors in Art Education. Prerequisite: ART 3520  3 hours

ART 4600 Graphic Design V: Advanced Problems  Applied design problems of an advanced complex nature emphasizing design methodology and research. Input from the community and outside sources will be a focus for the problem solving process. The problems will deal with a series of related parts and involve conventional and new media. The emphasis will be on analysis as it applies to the theoretical and applied project. This will include the experiences of design teams. Computer technology will be utilized. May be taken in conjunction with ART 5700 Intern I. Restricted to majors in Graphic Design. Prerequisites: ART 3510 and ART 3610.  3 hours

ART 4610 Graphic Design VI: Senior Projects  Individual Senior Thesis projects. Involves topic research and design solutions to complex problems as a culmination of studies in graphic design. Emphasis will be on research, design process, methodology and innovation. Computer technology will be utilized. Restricted to majors in Graphic Design. Prerequisite: ART 4600  4 hours

ART 4640 Design Internship  Design internship provides students with work experience and exposure to professional practice through an internship in a professional setting. The Internship can be taken in the summer between the second and third and/or the third and fourth years of the Product Design program. May be repeated for credit. Restricted to majors in Product Design. Prerequisites: ART 1600, ART 1610, ART 1650, ART 2650 and ART 2660; with a grade of "C" or better in all prerequisites.  3 hours

ART 4650 Product Design IV  This course focuses on design thinking and interdisciplinary product design development. A research and systems-based approach will be utilized to develop design concepts and ideas. Students will explore various design methodologies and investigate how human factors, aesthetics, and product semantics affect a product's success. Human centered design approach will be explored. In addition, the course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. Restricted to majors in Product Design. Prerequisite: ART 3620 with a grade of "C" or better.  3 hours

ART 4670 Thesis Project  This is a capstone course for the student's education in Product Design. Students will be required to present a suite of visualizations, prototypes and research that comprehensively describe an original product or system for use. The students' thesis projects include descriptions and documentation of their trajectory from the
identification of a problem or market opportunity, to the unveiling and early testing/use of their projects. Restricted to majors in Product Design. Prerequisite: ART 4650 with a grade of "C" or better. 3 hours

ART 4980 Product Design V  This course is designed for senior Product Design students who will be entering the profession upon graduation. Students will have the opportunity to engage in a variety of design activities including conceptual development, research, material/technical exploration, and visual experimentation. The course will investigate the movements in the history of product design and the development of materials, production, technologies, consumption and other social and cultural concerns that impact the field. In addition, students will collaboratively work together to explore spatial environment as a medium to create and install a graduation exhibition. Attention will also be given to the development of a design portfolio and a variety of self-promotional materials in anticipation of a job search. Restricted to majors in Product Design. Prerequisite: ART 4650, with a grade of "C" or better. Corequisite: ART 1600 3 hours

ART 4710 Special Topics in Photography and Intermedia  A studio or seminar that investigates changing topics in Photography and Intermedia. Course topics vary from term to term. May be repeated for credit. Prerequisite: Junior standing or instructor approval. 3 hours

ART 4900 Graduation Presentation and Seminar-Painting  Investigation and evaluation of contemporary topics and trends in painting. Students will be exposed to how painters express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in painting to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Restricted to majors in Art B.F.A. program. Prerequisites: Senior standing. 3 hours

ART 4910 Graduation Presentation and Seminar-Sculpture  Investigation and evaluation of contemporary topics and trends in sculpture. Students will be exposed to how sculptors express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in sculpture to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Restricted to majors in Art B.F.A. program. Prerequisites: Senior standing. 3 hours

ART 4920 Graduation Presentation and Seminar-Graphic Design  Investigation and evaluation of contemporary topics and trends in sculpture. Students will be exposed to how sculptors express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in sculpture to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Restricted to majors in the Graphic Design B.F.A. program. Prerequisites: Senior standing. 3 hours

ART 4930 Graduation Preparation  This course covers topics useful to the student as they make the transition from art school to their own practice as a professional artist. Coursework will provide resources on all aspects of the emerging artist’s career-studio practice, including developing ties in the art world, documenting work, exhibiting art, writing about art, taking on curatorial responsibilities, addressing financial and legal concerns, and applying to graduate school. Students are encouraged to take this course the semester prior to the semester in which they graduate. Prerequisite: Senior standing. 3 hours

ART 4940 Graduation Presentation and Seminar-Printmaking  Investigation and evaluation of contemporary topics and trends in printmaking. Students will be exposed to how printmakers express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in printmaking to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Restricted to majors in Art B.F.A. program. Prerequisites: Senior standing. 3 hours

ART 4950 Graduation Presentation and Seminar-Jewelry/Metalsmithing  Investigation and evaluation of contemporary topics and trends in jewelry/metalsmithing. Students will be exposed to how jewelers and metalsmiths express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in jewelry/metalsmithing to include slide documentation...
and oral examination or written thesis. Evaluation by a departmental reviewing committee. Restricted to majors in Art B.F.A. program. Prerequisites: Senior standing.

**ART 4960 Graduation Presentation and Seminar-Ceramics**
Investigation and evaluation of contemporary topics and trends in ceramics. Students will be exposed to how ceramists express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in ceramics to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Restricted to majors in Art B.F.A. program. Prerequisites: Senior standing.

**ART 4990 Senior Thesis**
Capstone course required for Art History majors in which the student revises a research paper written in an upper division course in order to produce a paper of publication quality. Restricted to majors in Art History. Prerequisite: Registration requires approval by supervising faculty member.

**ART 5000 Independent Studies**
An opportunity for qualified undergraduates to elect an area of special interest and pursue it in depth. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: ART 3100 and department approval.

**ART 5100 Drawing Workshop**
Continuation of ART 3100. Repeatable for credit. Open to upperclass and graduate students. Prerequisite: ART 3100.

**ART 5200 Independent Study in Art History**
Problems in Art History from ancient times to the present, selected by the individual student in consultation with the instructor. Repeatable for credit. Open to upperclass and graduate students. Prerequisites: Department approval.

**ART 5210 Topics in Art History: Variable Topics**
Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. May be repeated for credit under different topics. Open to upperclass and graduate students. Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval. Prerequisite: Junior standing.

**ART 5220 Topics in Medieval and Renaissance Art**
Investigation of changing topics in Medieval and Renaissance art history in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. May be repeated for credit under different topics. Open to upperclass and graduate students. Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval. Prerequisite: Junior standing.

**ART 5230 Topics in Modern Art**
Investigation of changing topics in modern art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. May be repeated for credit under different topics. Open to upperclass and graduate students. Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval. Prerequisite: Junior standing.

**ART 5250 Topics in Asian Art**
Investigation of changing topics in Asian art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. May be repeated for credit under different topics. Open to upperclass and graduate students. Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval. Prerequisite: Junior standing.

**ART 5270 Art History Methods**
Intensive study of the methods, literature, and research techniques used in art historical inquiry and writing. Open to upperclass and graduate students. Restricted to majors or minors in Art History; MFA candidates and other undergraduate and graduate students with department approval. Prerequisite: Junior standing.

**ART 5290 Art History Internship**
Designed to provide Art History majors with professional knowledge and skills in the following areas: gallery, museum, archival, visual resources library work, arts advocacy, and arts administration. Students are supervised by an Art History faculty member and a supervisor in the organization where the
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ART 5300</td>
<td>Ceramics Workshop</td>
<td>Advanced work in ceramics on an independent basis. May be repeated for credit. Open to upperclass and graduate students. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design. Prerequisite: ART 3300</td>
<td>1 to 6 hours</td>
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<tr>
<td>ART 5310</td>
<td>Sculpture Workshop</td>
<td>Continuation of ART 331. The advanced student explores the expressive possibilities of his or her own individual sculptural direction, with bronze and aluminum casting related techniques. May be repeated for credit. Open to upperclass and graduate students. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design. Prerequisite: ART 3310.</td>
<td>1 to 6 hours</td>
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<tr>
<td>ART 5350</td>
<td>Intermedia Workshop</td>
<td>An advanced interdisciplinary course that examines unconventional art forms such as collaboration, kinetic, performance and/or installation art. The student is expected to have a solid background in one conventional art form to allow for technical and conceptual explorations in Intermedia art. Course topic varies from semester to semester. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Junior standing or instructor approval.</td>
<td>1 to 4 hours</td>
</tr>
<tr>
<td>ART 5380</td>
<td>Jewelry and Metalsmithing Workshop</td>
<td>Advanced work in jewelry design and metalsmithing. Students collaborate with the instructor to plan a suitable and particular direction for study. May be repeated for credit. Open to upperclass and graduate students. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design. Prerequisite: ART 3380.</td>
<td>1 to 6 hours</td>
</tr>
<tr>
<td>ART 5400</td>
<td>Painting Workshop</td>
<td>Continuation of ART 3400. Repeatable for credit. Open to upperclass and graduate students. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design. Prerequisite: ART 3400.</td>
<td>1 to 6 hours</td>
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<tr>
<td>ART 5410</td>
<td>Printmedia Workshop</td>
<td>This advanced studio course investigates contemporary trends in printmedia including such topics as 'the multiple' and three-dimensional and installation methods. Students are encouraged to explore all printmedia and interdisciplinary approaches. An in-depth analysis of critical print media theory will provide the basis for the continuing development of the student's own personal language and its contextualization within contemporary art. May be repeated for credit. Restricted to majors or minors in Art; or majors in Art Education or Graphic Design. Open to upperclass and graduate students. Prerequisite: ART 2800 and ART 3800.</td>
<td>3 hours</td>
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<tr>
<td>ART 5420</td>
<td>Watercolor Workshop</td>
<td>Continuation of advanced watercolor techniques with emphasis on experimentation. May be repeated for credit. Open to upperclass and graduate students. Restricted to majors or minors in Art; or majors in Art Education, Graphic Design, or Industrial Design. Prerequisite: ART 3420.</td>
<td>1 to 6 hours</td>
</tr>
<tr>
<td>ART 5480</td>
<td>Photography Workshop</td>
<td>An advanced course that masters the technical and conceptual applications of still image equipment and materials with focus on portfolio development and advanced individual research. Critical readings are partnered with studio projects. Course topics vary from semester to semester. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: ART 3160 or ART 4470 with a minimum grade of “C” in all prerequisites.</td>
<td>1 to 4 hours</td>
</tr>
<tr>
<td>ART 5520</td>
<td>Art Education Practicum</td>
<td>A teaching laboratory course. Application of theories and skills in art education. Practice in methods and procedures of art education. Must be repeated for a total of 12 credits. Open to upperclass and graduate students. Restricted to majors in Art Education. Prerequisites: ART 3520 and ART 4520, or instructor approval.</td>
<td>6 hours</td>
</tr>
<tr>
<td>ART 5530</td>
<td>Independent Studies in Art Education</td>
<td>An arranged elective course in which the student investigates and researches a problem, a project, or trends in art education. (Not to be taken in place of required art education courses.) May be repeated for credit. Open to upperclass and graduate students. Restricted to majors or masters in Art Education. Prerequisite: Department approval.</td>
<td>1 to 6 hours</td>
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<tr>
<td>ART 5700</td>
<td>Intern I</td>
<td>Design practicum in Design Center. Involves an introduction to problem-solving for clients from the community and university. Focus is on the design process from concept to completion and involves client</td>
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contact, budget preparation, electronic pre-press production and interface with printers and the printing industry. Open to upperclass and graduate students. Restricted to majors in Graphic Design. 

Prerequisites: ART 3510 and ART 3610. 3 hours

ART 5710 Intern II Design practicum in Design Center. Involves problem solving for clients from the community and university. Focus is on the design process from concept to completion and involves design team experience, client contact, budget preparation, electronic pre-press production and interface with printers and printing industry. Credits are variable due to the fact that larger, more intense projects are sometimes given and the credits are determined by the depth of the project. Open to upperclass and graduate students. Restricted to majors in Graphic Design. Prerequisites: ART 4600 and ART 5800. 3 to 6 hours

ART 5930 Digital Imaging Studio An instructor-directed graduate level course of study that helps the student develop a personal pictorial language, explore a variety of aesthetic concepts, and investigate different processes while working with digital technologies. Students will become familiar with contemporary art theories. The primary focus of this course of study is on the making of original works of art and integrating new understandings into one's own pedagogy. Restricted to Master of Arts in Art Education. 2 hours

ART 5960 Printmaking Studio An instructor-directed graduate level course of study that helps the student develop a personal pictorial language, explore a variety of aesthetic concepts, investigate different processes while working with both traditional and non-traditional printmaking media and materials. Students will become familiar with contemporary art theories related to printmaking. The primary focus of this course of study is on the making of original works of art and integrating new understandings into one's personal pedagogy. Restricted to Master of Arts in Art Education. 2 hours

Arts and Sciences

A-S 1850 Introduction to the Pre-Health Professions The goal of this seminar course is to introduce new Pre-Health Professions students to both the academic aspects of college (via Study Skills Seminars, etc) as well as the pathways towards fields in Healthcare (via panel discussions and a research project). This course prepares students to undertake and successfully manage the challenges and responsibilities of a Pre-Health Professions student. It is intended to (1) enhance students' academic skills while focusing on engagement and a successful transition to the university setting; (2) focus on enhancing skills that pertain to college life; (3) focus on personal exploration; (4) help students begin to make decisions about their majors and careers, which can be intimidating choices for a first-year student. While it is intended for freshman, all new students are welcome to enroll in the class. 2 hours

A-S 3200 Interinstitutional Study Students may take classes at Davenport College, Kalamazoo College, and Kalamazoo Valley Community College through a cooperative program using this course number for credit toward a WMU degree. Information and enrollment forms may be obtained from the Registrar's Office. Where credit toward the major or minor is desired, prior approval must be obtained from the student's major and/or minor department. Repeatable. 1 to 12 hours

A-S 3400 Sustainable Craft Brewing This course is part of the Sustainable Brewing major, allowing students to take experiential courses related to the business, science, and practice of Craft Brewing. Consult a program advisor for additional details. May be repeated for credit. Prerequisite: Departmental approval. 1 to 30 hours

A-S 3499 Sustainable Brewing Capstone This course is designed to serve as the culminating experience for majors in the Sustainable Brewing major. Incorporating the classroom-based and experiential aspects of the curriculum, each student will work individually with a designated faculty member on a semester-long project. Projects will address an issue, challenge, or problem drawn from the external advisory board of industry leaders in sustainable brewing. Prerequisites: Junior standing, approval of the instructor of record, and a project approval form signed by the student, instructor of record, and the supervising faculty members. 3 hours

A-S 3600 Achieving in Academic English: Emphasis on Reading This course is for undergraduates and graduates who are non-native speakers of English and who have sufficient language proficiency to be admitted to the University, but who need to improve their reading and writing skills in order to perform successfully in their academic world.
The course promotes further development in the ability to read academic prose and to write in the genres needed for academic success, including the research paper. Attention will be paid to critical reading and editing for grammatical correctness in writing. Prerequisite: Prerequisite: Minimum of 500 on TOEFL or an equivalent on an alternative English language proficiency test accepted by Western Michigan University. 5 hours

A-S 3610 Developing Proficiency in English: Emphasis on Speaking and Listening For international students whose interpersonal speaking and listening skills are satisfactory, this course promotes further development of oral language abilities needed for academic success, including group interaction skills. Attention will be paid to developing critical listening and oral presentation skills. Prerequisite: Prerequisite: Minimum of 500 on TOEFL or an equivalent on an alternative English language proficiency test accepted by Western Michigan University. 5 hours

A-S 3900 Arts and Sciences Seminar A variable topics course in interdisciplinary studies or other subjects that fall outside the traditional disciplines. May be taken as an elective or for credit in an Arts and Sciences major or minor by special arrangement with the department. Topics will be announced in the Schedule of Classes. May be repeated once when topic differs. Prerequisite: Arts and Sciences advising approval required. 1 to 4 hours

A-S 3990 Field Experience (Community Participation) A program of independent study combining academic work with social, environmental, civic or political field work. May be used as elective credit only. Repeatable. Prerequisites: A written outline of the student's project, approved by a faculty supervisor, with approval from the office of the Dean. 2 to 8 hours

A-S 4100 Climate Change Studies Capstone This capstone course is designed to help students reflect, synthesize, and integrate knowledge and experiences within the climate change minor program of study. Students are required to provide evidence (previous work and new essays) in the form of a portfolio that illustrates their achievement in meeting the program learning objectives. Prerequisites: Junior or senior standing or permission of the instructor. 1 hour

A-S 4960 Writing-Intensive Mentored Portfolio A student portfolio will be developed in conjunction with a faculty mentor. The faculty mentor will aid the student in the development of the portfolio and will evaluate its contents. The portfolio may be based upon information about their "life experience," professional experience, credits from professional job training seminars and/or significant classroom projects. The course will include at least four significant writing experiences to meet the Baccalaureate Writing requirement. Mentored Portfolio credit can be used for all or part of the Professional Studies capstone experience. Students are required to seek advising prior to taking their first capstone experience. The course may be repeated for a total of six credit hours. Application forms are available from the College of Arts and Sciences advising office, the advising office at the WMU Regional Locations and on the advising page of the College website www.wmich.edu/cas/advising. This course is approved as a writing-intensive course which may satisfy the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Department approval. 3 to 6 hours

A-S 4970 Mentored Portfolio A student portfolio will be developed in conjunction with a faculty mentor. The faculty mentor will aid the student in the development of the portfolio and will evaluate its contents. The portfolio may be based upon information about their "life experience," professional experience, credits from professional job training seminars and/or significant classroom projects. Mentored Portfolio credit can be used for all or part of the Professional Studies capstone experience. Students are required to seek advising prior to taking their first capstone experience. The course may be repeated for a total of six credit hours. Application forms are available from the College of Arts and Sciences advising office, the advising office at the WMU Regional Locations and on the advising page of the College website www.wmich.edu/cas/advising. Prerequisites: Department approval. 2 to 6 hours

A-S 4980 Directed Independent Study A program of independent study (reading or research) that allows the student to pursue a subject that falls outside of the traditional disciplines. The initiative for describing the project, planning the method(s) of investigation, determining appropriate product or results, and securing the cooperation of a faculty member to supervise the work must come from the student. Application forms may be picked up in the College of Arts and Sciences Advising Office and must be approved by the Dean of the College. Approval is contingent on the merit of the proposal. Repeatable up to the maximum of 6 credit hours. Prerequisites: Department approval. 1 to 6 hours

A-S 4990 Cooperative Education and Practical Training Cooperative education, internship or practical training experience during a semester involves full-time planned and supervised work related to the student’s major
or minor and is performed outside the department, unit or university. This work is to be summarized in a written report. Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. Students may take up to a maximum of 6 credit hours in A-S 4990. May be repeated for credit.

A-S 5100 Topics in Legal Studies This course is part of the accelerated law program run collaboratively with the College of Arts and Sciences and the WMU Thomas Cooley Law School, allowing students to take courses through the Law School that are also included in the accelerated program. Consult a program advisor for additional details. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Instructor approval. 1 to 18 hours

Aviation

AVS 1110 Foundation of the United States Air Force Introduction to the U.S. Air Force today. Mission and organization; group leadership problems; introduction to communication skills. Leadership laboratory. Prerequisite: Department approval. 1 hour

AVS 1120 Foundation of the United States Air Force II Introduction to the U.S. Air Force today. Mission and organization; group leadership problems; introduction to communication skills. Leadership laboratory. Prerequisite: Department approval. 1 hour

AVS 1130 Foundation of the United States Air Force Lab Practical projects focus on the knowledge and application of Air Force procedures, processes, and customs. Communication and group leadership techniques are practiced. A physical education component is also included. Corequisite: AVS 1110 1 hour

AVS 1140 Foundation of the United States Air Force II Lab Practical projects focus on the knowledge and application of Air Force officer environment and chain of command. The cadet mentor program is defined and application of its principles practiced. Air Force ceremonies, customs, and award activities are defined and practiced. A physical education component is also included. Corequisite: AVS 1120 1 hour

AVS 1200 Introduction to Aviation This course surveys the major topics in the aviation industry. Components of the course include history, regulations, air space, fundamentals of flight, propulsion, and navigation. Basic crew concepts are introduced and various career paths are investigated. Corporate, airline and airport operations are discussed. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

AVS 1210 Aerodynamics and Performance Theory of flight, aircraft structure and control, propulsion, performance, and weight and balance. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. 2 hours

AVS 1220 Introduction to Airframes and Systems This course introduces students to light aircraft construction styles, materials and systems. Students become familiar with system function, operation, cockpit controls and indications. Safety around aircraft is emphasized. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. 2 hours

AVS 1225 Introduction to Aircraft Powerplants This course introduces students to typical aircraft engines including reciprocating and gas turbine engines. Operating cycles, power generation, operating parameters and engine specifics are studied. Typical systems found on these powerplants are studied with an emphasis on nomenclature, function, operation and safety. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. 2 hours

AVS 1230 Aircraft Systems Laboratory This is a laboratory which relates to the topics covered in AVS 1220. It provides hands on familiarization and training with the construction, operation, and control of light aircraft systems. Restricted to majors in Aviation Flight Science or Aviation Management and Operations. Prerequisites: AVS 1220 with a grade of “C” or better (may be taken concurrently). 1 hour
AVS 1235 Aircraft Powerplants Laboratory
This is a laboratory which relates to the topics covered in AVS 1225. It provides hands on familiarization and training with the construction, operation, and control of light aircraft engines and engine sub-systems. Restricted to majors in Aviation Flight Science or Aviation Management and Operations.
Prerequisite: AVS 1225 with a grade of "C" or better (may be taken concurrently).
1 hour

AVS 1510 Professional Flight I Theory
Ground instruction leading to the successful completion of the Private Pilot Knowledge Exam. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.
Prerequisites: Chief flight instructor approval (application required) and FAA 2nd class medical certificate. Corequisite: AVS 1520.
3 hours

AVS 1520 Professional Flight I Lab A
Initial flight and simulator instruction in aeronautical skills and knowledge necessary for basic attitude flight, solo flight, and selected Flight Management Skills. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.
Prerequisites: Chief flight instructor approval (application required) and FAA 2nd class medical certificate. MATH 1100 or SAT minimum MATH score of 520 or ACT minimum MATH score of 20, or MATH 1100 on the Math placement test. Corequisite: AVS 1510
1 hour

AVS 1525 Professional Flight I Lab B
Initial flight and simulator instruction in aeronautical skills and knowledge necessary for safety, private pilot certification, and selected additional navigation skills. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.
Prerequisites: AVS 1520, Chief flight instructor approval (application required), and FAA 2nd class medical certificate.
1 hour

AVS 2050 Aviation Safety
Physiological and psychological factors relating to flight safety emphasizing cause and effect of airplane accidents and related problem-solving processes. Includes a systems approach to safety program development and management. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.
Prerequisite: AVS 1200 or instructor approval.
3 hours

AVS 2060 Flight Physiology
Effects of high altitude flight on the human body, flying and health, first aid and survival. Attention will also be given to information processing and perception in flight. Restricted to majors in Aviation Flight Science or Aviation Management and Operations.
Prerequisite: AVS 2050.
3 hours

AVS 2070 Crew Resource Management
Social and task requirements of effective group performance. Topics include communications, leadership, roles, decision making, resources and team building. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.
Prerequisites: AVS 1200 and PSY 1000 (PSY 1000 may be taken concurrently).
3 hours

AVS 2100 Introduction to Airports
This course introduces airports and the airport system. It looks at historical elements of development, ownership and governance and tracks these to modern times. The airport infrastructure for landside, terminal and airside will be introduced. Systems and components within each will be evaluated, such as signs, lights, and markings, movement areas, servicing, parking areas, and traffic flow. Students will have a choice of any real world airport to study in parallel with topics covered in class. Writing, speaking, and teamwork will be integral with the course. Restricted to majors in Aviation Management and Operations.
Prerequisite: AVS 1200 with a grade of “C” or better (may be taken concurrently).
2 hours

AVS 2110 The Evolution of USAF Air and Space Power I
Air Force heritage. Evolution of air power concepts and doctrine; introduction to ethics and values; introduction to leadership; continuing application of communication skills. Leadership laboratory.
Prerequisite: Department approval.
1 hour

AVS 2120 Aviation Meteorology
Application of meteorology principles to flight operations. Topics include aviation forecasts, weather maps, NOTAMs, international weather patterns and information formats, weather radar, TCAS, and the role and responsibilities of ATC in weather observation and reporting. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.
Prerequisite: GEOG 2250.
3 hours
AVS 2130 The Evolution of USAF Air and Space Power II  
Air Force leaders. Role of technology in the growth of air power; introduction to Quality Air Force; group leadership problems; continuing application of communication skills. Leadership laboratory.  
Prerequisite: Department approval.  
1 hour

AVS 2140 The Evolution of USAF Air and Space Power Lab  
Principles of advanced individual and flight drill movements are practiced. Mental, physical, and administrative requirements of field training are defined and practiced. Practical skills needed to be an effective flight commander are emphasized.  
Corequisite: AVS 2110  
1 hour

AVS 2150 The Evolution of USAF Air and Space Power II Lab  
Proper open rank inspection procedures and field training decorum are explored and practiced. Correct guidon procedures during drill and ceremonies are defined and practiced. Key personnel parade procedures are defined.  
Corequisite: AVS 2130  
1 hour

AVS 2510 Professional Flight II Theory  
Ground instruction pursuant to instrument rating certification with particular emphasis on use of air traffic facilities and airways in visual as well as instrument environments. Instruction leads to the successful completion of the Instrument Pilot Knowledge Exam. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.  
Prerequisites: AVS 1200, AVS 1210, AVS 1220 and AVS 1230 (may be taken concurrently), and AVS 1525, with a grade of "C" or better in all prerequisites; and chief flight instructor approval (application required); and FAA 2nd class medical certificate required. Co-requisite: AVS 2520  
3 hours

AVS 2520 Professional Flight II Lab  
Continuing aeronautical skill, knowledge, and experience necessary for professional pilot application through flight and simulator instruction. Training of instrument flight procedures, advance avionics, and use of air traffic facilities required for instrument rating certification. Restricted to majors in Aviation Flight Science.  
Prerequisites: AVS 2510 and AVS 2120 (both may be taken concurrently) with a grade of "C" or better in all prerequisites; and chief flight instructor approval (application required); and FAA 2nd class medical certificate.  
3 hours

AVS 2600 Aircraft Maintenance Practices  
This course introduces students to basic aircraft construction and standard maintenance practices and equipment. Materials and construction techniques are introduced and inspection processes and requirements are examined. Introduction to and proper use of standard maintenance equipment and techniques is covered. Aircraft conformity and airworthiness standards are defined and methods of determining these are studied. Safe practices and conditions are emphasized. Human factors in maintenance are introduced and professional ethics are explored. Restricted to majors in Aviation Maintenance Technology.  
3 hours

AVS 2610 Maintenance Regulations  
Regulatory structure and legal environment impacting aviation maintenance operations and practices. Including discussion of the Federal Aviation Regulations rule making process, legal documentation, and maintenance publications required for repair station and airworthiness. Restricted to majors in Aviation Maintenance Technology.  
2 hours

AVS 2620 Aircraft Structures I  
Basic aircraft structures including materials, assembly methods, inspection and repair. Primary and secondary flight control operations and rigging, finishing and corrosion control, and aircraft drawings are also covered. Restricted to majors in Aviation Maintenance Technology.  
Prerequisites: PHYS 1070, PHYS 1080, AVS 1220 (with a grade of "C" or better) and AVS 2600 (with a grade of "C" or better).  
3 hours

AVS 2630 Basic Aircraft Engines  
Introduction of basic power plants concepts and principles, including Otto, Diesel, and Brayton cycles of operation. Laboratory work includes engine disassembly. Restricted to majors in Aviation Maintenance Technology.  
Prerequisites: AVS 1200, AVS 1225 and AVS 2600. (A minimum grade of "C" is required for all AVS prerequisites.)  
3 hours

AVS 2640 Aircraft Electrical I  
Classroom and laboratory study of basic DC and AC electricity including electron theory, Ohm’s law, Kirchhoff’s laws, and electrical power. Also covered are series, parallel, and combination circuits, inductance, capacitance and digital concepts. Restricted to majors in Aviation Maintenance Technology.  
Prerequisites: PHYS 1070/1080 and CHEM 1100/1110.  
3 hours
AVS 2650  Aircraft Propellers  Theory of propellers, constant speed propellers and turboprop propellers, propeller control systems and auxiliary systems, airworthiness inspection, maintenance and repair practices. Restricted to majors in Aviation Maintenance Technology.  Prerequisites: PHYS 1070/1080.  2 hours

AVS 2800  Transportation Technology: Policy, Perils, and Promise  Introduction to transportation technologies. Survey the development of transportation policy and the key players in policy decision-making. Case studies will be used to explore issues in the practical application of transportation and how these technologies impact society, including demographics, work, and the environment. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications.  3 hours

AVS 2810  Introduction to Air Traffic Control  Overview of the FAA Air Traffic Control System discussing the roles, responsibilities, and interactions it has within the National Airspace System. This includes a survey of the structure, tools, procedures and services of the air traffic control system emphasizing the role and responsibilities of air traffic controllers within the system. Restricted to majors in Aviation Management and Operations or Aviation Flight Science.  Prerequisite: Sophomore standing; AVS 1200 and AVS 1210 with grades of “C” or better.  3 hours

AVS 2820  Air Traffic Control Tower Operations  Examination of control tower operations within the FAA air traffic control system. Study of operational roles, concerns, regulations and procedures relevant to air traffic controllers in the terminal environment. Restricted to majors in Aviation Management and Operations or Aviation Flight Science with departmental approval.  Prerequisites: AVS 1510 (may be taken concurrently) and AVS 2810.  3 hours

AVS 3040  Airport Safety and Security  This course will examine safety and security at airports from domestic and international perspectives. Understanding the history and corresponding regulations are key to understanding the current safety and security equipment, systems and processes. Students will analyze the evolution of airport safety and security, examine the trending issues and propose ideas to address future needs. Restricted to majors in Aviation Management and Operations.  Prerequisite: AVS 2100 with a grade of “C” or better (may be taken concurrently).  3 hours

AVS 3060  Advanced Aerodynamics and Performance  Advanced aerodynamics and flight principles related to airplane operations and performance. Design concepts for high performance, supersonic and special use airplanes are studied to enable pilots to understand and predict airplane performance and limitations in a wide range of flight applications with special regard for speed and configuration. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.  Prerequisite: PHYS 1070/1080, AVS 1210, AVS 1220, AVS 1230.  3 hours

AVS 3070  Advanced Aircraft Systems  A study of the design, operation, monitoring, and control of transport category aircraft systems. The architecture and interaction among systems is discussed and various aircraft configurations are investigated. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.  Prerequisite: AVS 1220, AVS 1225, AVS 1230 and AVS 1235. Recommend taking AVS 3080 concurrently.  3 hours

AVS 3080  Advanced Aircraft Systems Laboratory  This is a laboratory which relates to the topics covered in AVS 3070. It provides hands-on familiarization and training with the construction, operation, and control of transport category aircraft systems. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.  Prerequisite: AVS 3070 (recommend taken concurrently).  3 hours

AVS 3140  Airport Operations  This course will analyze the day to day operations of a typical large to medium size airport. Students will study Federal Airport Certification regulations (FAR part 139) and the AAAE Learning module 3 as classroom work. They will also participate in field work. They will be assigned to work directly with operations personnel at local airports and gain hands-on experience in an operating airport. Restricted to majors in Aviation Management and Operations.  Prerequisite: AVS 3040 with a grade of "C" or better (may be taken concurrently).  3 hours
AVS 3190 Aviation Law  Legal principles governing the aviation industry. Historical precedents, regulatory statutes, standards, contracts, liability and insurance, current developments and court decisions. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.  
Prerequisites: AVS 1200 and Junior standing.  
3 hours

AVS 3210 Air Force Leadership Studies I  Communication, management, and ethical skills for Air Force officers. Emphasizes standards and professionalism in the modern officer corps.  
3 hours

AVS 3220 Global Navigation and International Flight Planning  Advanced navigation systems and equipment including RNAV, pictorial displays, flight directors, airborne radar, INS, IRS, OMEGA, GLONASS, SATCOM, and GPS. Principles of worldwide navigation including time zones, spherical distance and course, and electronic calculations for decision-making. Long range planning including air transport performance. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. Prerequisites: (AVS 1510, AVS 1520 and AVS 1525) or (AVS 2210 and AVS 2220).  
3 hours

AVS 3230 Air Force Leadership Studies II  Leadership theory, traditional Air Force management functions, and current practices. Emphasizes the application of leadership concepts by junior officers.  
3 hours

AVS 3240 Air Force Leadership Studies I Lab  Apply leadership and management skills in supervising the cadet corps and through leadership experiences. Learn and apply proper feedback and performance evaluation skills. Corequisite: AVS 3210  
1 hour

AVS 3260 Air Force Leadership Studies II Lab  Utilize leadership and management skills in supervising the cadet corps and through advanced leadership experiences. Advanced feedback and performance evaluation skills defined and practiced. Corequisite: AVS 3230  
1 hour

AVS 3300 Aerobatic Flight  Ground and flight instruction in aerobatic flight maneuvers. This course will improve aircraft handling capabilities, critical attitude recovery, understanding of aerodynamics, and self-confidence. Prerequisite: Department and chief flight instructor approval (application required for approval by chief flight instructor).  
1 hour

AVS 3320 Single Engine Seaplane  Ground and flight instruction which would add a seaplane class rating to private or commercial pilot certificate holders. Prerequisite: Department and chief flight instructor approval (application required for approval by chief flight instructor); and Private Pilot Certificate.  
1 hour

AVS 3530 Professional Flight III Theory  Ground instruction emphasizing select professional pilot operations required for commercial pilot certification. Course includes crew concepts, Federal Aviation Regulations, and aeronautical decision making. Restricted to majors in Aviation Flight Science. Prerequisites: AVS 2050, AVS 2060, AVS 2070 (all three may be taken concurrently), and AVS 2520, with a grade of “C” or better in all prerequisites; and chief flight instructor approval (application required); and FAA 2nd class medical certificate.  
2 hours

AVS 3540 Professional Flight III Lab  Continuing development of aeronautical skill, knowledge, and experience necessary for professional pilot application through flight and simulator instruction. Review of advance instrument, cross-country procedures, and introduction to complex aircraft. Restricted to majors in Aviation Flight Science. Prerequisites: AVS 3530 (may be taken concurrently), department and chief flight instructor approval (application required), and FAA 2nd class medical certificate.  
2 hours

AVS 3550 Professional Flight IV Theory  Completion of ground instruction requirements for commercial pilot and multi-engine pilot certification. Focus on commercial maneuvers, complex aircraft systems, application of advance navigation systems, and multi-engine principles of flight. Restricted to majors in Aviation Flight Science. Prerequisites: AVS 3530 and AVS 3540, department and chief flight instructor approval (application required), and FAA 2nd class medical certificate required.  
2 hours

AVS 3560 Professional Flight IV Lab  Completion of flight and simulator instruction in aeronautical skills, knowledge, complex aircraft and experience requirements for commercial, instrument and multi-engine pilot certification. Includes experience in crew concepts, upset training, instrument, single and multi-engine operations. Restricted
to majors in Aviation Flight Science. Prerequisites: AVS 3540 and AVS 3550 (AVS 3550 may be taken concurrently), department and chief flight instructor approval required (application required), and FAA 2nd class medical certificate required.

AVS 3600 Reciprocating Engine Overhaul Comprehensive laboratory work involving the inspection, repair, overhaul, and operation of reciprocating power plants, in accordance with the FAA and manufacturer technical data. Proper logbook entries and overhaul documentation is included. Restricted to majors in Aviation Maintenance Technology. Prerequisite: AVS 2630 with a grade of “C” or better. 4 hours

AVS 3620 Aircraft Structures II Advanced study of aircraft structures building upon the knowledge gained in Airframe I. Includes substantial laboratory work including inspection, test and repair of welded, fiberglass, composite, plastic, honeycomb, and laminated primary and secondary structures. Restricted to majors in Aviation Maintenance Technology. 4 hours

AVS 3630 Reciprocating Engine Systems Principles of operation of reciprocating engine, fuel metering, induction, exhaust, and ignition systems. Restricted to majors in Aviation Maintenance Technology. Prerequisite: AVS 2630. 3 hours

AVS 3640 Aircraft Electrical II Classroom and laboratory study of aircraft electrical diagrams, components (batteries, starters, generators, alternators, regulators, switches, circuit breakers, and wiring), and systems including care, preventive maintenance, and repair. Restricted to majors in Aviation Maintenance Technology. Prerequisite: AVS 2640. 4 hours

AVS 3650 Non-Destructive Testing Theory and application of non-destructive testing methods; liquid penetrant, magnetic particle, radiographic, eddy current, ultrasonic, and enhanced visual. Other methods are also discussed. This course is restricted to majors in Aviation Maintenance Technology. Prerequisites: AVS 3620, AVS 3640 and IEE 1020. 3 hours

AVS 3660 Avionics Theory, operation, installation, inspection, maintenance, and repair of aircraft avionics and associated equipment. Included will be study of flight instruments, communication, navigation, flight management, auto flight, and weather avoidance systems. Restricted to majors in Aviation Maintenance Technology. Prerequisites: AVS 3620 and AVS 3640. 3 hours

AVS 3670 Airframe Systems Classroom and laboratory study of aircraft hydraulic and pneumatic components and systems, air conditioning and pressurization, fire detection and extinguishing systems and other airframe systems. Restricted to majors in Aviation Maintenance Technology. Prerequisites: AVS 3620 and AVS 3640. 4 hours

AVS 3690 Testing Evaluation and Instrumentation Aircraft engine and systems performance testing, operations, and evaluation including applications of indicating and warning systems, signal processing, digital and analog data acquisition. Engine diagnosis includes the use of dynamometers, test cell thrust beds and computer based analyses. Restricted to majors in Aviation Maintenance Technology. Prerequisites: AVS 3630 and AVS 3640. Corequisite: AVS 3660. (A minimum grade of "C" is required for all AVS prerequisites.) 3 hours

AVS 3830 Air Traffic Control Instrument Operations Examination of how instrument flight operations function within the FAA air traffic control system. Study of air traffic controller roles, procedures, and regulatory requirements for instrument operations in the terminal and enroute air traffic environment. Restricted to majors in Aviation Management and Operations or Aviation Flight Science who are approved by the College of Aviation to participate in the Federal Aviation Administration Air Traffic Collegiate Training Initiative. Prerequisites: AVS 2120 (may be taken concurrently), AVS 2510 (may be taken concurrently), and AVS 2820; with a grade of “C” or better in all prerequisites. 3 hours

AVS 3990 Field Experience A program of practical experience and independent study to supplement and enrich classroom learning. Written reports are required. May be repeated to a maximum of eight semester credit hours. Graded on a Credit/No Credit basis only. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. Prerequisite: Department approval. 1 to 3 hours
AVS 4020 Multi-Engine Flight Principles of flight in multi-engine airplanes. Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operation. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. Prerequisite: AVS 3550, department and chief flight instructor approval (application required). 1 hour

AVS 4030 Flight Instructor Fundamentals An introduction to techniques and responsibilities of flight instruction. Includes classroom preparation in fundamentals of learning and teaching theory. Features instruction in proper supervision of instructional scenarios in flight situations. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. Prerequisites: AVS 3560, department and chief flight instructor approval (application required). 2 hours

AVS 4040 Instrument Flight Instructing Techniques of flight instruction applied to instrument flying. Designed to upgrade an airplane flight instructor to an instrument instructor. Instructional techniques of attitude instrument flying, flight simulator utilization, instrument enroute procedures, radio navigation, critical situations, and performance analysis. After certification, supervised teaching experience is required. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. Prerequisites: AVS 4060, department and chief flight instructor approval (application required). 1 hour

AVS 4060 Flight Instructor Certification A study and application of airplane performance skills, flight maneuvers, and pilot operations pursuant to qualification as flight instructor. Involves flight and ground instruction, lesson planning and execution, and analysis of common student errors. Restricted to majors in Aviation Flight Science; Aviation Science and Administration; or Aviation Maintenance Technology. Prerequisites: AVS 4030 (may be taken concurrently), department and chief flight instructor approval (application required). 2 hours

AVS 4090 Multi-Engine Flight Instructor Instructional techniques necessary to qualify for an airplane multi-engine flight instructor rating. Topics include multi-engine aerodynamics and performance, analysis of multi-engine procedures and maneuvers, multi-instructor responsibilities, common student errors, and flight safety considerations. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology. Prerequisites: AVS 3560, AVS 4060, department and chief flight instructor approval (application required). 1 hour

AVS 4100 Airport Planning, Operations, and Administration Comprehensive overview of airports and airport systems with a focus on administration matters. Topics covered include historical development, legislation and regulation, airport design and operations, project planning and funding, and administrative organizations and activities for airports of various sizes and activity levels. Airport related issues such as environment, safety, and security are examined. Restricted to majors in Aviation Management and Operations. Prerequisites: FIN 3200 and LAW 3800. 4 hours

AVS 4110 Airline Flight Operations Systems, performance, and regulation of transport aircraft and operations. Role of the dispatcher in flight operations. Restricted to majors in Aviation Flight Science. Prerequisites: AVS 3060, AVS 3070, AVS 3080, and AVS 3220. 3 hours

AVS 4120 Line Oriented Flight Crew Simulation This capstone course and its associated laboratory allows utilization of aircraft performance, systems, and resources (both human and information) to enhance flight operations and human performance. Restricted to majors in Aviation Flight Science. Prerequisites: AVS 3540 and AVS 4110 (AVS 4110 may be taken concurrently), with a grade of "C" or better in all prerequisites. 4 hours

AVS 4140 Airport Management Airport Management is the culmination of the three prior airport classes. The class will be engaged with current airport issues and problem solving, including, but not limited to: environment, funding, regulations, global harmonization, safety and security, and capacity and delay. Real world case studies developed with this class by having direct contact with airport administrators. Also, the AAAE learning modules will be completed by the end of this class in order for students to take the AAAE Certified Manager (C.M.) Exam. This class completes the airport management emphasis so that students will be in good standing for and entry level job in airport operations and management. Restricted to majors in Aviation Management and Operations. Prerequisites: AVS 3040 and AVS 3140, with a grade of "C" or better in all prerequisites (both prerequisites may be taken concurrently). 3 hours
AVS 4210 National Security Affairs I  Formation and implementation of defense policy and strategy. Bureaucratic interplay and impact of nuclear technology. Investigation of current defense issues. 3 hours

AVS 4220 National Security Affairs II and Preparation for Active Duty  Role of the professional officer in a democratic society. Global security issues. Military justice and the laws of war. 3 hours

AVS 4230 National Security Affairs I Lab  Define and practice topics important to cadets entering active duty. Apply fundamentals of War gaming. Corequisite: AVS 4210 1 hour

AVS 4240 Corporate Aviation Management  Management of aviation flight departments of business corporations. Topics include human resource management, aircraft selection and planning, management and organization of flight and maintenance operations, and requirements of international operations. Current and future issues such as globalization of business operations. Restricted to majors in Aviation Flight Science or Aviation Management and Operations. Prerequisite: Junior standing. 3 hours

AVS 4250 National Security Affairs II Lab  Define and practice fundamental principles of the Holm Center Training Manual. Apply advanced knowledge and understanding of War gaming. Corequisite: AVS 4220 1 hour

AVS 4270 Airline Administration  Economic characteristics of the airline industry and air carrier ownership and organization. Revenues, costs, and productivity. Route structure and scheduling. International competition and regulation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Restricted to majors in Aviation Flight Science or Aviation Management and Operations. Prerequisites: AVS 1200, IEE 1020, Junior standing. 4 hours

AVS 4280 International Aviation  A focus on the common issues surrounding the globalization of aviation. Topics include human resource management, employee recruitment and selection, labor/management relations, international requirements and opportunities. International standards and agreements and international flight operations. Restricted to majors in Aviation Flight Science or Aviation Management and Operations. Prerequisites: AVS 3190 and Junior standing. 3 hours

AVS 4300 Jet Equivalent Training  This course provides transport category aircraft flight simulation. The student receives cockpit operation and flight training using a state of the art transport category FTD. Hours arranged. Restricted to majors in Aviation Flight Science. Prerequisites: AVS 3560, AVS 4110, AVS 4120 (may be taken concurrently), and department approval. 6 hours

AVS 4600 Aircraft Inspection and Airworthiness Certification  A practicum course in which aircraft inspections are performed in accordance with manufacturer’s and FAA regulatory requirements in order to determine aircraft worthiness. Required documentation, data searches, record keeping and part control and accountability are emphasized. Restricted to majors in Aviation Maintenance Technology. Prerequisites: AVS 3650, AVS 3660, AVS 3670, and AVS 3690. 6 hours

AVS 4620 Reliability, Maintainability and Supportability  Aircraft reliability, maintainability and supportability (RMS) are examined. Methods of incorporating reliability and maintainability into aircraft design are discussed. Support requirements and the economic impact of maintenance on life cycle costs are covered. Restricted to majors in Aviation Maintenance Technology. Prerequisite: AVS 3670. 3 hours

AVS 4630 Professional Maintenance Operations  Operations of commercial aviation maintenance will be examined. Topics include corporate structure, maintenance philosophy, authority and responsibilities of the maintenance organization, designing and implementing maintenance programs, cost control, economic impact, quality assurance and safety management within maintenance operations. Support organizations, the impact of Federal regulations, and the development and management of technical teams will also be covered. This course will contain significant writing and communication assignments. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors in Aviation Maintenance Technology. Prerequisite: AVS 4600 with a grade of “C” or better. 3 hours
AVS 4640  Aircraft Turbine Engines and Systems  Advanced aircraft engine and systems operations, service, repair, and overhaul. Emphasis is placed on inspection, servicing, troubleshooting, and repairing aircraft engines in the repair station and commercial air carrier environments. Restricted to majors in Aviation Maintenance Technology.  Prerequisite: AVS 3690  4 hours

AVS 4720  Advanced Structures and Materials  Advanced topics in airframe structures. Included will be study of materials and manufacturing processes used in current, state of the art aircraft structures. New generation materials will be addressed, with emphasis being placed on non-metallic composite structures. Restricted to majors in Aviation Maintenance Technology.  Prerequisite: AVS 3620 (with a grade of "C" or better), CHEM 1100 and CHEM 1110.  3 hours

AVS 4730  Advanced Airframe Systems  Classroom and laboratory study of the integration and interdependency of systems used on transport category aircraft. Systems included in the study will be hydraulics, pneumatics, air conditioning, pressurization, fire detection and extinguishing, flight controls, flight management systems (FMS), and engine indications and crew alerting systems (EICAS). Restricted to majors in Aviation Maintenance Technology.  Prerequisite: AVS 3670 (with a grade of "C" or better).  3 hours

AVS 4950  AFROTC Independent Study  Investigation of a particular aspect of aerospace studies. May be repeated for credit.  Prerequisite: Department approval.  1 to 3 hours

AVS 4960  AMT Certification Preparation  This course will prepare students who have completed the AMT program to take the Federal Aviation Administration examinations for AMT licensure. It will refresh students on the topic areas and depth of material and familiarize students with the FAA testing process and style through the use of mock oral, practical and written examinations. Restricted to majors in Aviation Maintenance Technology.  Prerequisite: AVS 4600 (with a grade of "C" or better).  1 hours

AVS 4965  Advanced Maintenance Practices and Troubleshooting  Student will apply previous knowledge to troubleshoot, analyze, and determine methods to address problems with aircraft structure, equipment and systems. Complex maintenance operations will be performed. Emphasis is placed on airworthiness, professional practices, and complying with documentation and legal aircraft maintenance requirements. Restricted to majors in Aviation Maintenance Technology.  Prerequisite: AVS 4600 (with a grade of "C" or better).  5 hours

AVS 4970  Special Flight Instruction  Instruction tailored to the individual needs of students pursuing the professional pilot course sequence. Develop skills to progress efficiently in normal course sequence. Graded on a Credit/No Credit basis only. May be repeated. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.  Prerequisite: Department and chief flight instructor approval (application required) and FAA 2nd class medical certificate. MATH 1100 or SAT minimum MATH score of 520 or ACT minimum MATH score of 20, or MATH 1100 on the Math placement test.  1 to 3 hours

AVS 4980  Administration Senior Project  This is the capstone course for aviation administration students. The course provides students the opportunity to apply the knowledge acquired in their administration degree program to real-world aviation business situations. Students will draw on their academic education to solve problems in marketing, finance, economics, strategic management, and operations. Restricted to majors in Aviation Management and Operations.  Prerequisite: AVS 4270 with a grade of “C” or better and senior status.  3 hours

AVS 4990  Studies in Aviation Sciences  An individual study program to supplement regular course work, arranged in consultation with a study supervisor. One to three hours credit per semester. May be repeated not to exceed six credit hours. Restricted to majors in Aviation Flight Science; Aviation Management and Operations; or Aviation Maintenance Technology.  Prerequisite: Department approval.  1 to 8 hours

AVS 5100  Safety Management Systems in Aviation  Concepts and methods of measuring and managing human safety performance in a high risk environment are defined and explored. Students will gain knowledge and learn practical applications to identify hazards and manage risk in complex flight and maintenance operating environments. Topics include history of aviation safety, quality assessment and management, process-systems analysis, principles of behavior-based safety, quantitative analysis methods, and implementation of a safety management system. Open to upperclass and graduate students.  Prerequisites: PSY 1000, STAT 2160 and Senior standing.  3 hours
**Business Communication**

BCM 1420 Informational Writing  
Development of the basic composition skills required of the competent writer in business and professions. Through continuing directed practice in writing, students develop competence in the organization and presentation of facts and information in writing. This course satisfies General Education Proficiency 1: College-Level Writing. Restricted to pre-business majors.  
3 hours

BCM 3700 Integrated Communication in Business  
This course is designed to expand students' understanding of the complexities of oral and written communication in business. Individual and team projects will provide practical experience in the development of effective oral and written communication that reflects upon the students' ability to analyze an audience, adapt to the audience, and develop persuasive communication strategies reflecting the integration of written, oral, visual, and electronic modes of communication. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.  
Prerequisites: Junior standing.  
3 hours

BCM 4540 Intercultural Business Communication  
Intercultural Business Communication is designed to develop the effectiveness of students' communication skills with culturally diverse audiences, both at home and abroad. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.  
Prerequisite: Junior standing or instructor approval.  
3 hours

BCM 4960 Independent Study  
A directed independent project in an area of Administrative Systems or Business Communication.  
Prerequisite: Approved application required.  
1 to 4 hours

BCM 4980 Readings in Business Communication  
A series of direct readings in an area of Administrative Systems or Business Communication.  
Prerequisite: Approved application required.  
1 to 4 hours

**Biological Sciences**

BIOS 1050 Environmental Biology  
An ecology course that examines the relationships among living organisms, including humans, and their environment. Emphasis will be placed on how an understanding of basic ecological and evolutionary principles is useful in understanding the basis of and potential solutions to major global environmental problems. Credit not acceptable for Biological Sciences majors but applies toward a minor in biology. This course satisfies General Education Area VI: Natural Science with Laboratory if taken with BIOS 1100.  
3 hours

BIOS 1100 Biological Sciences Laboratory  
Designed as a companion to BIOS 105 or BIOS 112 to fulfill General Education Area VI: Natural Sciences with Laboratory requirement. Biological Sciences Laboratory provides hands-on experiences in environmental and general biology. Experiments will involve the use of scientific methodology and instrumentation to collect, analyze, interpret data, and draw conclusions about life processes, basic biological principles, as well as the interaction of people and their environment. Credit not acceptable for Biological Sciences majors but applies toward a minor in biology. This course satisfies General Education Area VI: Natural Science with Laboratory if taken with either BIOS 1050 or BIOS 1120.  
1 hour

BIOS 1120 Principles of Biology  
A course designed to provide a natural science foundation for BIOS minors, Allied Health majors, and to fulfill liberal/general education requirements. Foundation concepts in cell biology, human anatomy and physiology, botany, human genetics, microbiology, and ecology are presented for students who do not have strong biology and chemistry backgrounds. Credit does not apply for Biology or Biomedical Sciences majors. The course satisfies General Education Area VI: Natural Science with Laboratory if taken with BIOS 1100.  
3 hours

BIOS 1600 Biological Form and Function  
This is the first in a three-semester introductory biology sequence for majors and minors in the Biological Sciences Department. The course covers basic concepts of anatomy and physiology of plants and animals.  
3 hours

BIOS 1610 Molecular and Cellular Biology  
This course covers basic concepts of molecular and cellular biology by focusing on components of organisms from atoms to cells and the roles they play within the organism. This course can be taken as the second or third course in the required three-semester introductory biology sequence for majors and
minors in the Biological Sciences Department. Prerequisites: BIOS 1600 or CHEG 2960 (CHEG 2960 may be taken concurrently); with a grade of "C" or better in all prerequisites.

BIOS 1620 Ecology and Evolution This course covers basic concepts of evolution and ecology, and addresses how the tremendous range of biological diversity on Earth arose, how different life forms interact with each other and with the physical environment, and the issues that threaten their future. This course can be taken as the second or third course in the required three-semester introductory biology sequence for majors and minors in the Biological Sciences Department. Prerequisites: BIOS 1600 or CHEG 2960; with a grade of "C" or better in all prerequisites.

BIOS 1700 Life Science for Non-Majors This is a laboratory-lecture-based content course for non-majors that provides a comprehensive overview of the life sciences (taxonomy, anatomy and physiology, ecology and evolution). The course is taught by inquiry using a series of open-ended problem solving environments, many of which have been developed with reference to the history of biology, to encourage critical thinking and insight into the nature of science as an intellectual activity.

BIOS 1910 Introduction to Human Anatomy and Biology This is a lecture and laboratory course providing an overview of human anatomy and some basic scientific principles, including a brief introduction to cell biology and genetics. Credit does not apply to Biological Sciences Majors. Credit cannot be counted for both BIOS 1910 and BIOS 2110. Restricted to Pre-Nursing. Prerequisite: Department approval.

BIOS 1980 Human Form and Function This is an online lecture and laboratory course that provides students an overview of scientific process, cell biology and human anatomy and physiology. Satisfies General Education Area VI: Natural Sciences with Laboratory. Credit does not apply to biological sciences majors or minors. Restricted to majors in University Studies.

BIOS 2020 General Botany An introduction to the anatomy, morphology, physiology and diversity of plants. In the first part of the course, chemical and cellular composition of tissues and organs will be related to function. The second part of the semester will explore plant diversity within an evolutionary and ecological framework. Lab exercises will emphasize the scientific method and will be integrated with current lecture material. Prerequisites: BIOS 1620 or BIOS 1510, with a grade of "C" or better.

BIOS 2030 General Zoology An introduction to the diversity of vertebrate and invertebrate animals, their evolutionary relationships, and biology, including morphology, physiology, development, behavior, and ecology. Students will gain knowledge valuable to a wide range of more advanced studies in biology, biomedical sciences and veterinary science. Prerequisites: BIOS 1620 or BIOS 1510, with a grade of "C" or better.

BIOS 2110 Human Anatomy A lecture and laboratory course in which all major structures of the human body are examined. A systemic approach emphasizing both gross-level and microscopic anatomy is used to show how all the body’s systems interact to form the functioning whole. As students learn about the organs and organ systems of the body, they will see how their unique forms allow them to carry out their functions. Prerequisites: BIOS 1600 or BIOS 1610 or BIOS 1120; with a grade of "C" or better in all prerequisites.

BIOS 2300 Cell Biology This is a comprehensive course covering the fundamental principles of cell biology, with an emphasis on structure, composition and function and cells, organelles, and membranes. The experimental basis of these discoveries will be stressed. It is intended for all Biomedical Sciences, Biology and Secondary Education majors and others who have a basic understanding of chemistry and biology. Prerequisites: CHEM 1120 and (BIOS 1610 or BIOS 1510) ; with a grade of “C” or better in all prerequisites.

BIOS 2320 Microbiology and Infectious Diseases An introductory microbiology course emphasizing characteristics and modes of transmission of the microorganisms that cause human disease. Credit applies toward a minor in Biomedical Sciences and a major in secondary education.

BIOS 2400 Human Physiology This course is designed to provide an understanding of the basic functioning of the organ systems of the human body, as well as their regulation and control. The molecular and cellular mechanisms involved are emphasized. Applications to exercise physiology are made. Clinical applications are introduced where they
provide additional insight into basic function and regulatory mechanisms. This course is not usable for the non-teaching biology major or the biomedical sciences major. Prerequisite: BIOS 1910 or BIOS 2110; with a grade of "C" or better in all prerequisites. 4 hours

BIOS 2500 Genetics A problem based study of the mechanisms of heredity at the level of cells, individuals, families and populations. Recitation exercises will emphasize problem solving and will be integrated with current lecture material. Prerequisites: CHEM 1120, (BIOS 1610 or BIOS 1500), and (BIOS 1620 or BIOS 1510); with a grade of "C" or better in all prerequisites. (BIOS 1620 may be taken concurrently). 4 hours

BIOS 2600 Introduction to Developmental Biology How do fly eggs become flies and human eggs become people? A study of pattern formation and emergence of the basic body plan, emphasizing the common elements of development conserved throughout the metazoan groups. Surveys developmental model systems and includes reviews of basic cell biology, gene regulation and signaling pathways. Prerequisites: BIOS 1610 or BIOS 1500, with a grade of "C" or better. 3 hours

BIOS 2700 Everyday Biology: Cells This is an introductory level laboratory and discussion course for future teachers and non-majors. Students develop an understanding of key biological concepts (including cells and cell reproduction, genetic inheritance, and molecular processes). Students develop an understanding of the nature of science and scientific inquiry through investigations and reflective discussions. Through experiences in this course, students are expected to become reflective and knowledgeable about "what is science" and "what scientists do". Connections of course concepts to everyday life are made through a study of current socioscientific issues involving biotechnology, by looking at the historical development of ideas and by assessing the implications of technology on society. Typical topics include DNA analysis, cloning, and gene therapy. 3 hours

BIOS 3000 Evolution This course in evolutionary biology covers the mechanisms of the evolutionary process, speciation, evolutionary genetics, the history of life on earth, and adaptation. Prerequisite: BIOS 2500 with a grade of "C" or better. 3 hours

BIOS 3010 Ecology We introduce students to the dynamics of ecological interactions at different spatial and temporal scales and at different levels of organization from individuals, through populations and communities, to ecosystems, landscapes and biomes. Our emphasis is on population-level processes and dynamics, and examples dwell on both pure and applied aspects of ecology. This course satisfies General Education Proficiency 2: Baccalaureate Level-Writing. Prerequisite: BIOS 1620 or BIOS 1510, with a grade of "C" or better. 5 hours

BIOS 3120 Microbiology This course is an introduction to basic microbiology with an emphasis on the diversity, physiology, genetics, and pathogenicity of microorganisms. Also included are fundamental concepts of virology and the host immune response to infection. The laboratory component provides hands-on instruction in basic techniques used in bacteriology. Prerequisites: BIOS 2500 and either (CHEM 3750 and CHEM 3760) or (CHEM 3700 and CHEM 3710); with a grade of "C" or better in all prerequisites. 5 hours

BIOS 3190 Plant Physiology An examination of plant functions and metabolism. The chemical elements essential for plant growth are studied, along with processes, such as photosynthesis, through which these elements combine to form the components of cells and tissues. The lab uses up-to-date techniques and equipment to investigate processes such as enzyme action and the movement of substances through membranes. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: BIOS 2020, CHEM 1120 and CHEM 1130; with grades of “C” or better in all prerequisites. 4 hours

BIOS 3200 Climate Change Biology This course will address the causes of past, current, and future climate change and the likely consequences of future climate change for ecosystems and human health. The course will conclude with discussion of potential strategies to minimize adverse impacts of climate change. Prerequisite: BIOS 1620 or BIOS 1510, with a grade of "C" or better. 3 hours

BIOS 3500 Human Physiology for Majors An examination of the functions and interrelationships of human body organ systems and their role in homeostasis. Some physiological malfunctions will be discussed. The laboratory provides experience with some types of clinical measurements, laboratory instrumentation and data collection. This course
satisfies General Education Proficiency 2: Baccalaureate Level-Writing. Prerequisites: BIOS 2500 and either (CHEM 3750 and CHEM 3760) or (CHEM 3700 and CHEM 3710); junior or senior standing required; BIOS 2110 is recommended.

BIOS 4270 Systematic Botany This course is intended to serve as an introduction to the major seed plant families as well as some of the conceptual topics encompassed within systematic botany. We will learn the flora of Michigan through the use of keys on fresh, pickled and herbarium material. The bulk of the course is designed to survey plants of local occurrence as well as those commonly cultivated and will be tied to central themes discussed throughout the semester including evolutionary and ecological phenomena like hybridization, speciation, pollination, and biogeography. Upon completion of the course, students will be able to identify a diversity of plant species encountered in the local area through the use of taxonomic keys. In addition, the student will be expected to recognize many plant species and families on sight from an accumulated knowledge of their diagnostic characters. Prerequisite: BIOS 2020 is recommended.

BIOS 4390 Animal Behavior This course provides an introduction to the study of animal behavior. Emphasis is placed on the integrative nature of animal behavior research, by exploring the genetic, neural and physiological mechanisms underlying behavior, the development of behavior, and the current function and evolution of behavior. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better.

BIOS 4400 Vertebrate Zoology This course will introduce you to the evolution, systematics, physiology, anatomy, ecology, and behavior of vertebrate organisms, including fish, amphibians, reptiles, birds, and mammals. This course will also expose you to important ideas/concepts in the fields of evolution, ecology, systematics, and morphology, as they relate to vertebrate organisms. Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better. BIOS 2030 is strongly recommended.

BIOS 4410 Invertebrate Zoology A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better.

BIOS 4420 Entomology This course is a general study of insects, their structure, classification, physiology, life histories, ecological relationships, and economic importance. Students will learn to identify common families of insects and make individual collections. Prerequisite: At least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better.

BIOS 4430 Conservation Biology Conservation biology is the science of preserving biodiversity and sustaining the earth. It is a synthetic discipline which draws upon the fields of ecology, evolution, genetics, philosophy, economics, sociology, and political science. This course provides an introduction to conservation biology and will focus on the earth’s biological diversity, threats to its biological diversity, how threats influence populations and species, and solutions to dealing with those threats. Prerequisite: At least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better.

BIOS 4560 Tropical Biology A travel study course providing an introduction to the world’s two most diverse ecosystems: tropical rainforests and coral reefs. The course consists of a mixture of lectures, field explorations, and individual projects. It will introduce students to basic biological features of these ecosystems and fundamental ecological principles, while demonstrating how the scientific method is implemented in the field. Human ecology, agriculture, and environmental issues will also be explored. The course will be presented on one of the islands of the Caribbean and/or in Central America. Prerequisite: Department approval.

BIOS 4970 Senior Seminar: Topic to be specified This capstone course integrates a variety of biological concepts within a selected broad topic. The student makes a technical presentation and submits a paper on a selected subject. The student's record will indicate the nature of the seminar in which he/she has participated. Not repeatable for credit. Prerequisite: Departmental approval required prior to registration.

BIOS 4980 Readings in Biological Sciences Departmental approval required prior to registration. 1 to 3 hours
BIOS 4990 Independent Research in Biological Sciences  Students may contact a faculty member to conduct research under the guidance of that faculty member. Before the initiation of the research, a literature search and a written experimental plan must be prepared. At the conclusion of the research project, a written report will be submitted to the guiding faculty member. At least three credits of this course can fulfill the departmental capstone course requirement. Prerequisites: Departmental approval required prior to registration.  1 to 4 hours

BIOS 5180 Endocrinology  An overview of the hormonal regulation of various aspects of animal physiology. Major themes include the control of hormone synthesis/secretion, mechanisms of hormone action and target organ effects. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3500; or instructor approval.  3 hours

BIOS 5235 Fermentation  This is an introductory course to the discipline of fermentation. Using a combined lecture and assignment strategy, students will be exposed to basic concepts and methods in fermentation. The emphasis will be on a comprehensive overview of brewing, both modern and traditional. Considerable time will be given to understanding the complexities of the biochemistry and genetics of yeasts and what this imparts to the brewing process. The course will culminate with students undertaking a novel research project using learned techniques and processes. Open to upperclass and graduate students. Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3120 with grades of "C" or better in all prerequisites, or instructor approval.  3 hours

BIOS 5240 Microbial Genetics  A lecture/seminar course emphasizing modern microbial genetics, as well as historic keystone experiments. This course focuses on work carried out with bacteria and bacteriophages. Concepts include mutation and selection, recombination and repair, DNA cloning and mutagenesis procedures, regulation of gene expression, differential gene expression in response to environmental stimuli, and genome organizations. Lecture/seminar format. Open to upperclass and graduate students. Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3120 and BIOS 2500, or instructor approval.  3 hours

BIOS 5250 Microbial Ecology  The objective of this course is to understand the importance of the role and diversity of microorganisms for life on our planet. Students will integrate concepts from various disciplines, including microbiology, ecology, chemistry, geosciences, evolution, genetics, and health sciences. Lecture/seminar format. Open to upperclass and graduate students. Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3120, or instructor approval.  3 hours

BIOS 5260 Molecular Biology Laboratory  This course is designed to expose students to techniques that are currently being used to manipulate and analyze nucleic acids. Student will gain extensive hands-on experience with restriction mapping, ligations, bacterial transformations, eukaryotic gene-replacements, gel electrophoresis, non-isotopic hybridizations, as well as application of the polymerase chain reaction (PCR). Experimental design, use of appropriate controls and handling of acquired data will be stressed. Open to upperclass and graduate students. Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 2500, CHEM 3750, and CHEM 3760; with grades of "C" or better in all prerequisites.  3 hours

BIOS 5265 Proteins as Biological Machines  The survey of principles of protein sequence, structure, and biological function. The course will review fundamental aspects of proteins, including amino acid sequence, structure, biological function, and biophysical properties such as solubility, folding, stability, molecular recognition and self-assembly, enzyme catalysis and evolution of protein function with respect to amino acid sequence and structure. Individual case studies of model proteins that have biomedical relevance or applications in diagnostic assays, biopharmaceuticals and nanotechnology, will be presented. The use of molecular graphics and bioinformatics software for visualization and analysis of protein sequence and structure will be emphasized. This course is approved for the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisites: BIOS 2300, BIOS 2500, CHEM 1120 and CHEM 1130; or instructor approval. Grades of "C" or better required in all prerequisites.  3 hours

BIOS 5270 Cancer Biology  This course will cover advanced topics in cellular and molecular biology of cancer. Topics to be covered will include oncogenes, tumor suppressor genes, cell cycle, and pathology. New and developing treatments for cancer will also be discussed. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in
biology, including BIOS 2300 and BIOS 2500 with grades of "C" or better in all prerequisites, or instructor approval; CHEM 3550 recommended. 3 hours

BIOS 5310 Biology of Aging This course is designed to provide students with an understanding of the aging process. The lectures will emphasize the anatomical, physiological and molecular changes which occur in cells and organs with aging. Clinical applications are introduced where they provide additional insight into the aging process. Open to upperclass and graduate students. Prerequisites: Junior standing and at least 12 credits in biology, including either BIOS 2400 or BIOS 3500, or instructor approval. 3 hours

BIOS 5340 Virology This course is designed to provide students with the basic understanding of viruses, their structures and replication strategies. Emphasis is placed on host virus interactions leading to disease processes and cellular alterations in mammalian systems. Viruses are considered as miniature model systems to unify biology at the molecular level. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3120, or department approval; Biochemistry is recommended. 3 hours

BIOS 5360 Immunology This course is designed to provide students with the basic understanding of the mammalian immune system at cellular and molecular levels. This course also covers the role of the immune system both in health and disease, and explores the applications of immunological concepts in a variety of biological and biomedical sciences. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3120, or department approval; Biochemistry is recommended. 4 hours

BIOS 5440 Global Change Ecology The causes and consequences of global climate change will be the focus of this course. We will examine the most recent predictions about the rate and magnitude of global warming, and the likely consequences for plants, animals, and other components of natural ecosystems, and humans. The last several weeks will be devoted to additional global change issues, including loss of biodiversity, introduced species, ozone depletion, and acid precipitation. Twice during the semester, each student will prepare a detailed illustrated outline and lead a class discussion. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: BIOS 3010 or ENVS 2250 (with a grade of “C” or better in any prerequisite), or instructor approval. 3 hours

BIOS 5445 Human Ecology Students will examine patterns of distribution and abundance of Homo sapiens and the ecological processes that generate these patterns, through lectures, reading, multi-media, interactive discussion and dissemination of research and understanding. We will also consider the concept of carrying capacity and the dynamics of human population change in relation to the human niche and changing patterns of resource availability. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: BIOS 3010 or ENVS 2250 (with a grade of “C” or better in any prerequisite), or instructor approval. 3 hours

BIOS 5450 Chemical Ecology In this course we will focus on an interdisciplinary appreciation for the ecology of chemically mediated interactions among organisms at different scales of organization from molecules to ecosystems. Students will engage in lectures, reading, multi-media, interactive discussion and hands-on research projects with presentations. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3010, or instructor approval. 3 hours

BIOS 5455 Plant-Herbivore Interactions Interactions between plants and herbivores provide the foundation processes for most observable ecological patterns. These processes have organized patterns of species diversity through evolutionary history as well as contemporary space. In this class we will examine interactions between plants and herbivores over a wide range of scales, from thrips to elephants, that often control the dynamics of other exploitative, competitive and mutualistic processes both within and among trophic levels. The class is interactive with computer simulations, presentations, a grant-writing exercise and discussion of relevant literature. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3010, with grades of “C” or better; or instructor approval. 3 hours
BIOS 5460 Molecular Phylogenetics and Evolution

Molecular Phylogenetics and Evolution is an advanced undergraduate/graduate course designed to provide students with a rigorous exposure to molecular data analysis and literature review. In this course students will learn the principles behind DNA data analysis for evolutionary studies. This will include phylogenetic analyses and studies of molecular evolution. Phylogenetic studies will involve the acquisition of comparative DNA sequence data, sequence alignment, statistical models of nucleotide substitutions, and tree estimation using parsimony, distance, maximum likelihood, and Bayesian methods of tree inference. Uses for phylogenetic data will involve tree-based evaluation of taxonomic classifications, comparative method, ancestral estimation, and character evolution. Part of the phylogenetic inference module will involve the use of parametric simulations to evaluate the performance of selected methods of tree inference as well as for phylogenetic hypothesis testing. For the molecular evolution portion of the course, we will investigate selected examples illustrating the effects of natural selection of DNA sequences. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students.

Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 2500 with a grade of “C” or better; or instructor approval.

3 hours

BIOS 5470 Ornithology

Provides an introduction to the scientific study of birds. Using lectures, readings and discussion, students will explore the origin and evolution of birds, anatomy and physiology, flight, migration and navigation, ecology and conservation, and bird behavior. Although aimed at developing an understanding of bird biology, this course also emphasizes fundamental concepts in ecology, evolution, and physiology. Field trips, including at least one all-day Saturday outing, are required. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 1620 or BIOS 1510, with a grade of "C" or better; or instructor approval.

3 hours

BIOS 5525 Fish Biology

This course is a general study of fishes, their structure, classification, physiology, life histories, ecological relationships, and economic importance. Using a combination of lectures, readings, discussion and field trips, students will explore the biology of fishes, with an emphasis on fish species in the Great Lakes basin. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology or instructor approval.

3 hours

BIOS 5535 Freshwater Ecology

This course provides an introduction to the structure and function of aquatic ecosystems. Lectures and readings introduce the physical, chemical, and biological dynamics of streams, lakes, and wetlands. Emphasis is placed on application of fundamental concepts to problems in conservation and management of aquatic systems and species. Laboratory and fieldwork introduce modern methodological approaches to the study of aquatic ecosystems and the organisms that inhabit them. Two day-long Saturday field trips are required. Field exercises will be conducted largely in local streams, lakes, and wetlands. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 1620 or BIOS 1510 or ENVS 2250, with grades of "C" or better in all prerequisites, or instructor approval.

4 hours

BIOS 5545 Human Impacts on Great Lakes Ecosystems

Utilizes lecture and multimedia discovery methods to investigate how human activities impact the Great Lakes Environment and how current policy initiatives are attempting to restore Great Lakes Ecosystems and protect human and ecosystem health. EPA’s Lakewide Lake Michigan Management Plan (www.epa.gov/glhpo/lamp/lm_2008/index.html) will serve as a guide for environmental issues to be addressed in the course. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology.

3 hours

BIOS 5590 Neurobiology

The substrate of behavior will be examined in this interdisciplinary survey of neural structure and function across molecular, cellular and system levels. There will be a strong emphasis on underlying mechanisms in different animal models. Lecture and discussion will be integrated and supplemented by demonstrations. Topics covered will include: membrane biophysics, synaptic physiology, transduction and signaling in the visual, auditory, chemical and somatosensory systems, reflexes, simple behavior and plasticity. Open to Upperlevel and Graduate students. Prerequisites: Junior standing with at least 12 credits in biology, including BIOS 3500 with a minimum grade of “C” or better, or department approval. PHYS 1130, PHYS 1140, PHYS 1150, and PHYS 1160; with minimum grades of "C" or better. CHEM 3550 and CHEM 3560 recommended.

4 hours
BIOS 5593 Biological Basis of Learning and Memory  
Learning and remembering is mediated by the nervous system and is a fundamental biological phenomenon. The ability to change responses as a result of experience seems to be a prominent feature of all nervous systems and is key for organisms to interact with their environments. Indeed, for humans to communicate, think, and be who we are requires that we learn and remember our thoughts and representations. This course will explore an overview of learning and memory research with a focus on the biological bases and include studies at the behavioral level, brain and nerve cell levels as well as the molecular foundations of synaptic plasticity thought to underlie both complex and simple learning. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 3500, or instructor approval; BIOS 5590 or graduate course in Neuroscience recommended.  
3 hours

BIOS 5595 Biology of Sensory Systems  
This course provides an introduction, discussion and analysis of the anatomy, physiology, molecular biology and disease states of developed sensory systems identified in the human body and other animals. Recent sensory systems articles will be utilized to critique, strengthen student’s scientific reading skills, scientific writing skills and presentation skills. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology, including BIOS 2400 or 3500, or instructor approval.    3 hours

BIOS 5610 Pharmacology  
The study of the mode of action of drugs in the body. Topics may include, but are not limited to pharmacokinetics, pharmacodynamics, autonomic pharmacology, cardiovascular pharmacology, and renal pharmacology. The course will consist of approximately 50 percent lecture and 50 percent student presentations on selected topics. Open to upperclass and graduate students. Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3500, CHEM 3750, and CHEM 3760.      3 hours

BIOS 5620 Bioethics  
Bioethics seeks to help students reflect intelligently upon and discuss the nature of modern biology as a science and its impact upon our social and governmental discourse. This occurs through discussions of methods and techniques relevant to applications of Biological Sciences and Biomedical Ethics. We focus on issues that rarely are discussed for fear of offending someone. This includes, but is not limited to, euthanasia, abortion, intelligent design, organ transplants, stem cells and gene therapy. Students learn to appreciate the complexity of bioethical issues and the enormity of the responsibility they will carry while providing an unbiased view to the public. Open to upperclass and graduate students. Prerequisites: BIOS 2300 and BIOS 2500; with a grade of "C" or better in all prerequisites.  
3 hours

BIOS 5630 Biology of Human Genetic Diseases  
Explores how human genetic diseases are identified and studied. A primary goal is to understand the molecular basis of information flow in the cell: how a change in the DNA sequence of a gene leads to a specific human disease phenotype. In addition to topics covered in lecture, each student chooses a genetic disease for a research project, and searches the primary scientific literature to find out how the disease-causing mutation alters the biology of the affected cells, tissues or organs to cause disease. Some class time will be spent in the library during which students receive training in researching biological literature. Open to upperclass and graduate students. Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 2300 and BIOS 2500; with grades of "C" or better in all prerequisites, or instructor approval.       3 hours

BIOS 5640 Developmental Genetics  
A survey of basic literature in genetics supporting both historical and recent findings in developmental biology. Practicum in current molecular and genetic methodology, oral presentations, and writing grant applications. Some review of basic cell biology and gene regulation. This course is approved to cover the capstone requirement for the Biology and Biomedical Sciences majors. Open to upperclass and graduate students. Prerequisites: BIOS 2500 and (BIOS 2300 or BIOS 2600) with grades of "C" or better in all prerequisites.  
3 hours

BIOS 5700 General Pathology  
Designed as a general pathology course, the course blends basic pathological principles with current findings and covers new approaches available in the study of disease pathogenesis at the organismal, cellular and molecular levels. The course will begin with general principles and finish with an integrated approach to understanding diseases in organ systems. Open to upperclass and graduate students. Prerequisites: Junior standing and at least 12 credits in biology, including BIOS 3500; CHEM 3750 and 3760; with a grade of “C” or better in all prerequisites.  
4 hours
BIOS 5740 Developmental Biology

Developmental biology is the study of the formation of a complex, multicellular organism from a single cell, the fertilized egg. The course will present this material from both a classical description and an experimental cellular point of view. In addition to the lecture, laboratory exercises will provide experience in the recognition of the various stages of development and in the culturing and manipulations of embryos. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credit in biology, including BIOS 2500, or instructor approval. 4 hours

BIOS 5750 Stem Cells and Regeneration

This course is a survey of the literature in stem cell and regeneration research, specifically focusing on model organisms (e.g. planaria, salamanders, frogs, zebrafish, hydra, mice, Arabidopsis). Topics include the role of stem cell regulation, the immune system, scarring, and innervation in regeneration; as well as age dependent-regeneration, the connection between regeneration and cancer, and the regenerative capability of humans. This is an oral intensive course: for each class, student(s) will present findings from assigned readings, followed by class discussion. Students will write a final original research proposal based on course content/discussions. Open to upperclass and graduate students. Satisfies Capstone Requirements. Prerequisites: Junior standing and at least 12 credits in biology, or instructor approval. (BIOS 2600 or BIOS 5740 is recommended but not required.) 3 hours

BIOS 5970 Topics in Biological Sciences

Lectures or seminars in various areas of Biological Sciences will be offered. The student's record will indicate the topic he/she has taken. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Junior standing and at least 12 credits in biology; and departmental approval. 3 to 4 hours

Blindness and Low Vision Studies

BLS 3050 Introduction to Adults with Disabilities

This course is intended to help students understand the impact of disability on the individual, in society, and to understand the contributions that can be made by persons with disabilities when they are accepted members of society. This course will present an overview of various disabilities, the services which have developed to help individuals function independently, and the capabilities of persons with disabilities. The student will gain an overview of medical aspects of disability, the demographics of disability, and issues relating to integration into society. The various components which make up independent functioning in our society will be examined as will the adjustment issues relating to disability. 3 hours

BLS 5440 Educating Individuals with Severe Impairments

This course develops specific skills in the assessment, prescription, implementation, and evaluation of educational programs for persons with severe impairments. Course content focuses on the areas of mobility, communication, sensorimotor development, self-help skills, cognition, and adaptive behavior. Open to upperclass and graduate students. 3 hours

BLS 5770 Services to Individuals with Blindness or Other Disabilities

This course explores issues that affect services for people who are blind or have other disabilities. It includes prevalence and incidence of various disabling conditions, adaptive recreation, history and current status of service legislation, consumer organizations, professional organizations, accreditation, models of services delivery, national and international agencies and organizations, national and international resources, social service programs, and trends and future issues. Open to upperclass and graduate students. 1 to 2 hours

BLS 5840 Computer Technology in Rehabilitation

This course is designed to introduce the student to computer technology as it is related to disabled persons. Students will learn the uses, parts, and operating commands of common adaptive computers, as well as the software used with them. In addition, the major adaptive forms of input and output will be investigated. Open to upperclass and graduate students. 3 hours

BLS 5860 Job Development and Placement

This course applies career choice and job placement concepts to persons with disabilities. It includes occupational aspects of disability, pertinent laws and regulations including ADA and sections 501-504, labor market analysis, job analyses, rehabilitation engineering, job development, and work modification strategies. It provides experience in making employer contacts, overseeing clients' job seeking efforts, and training in job-related social skills. Open to upperclass and graduate students. 3 hours

BLS 5880 Psychosocial Aspects of Disability

This course provides an understanding of the psycho-social factors that impact upon the integration into society of individuals with disabilities. It examines the philosophy of
rehabilitation, major classifications and paradigms, common stereotypes, attitudes and their measurement, psychiatric disabilities, theories of adjustment, psycho-social losses, issues relating to sexuality, personal adjustment training, the role of the family, the use of effective interaction skills, and the stages of group process. Open to upperclass and graduate students.

2 hours

BLS 5890 Medical and Functional Aspects of Disability
This course presents an interdisciplinary approach to the study of multi-handicapping conditions in rehabilitation. It includes information on the major disabling conditions such as traumatic brain injury; orthopedic, neuromuscular, visual, learning, speech and hearing, cardiovascular, mental and emotional disabilities; and other select disabilities. Emphasis is placed upon cumulative effects of concomitant disabilities with additional emphasis on visual impairment. Open to upperclass and graduate students.

2 hours

BLS 5900 Physiology and Function of the Eye
The anatomy, structure, and function of the eye. Various eye diseases and malfunctions are stressed. The student is given an opportunity to observe all types of eye conditions and eye prostheses. Open to upperclass and graduate students.

2 hours

BLS 5905 Physiology and Performance in Blind Children
This course provides an overview of the neurological aspects of visual perception and examines how children who are blind develop skills in using tactile, kinesthetic, and acoustic perception to guide their exploration of the world around them. Biomechanical and acoustic skills will also be explored as practiced by adults who are blind. Open to graduate students only.

2 hours

BLS 5910 Braille and Tactual Communication Systems
This course provides students with a basic knowledge of the literary Braille code - reading and writing - and an overview of other communication methods available to people with visual impairments. It introduces methods for teaching Braille and an introduction to the development of literacy skills for individuals who are braille readers. Methods of literacy assessment for children and adults, instructional methods, and Braille translation hardware and software are also covered. Open to upperclass and graduate students.

3 hours

BLS 5912 Teaching Math and Specialty Codes
This course contains study of the Nemeth Code and Unified English Braille Code (UEB) for math and science, the music code, adaptations of worksheets and tests, foreign languages (French, German, and Spanish), transcription of diacritical marks (dictionary notation), and an introduction to computer Braille notation. Open to upperclass and graduate students.

2 hours

BLS 5915 Braille for Orientation and Mobility Specialists
This course is designed to teach Orientation and Mobility (O&M) Specialists how to read and write uncontracted braille, as well as prepare quality tactile graphics. Instruction in braille reading, as well as in writing with a slate and stylus, Braille Writer, and braille emulation and translation software will be provided. In addition, the use of both high and low tech products for creating tactile graphics will be taught. Students will also be provided an introduction to contracted braille. Methods for implementing the use of braille and tactile graphics into appropriate teaching strategies will also be emphasized. Open to graduate students only. Restricted to masters in orientation and mobility, and orientation and mobility for children.

1 hour

BLS 5920 Orientation and Mobility with Children
This course will provide strategies for teaching orientation and mobility to children. Assessment techniques and methods for teaching the orientation and mobility curriculum (indoor travel to business travel) to children, including those with multiple disabilities or deaf-blindness will be presented. In addition, strategies for teaching areas specific to children, such as body image, sensory-motor, and concept development will be addressed. The focus will be on practical application in educational settings. Open to graduate students only. Restricted to masters in orientation and mobility, and orientation and mobility for children.

3 hours

BLS 5945 Itinerancy and Effective School Collaboration
This course is designed to prepare educators of the blind and visually impaired to work effectively within school systems utilizing an itinerant teaching model. Legal issues related to providing educational services within schools will be stressed, including federal and state laws pertaining to special education with emphasis on those that are specific to blindness and visual impairment. Both the IEP and IFSP process will be thoroughly covered, including how to develop, implement, and monitor effective educational goals. Effective communication strategies for working with other educators and families will also be emphasized. Open to graduate students only. Restricted to masters in orientation and mobility, and orientation and mobility for children.

2 hours
BLS 5950 Introduction to Orientation and Mobility  The content of this course relates to problems of independent travel which result from reduced vision. Simulated experiences are provided which emphasize the sensory, conceptual, and performance levels needed for independent travel in a variety of environments. Course is repeatable. Open to graduate students only.  Prerequisite: Restricted to students in the Orientation and Mobility and Special Education/Orientation and Mobility programs.  2 to 4 hours

BLS 5960 Introduction to Electronic Travel Aids  Systematic instruction in use of fundamental electronic travel aids and overview of major electronic devices. Open to upperclass and graduate students.  1 hour

BLS 5970 Principles of Low Vision  This course deals with assessment and remediation of functional problems encountered by low vision persons. Emphasis is placed on optical, non-optical, and electronic aids which increase visual functioning. In addition, the nature and needs of low vision persons and the interprofessional nature of low vision services are stressed. The concepts are explored that deal with initial intake procedures, assessment of near and distant visual acuity, assessment of near and distant visual field, color testing, evaluation of sunwear, evaluation of optical aids, training in the use of optical and non-optical aids, and use of equipment such as the lensometer and tonometer. Open to upperclass and graduate students.  Prerequisite: Approval of advisor.  2 hours

BLS 5980 Readings in Blindness and Low Vision Studies  Restricted to students in the following curricula: Orientation and Mobility Rehabilitation Teaching, Rehabilitation Counseling and Teaching, and Special Education/Orientation and Mobility. Open to graduate students only.  Prerequisite: BLS students only.  1 to 4 hours

Haworth College of Business Interdepartmental Courses

BUS 1000 Business Preparation  Designed for first-year students, the Business Preparation course focuses on: 1) supporting students during the adjustment and transitional phase into WMU and HCoB; 2) helping students develop an understanding of the academic rigor and expectations required of all HCoB students; 3) assisting students in making meaningful, supportive connections with faculty, staff and peers; and 4) guiding students in developing a strong foundation that results in academic engagement and personal success.  1 hour

BUS 1750 Business Enterprise  This course introduces students to the development and value of business institutions in society. Students will examine the dynamics of business decision-making and demonstrate the ability to identify, define, and interpret essential business concepts. The relationships among business activities will be studied to determine their interactions with the economic, political, legal, global, and social environments. Students will download a 75 minute video lecture each week that covers business theory and practice. During class meetings, students will discuss concepts presented in the video lecture, work on team projects, and take quizzes and tests. This course satisfies General Education Area V: Social and Behavioral Sciences.  3 hours

BUS 2200 Introduction to Global Business  An introduction to global business and its complex environment. Develop an understanding of relevant differences in the economic, socio-cultural, political, legal and ethical environment of global business. Realize how such differences can influence business functional operations such as production, marketing, management, information management, accounting and finance.  Prerequisite: Sophomore standing.  3 hours

BUS 3000 Business Preparation for Transfer Students  Designed for transfer students, the BUS 3000 Business Preparation for Transfer Students course offers students the opportunity to work with both an academic advisor as well as career center staff. This is a one-credit hour course that meets each week for the entire semester. The concept of the course is focused on several areas which include: 1) Supporting and assisting transfer students during the adjustment and transitional phase into WMU; 2) Helping transfer students develop an understanding of the academic rigor and expectations required of all WMU students across the Haworth College of Business; 3) Assisting transfer students in making meaningful, supportive connections with faculty, advising, career center and communication center staff and peers; and 4) Assisting transfer students in developing a strong foundation in academic and social engagement, and progress toward graduation. Graded on a C/NC basis. Restricted to majors/minors across multiple departments. Please see advisor for specific program restriction.  Prerequisite: 26 credits or higher.  1 hour

BUS 3750 Business Process Productivity  This course examines the impact of core business processes on the efficiency and effectiveness of a firm and its supply chain allies. The techniques for the design, implementation, and
evaluation of continuous process improvements comprise the body of knowledge. The course uses experiential learning to
challenge students to apply the techniques of continuous improvement and innovation to production and service process.
Restricted to majors/minors across multiple departments. Please see advisor for specific program restriction.
Prerequisites: MGMT 2500, and (STAT 1600 or STAT 2160 or STAT 2600 or STAT 3640 or STAT 3660 or IEE 2610);
junior standing. 3 hours

BUS 3900 Business Internship The business internship is designed to provide practical, hands-on
business work experience within an organization and may or may not be related to a business discipline. Internships may or
may not be related to the student's major field of study and are recommended for completion prior to the senior year of
academic work. For each credit hour received, students are expected to participate in a minimum of 75 hours of compensated
work. Internships must be approved in advance by the Haworth College of Business before credit is awarded. May be
repeated for credit. Graded on a Credit/No Credit basis. Prerequisite: Students must be admitted to the BBA (Business
Administration) program. 1 to 3 hours

BUS 3960 Study Abroad Seminar An international study seminar for undergraduate students. Provides
students with first hand exposure to cultural differences in other environments and how business is conducted overseas
through visits to foreign manufacturing, service, governmental and/or non-governmental organizations supplemented by
coordinated lectures and assigned readings. May be repeated for credit. 1 to 6 hours

BUS 4000 Business Professionalism Designed for senior-level students, the Business Professionalism course
provides students the opportunity to build professional competencies through the completion of on-line modules and in-class
experiences, in order to prepare them for career success. This course is the capstone experience for the SPuRS program, and a
graduation requirement for students seeking the BBA degree. Credit/No Credit basis only. Restricted to majors/minors across
multiple departments. Please see advisor for specific program restrictions. Prerequisite: Senior standing. 1 hour

BUS 4500 Business Ethics and Sustainability This course seeks to develop students' understanding of
business ethics and sustainability. The goal is to provide students with an enhanced ability to recognize the ethical
dimensions of business problems. Students will assess activities from different functional areas of business in the context of
developing sustainable practices. Prerequisites: (CIS 2700 or BUS 2700), FIN 3200, MGMT 2500 and MKTG 2500.
3 hours

BUS 4750 Strategic Business Solutions In this course students identify strategic issues and opportunities facing
organizations and develop effective solutions. Students consider and evaluate strategic business alternatives and their
implications by focusing on the key business dimensions of information, operations, people, and technology. The successful
strategist integrates these four dimensions, sees the organization as a whole, and works proactively to improve organizational
performance. This course requires students to learn new concepts as well as integrate prior course work and professional
experiences. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.
Prerequisites: ACTY 2110, ECON 2020, MGMT 2500, MKTG 2500, CIS 2700, BCM 3700, (BUS 3750 or MGMT 2800),
FIN 3200, LAW 3800 (may be taken concurrently), and senior status. 3 hours

Civil and Construction Engineering

CCE 1001 Introduction to Engineering Design An introduction to engineering design process is taught. The
teaching process utilizes local civil and construction engineering problems and allows students to work in teams while
seeking solutions to those problems. Course content includes engineering design process, teamwork, written and oral
communications, engineering ethics and impact of engineering solutions on society. Restricted to majors in Civil
Engineering, Construction Engineering, and associated pre-codes. 1 hour (1 – 0)

CCE 1002 Introduction to Engineering Analysis Engineering analyses concepts and related tools
essential for the engineering profession. Course content includes problem-solving, use of data organization software such as
spreadsheets for engineering analyses, teamwork, communications, and career opportunities and demands of the engineering
and engineering technology professions. Restricted to majors in Civil Engineering, Construction Engineering, and associated
pre-codes. 1 hour (1 – 0)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CCE 2360</td>
<td>Geomatics</td>
<td>Spatial data collection methods including surveying, digital photogrammetry and remote sensing, and global positioning systems. Methods and technologies used to manage, manipulate, and analyze spatial and associated attribute data including geographical information systems. Prerequisites: CCE 1490 (or EDMM 1420), MATH 1220 or 1700, with a grade of “C” or better in all prerequisites.</td>
<td>3 hours (3 - 0)</td>
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<tr>
<td>CCE 3080</td>
<td>Civil and Construction Engineering Materials</td>
<td>The course focuses on the study of different materials and their applications in Civil and Construction Engineering. Design and control of concrete mixtures will form a major part of the course. Evaluation of physical and mechanical properties of important construction materials will also be included. Prerequisites: ME 2570 with a grade of “C” or better.</td>
<td>3 hours (2 - 3)</td>
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<tr>
<td>CCE 3200</td>
<td>Fluids and Water Resources Engineering</td>
<td>The theoretical bases for fluid statics and dynamics, including the conservation of mass, energy and momentum. Modeling of hydraulic systems is introduced. Emphasis on pipe flow and open-channel hydraulics, with real-world civil engineering applications. Restricted to majors in Civil Engineering and Construction Engineering. Prerequisites: ME 2560 and MATH 3740, with a grade of “C” or better.</td>
<td>3 hours (3 – 0)</td>
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<tr>
<td>CCE 3300</td>
<td>Transportation Engineering</td>
<td>Introduction to transportation engineering with emphasis on highway and airport design. Topics include a survey of various transportation modes for surface, air, and water systems. Emphasis is placed on location and geometric design of highways and airport runways, highway/airport drainage systems, design of rigid and flexible pavement, and pavement testing methods and rehabilitation. Prerequisite: CCE 2360 and (IEE 2610 or IME 2610), with a grade of “C” or better in all prerequisites.</td>
<td>3 hours (3 – 0)</td>
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<tr>
<td>CCE 3330</td>
<td>Construction Codes, Specifications, and Contracts</td>
<td>Application of model codes to residential and commercial structures, nonstructural and structural plan review; fire codes, codes governing the installation of the electrical, plumbing and heating elements of the building; inspection techniques; code administration; and introduction to construction contracts. Prerequisite: ME 2570 with a grade of “C” or better.</td>
<td>3 hours (3 - 0)</td>
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<tr>
<td>CCE 3350</td>
<td>Water Resources Engineering</td>
<td>Survey of principles and practices of water resources engineering, including groundwater hydrology, surface water hydrology and hydraulics. Topics include hydraulics of closed conduit systems, descriptive and quantitative groundwater and surface water hydrology, and open channel flow. Restricted to majors in Construction Engineering and Civil Engineering. Prerequisites: ME 3560 with a grade of “C” or better.</td>
<td>3 hours (3 - 0)</td>
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<tr>
<td>CCE 3360</td>
<td>Soil Mechanics</td>
<td>Mechanical and physical properties of soils and their relation to soil action in problems of engineering, such as classification, permeability, shearing strength, and consolidation. Restricted to majors in Civil Engineering and Construction Engineering. Prerequisite: ME 2570 with a grade of “C” or better.</td>
<td>3 hours (2 - 2)</td>
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<tr>
<td>CCE 3860</td>
<td>Structural Analysis</td>
<td>Introduction to structural systems; structural requirements; structural systems and specification of loads; analysis of statically determinate and indeterminate structures using equations of equilibrium, moment distribution, and energy methods; determination of design forces in the structural components including shearing force and bending moment diagrams; and brief introduction to the direct stiffness method. Prerequisite: ME 2570 with a grade of “C” or better.</td>
<td>3 hours (2 - 2)</td>
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<tr>
<td>CCE 4300</td>
<td>Traffic Design</td>
<td>Elements of traffic engineering including traffic flow theory, highway capacity analysis and traffic control systems. Traffic engineering tools and implements including traffic sensor and data systems, parking and traffic accident analysis, freeway traffic management systems and uniform traffic control devices. Application of control measures such as ramp metering systems, actuated signal control systems and traffic impact analysis. Concepts in transportation system management cost-effectiveness, and public policies. Prerequisite: CCE 3300 with a grade of “C” or better.</td>
<td>3 hours (2 – 2)</td>
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<tr>
<td>CCE 4310</td>
<td>Construction Planning and Scheduling</td>
<td>Construction planning and integrated time-cost control of construction projects are discussed. Various scheduling techniques, such as the critical path method (CPM), the program evaluation and review technique (PERT), are covered. Manpower loading and costs’ correlation to the schedule, and control and accurate project progress reporting are covered. Building Information Modeling (BIM) tools and Project</td>
<td>3 hours (2 – 2)</td>
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Scheduling software tools (e.g., Microsoft Project 2010) are extensively used in the course project. Hands-on experiences of using BIM tools for construction planning and scheduling, as well as project progress and performance evaluation is required. Restricted to majors in Civil Engineering or Construction Engineering. Prerequisite: CCE 3080 with a grade of "C" or better.

CCE 4340 Hydraulics Measurement, control and conveyance of water flows, analysis, design, characteristics of hydraulic models, instrumentation, pipe systems, pumps and turbines. Restricted to majors in Civil Engineering and Construction Engineering. Prerequisite: CCE 3200 with a grade of "C" or better.

CCE 4350 Hydrology The hydrologic cycle and its components are described and estimated for specific settings. Concepts are applied to basins at different scales. Man-made modifications such as dams are considered. Restricted to majors in Civil Engineering and Construction Engineering. Prerequisite: CCE 3080 and CCE 3330, with a grade of "C" or better.

CCE 4360 Construction Estimating, Bidding, and Cost Control Procedures involved in material quantity takeoffs and in estimation of labor, material, equipment, and overhead costs are covered. Estimating software will be used. Building Information Modeling (BIM) software will be used for showing the complexities of integrated time-cost control. Hands-on experiences of using BIM software and relevant data processing tools for completing assignments or course projects are required. Bidding procedures and the elements of construction cost control are also covered. Restricted to majors in Civil Engineering or Construction Engineering. Prerequisites: CCE 4340 or CCE 3200, with a grade of "C" or better in all prerequisites.

CCE 4370 Pavement Design Covers pavement design concepts and considerations; engineering properties of pavement materials including soils, bases, asphalt concrete, and Portland cement concrete, design of flexible and rigid pavements. Prerequisites: CCE 3080, CCE 3360, and CCE 3860, with a grade of "C" or better in all prerequisites.

CCE 4380 Construction Project Management The characteristics of construction industry, project organizations, labor, material, and equipment utilization, construction productivity, value engineering. TQM, constructability, construction safety, contract types, and contract bonds are presented. Building Information Modeling and Data Management software tools are used for illustrating the integrated information management process of a construction project. Restricted to majors in Civil Engineering or Construction Engineering. Prerequisite: CCE 4310 or CCE 4360, with a grade of "C" or better in all prerequisites.

CCE 4400 Introduction to Structural Design Introduction to the process of structural design; application of the ACI-318 Code and AISC Steel Construction Manual; analysis and design of reinforced concrete beams, columns; analysis and design of steel tension member, beams and columns. Prerequisites: CCE 3080 and CCE 3860, with a grade of "C" or better in all prerequisites.

CCE 4480 Structural Analysis II Analysis of indeterminate structural systems including trusses, frames, and continuous beams using moment distributions, stiffness, and flexibility methods. Prerequisite: CCE 3860 with a grade of "C" or better.

CCE 4561 Foundation and Earth Retaining Structure Design This course covers the analysis, design, and construction aspects of shallow and deep foundations and retaining structures. The main objective is to enable students to select, analyze, and design an appropriate foundation and/or an earth retaining structure for a given scenario. Prerequisite: CCE 3360 with a grade of "C" or better.

CCE 4830 Project Design and Control Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for senior project. This course, along with CCE 485, is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Restricted to majors in construction engineering or civil engineering. Prerequisites (may be taken concurrently): Senior standing, (CCE 4300 and CCE 4400), or (CCE 4310, CCE 4360 and CCE 4400); a grade of "C" or better is required for all prerequisites.
CCE 4850 Senior Project
Open-ended team projects involving systems design, analysis, or application. Results in a tangible system, written report and presentation. This course, along with CCE 483, is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CCE 4830 and approved project; (CCE 4300 and CCE 4400 for CIVJ majors), or (CCE 4310, CCE 4360 and CCE 4400 for CENJ majors), with a grade of “C” or better in all prerequisites. 3 hours

CCE 4990 Independent Studies
An individual study program to supplement regular course work, arranged in consultation with a study supervisor. One to three hours credit per semester. Prerequisite: Consent of department. May be repeated not to exceed six credit hours. 1 to 3 hours

CCE 5300 Construction Project Delivery Systems
A comprehensive coverage of the standard contracts between various agencies involved in construction will be described in the course. Analysis of traditional and current project delivery methodologies will also be presented. Issues related to insurance and bonding in the construction industry will be highlighted. Advanced topics such as alternate dispute resolution will also be covered. Open to upperclass and graduate students. Prerequisites: CCE 4310 and CCE 4360 or permission of instructor. 3 hours (3 - 0)

CCE 5310 Advanced Construction Project Management
Advanced course in construction engineering builds on the information in the undergraduate construction management courses on planning and control of construction projects. Quantitative tools that are used in planning and controlling construction projects are described. Building Information Modeling (BIM) and relevant construction data management tools for effectively applying the learned quantitative tools in assignments and course project are taught. Cash flow forecasting, site planning, site administration, risk analysis, contract documents and contracts administration are covered. Advanced project management tools such as line of balance, velocity diagrams, time-cost trade off, resource planning, design-construction integration are used. Open to upperclass and graduate students. Prerequisites: CCE 4310 and CCE 4360, or instructor approval. 3 hours (3 - 0)

CCE 5400 Transportation Planning
Theoretical foundations of transportation planning, analysis, and evaluation methods. Theory and application of aggregate and disaggregate models for land use, trip generation, and destination, mode, and route choice. Travel demand modeling and transportation network analysis for evaluation of system alternatives. Open to upperclass and graduate students. Prerequisite: CCE 3300 with a grade of “C” or better, or permission of the instructor. 3 hours (3 - 0)

CCE 5440 Design of Concrete Structures
A continuation of the fundamentals in concrete structural design introduced in CCE 4400 Introduction to Structural Design, with emphasis on the latest ACI design requirements and specifications for Reinforced Concrete. Topics covered include analysis and design of two-way slabs, slender columns, footings, structural walls as well as introduction to seismic design. Open to upperclass and graduate students. Restricted to the following: majors in Civil Engineering or Construction Engineering; or masters in Civil Engineering. Prerequisite: CCE 4400 with a grade of “C” or better, or instructor approval. 3 hours

CCE 5450 Design of Steel Structures
A continuation of the fundamentals in steel structural design introduced in CCE 4400 Introduction to Structural Design, with emphasis on the latest AISC design requirements and specification for structural steel. Topics include design of beam-column member; welded and bolted connections of axial members, framed and seated shear connections, rigid and semi-rigid moment connections, base plate connections; steel-concrete composite construction; plastic analysis and design. Open to upperclass and graduate students. Restricted to the following: majors in Civil Engineering or Construction Engineering; or masters in Civil Engineering. Prerequisite: CCE 4400 with a grade of “C” or better, or instructor approval. 3 hours

CCE 5460 Design of Timber Structures
Structural behavior of wood under loads; application of current timber design codes; design of structural components and systems in wood; mechanical properties of wood fasteners and connections. Open to upperclass and graduate students. Prerequisites: CCE 3860 with a grade of “C” or better. 3 hours (3 - 0)

CCE 5470 Design of Masonry Structures
The course focuses on use and design of masonry in structural applications. Topics include materials and testing, construction, and design of components (under flexural, flexural and axial, and shear loadings) and connections. Open to seniors and Graduate students. Restricted to majors in civil engineering or construction engineering, and masters in civil engineering. Prerequisite: CCE 3860 3 hours (3 – 0)
CCE 5500 Civil Infrastructure Management and Spatial Analysis Study for management of civil infrastructure systems, such as highway features, bridges, pavement systems, roadside features, control devices, and pipelines, through spatial analysis techniques. Open to upperclass and graduate students. Prerequisite: CCE 3300 or graduate standing. 3 hours (3 – 0)

CCE 5520 Highway Design Principles Traffic volume; speed; capacity and level of service; sight distances; horizontal curves and superelevation; vertical grades and curves; cross section elements; earthwork; deceleration/acceleration lanes; medians and separations; design of interchanges; roadside design; drainage design; and highway design project. Open to upperclass and graduate students. Restricted to majors in construction engineering or civil engineering; masters in civil engineering; and doctorates in engineering. Prerequisite: CCE 3300 with a grade of “C” or better, or instructor approval. 3 hours (3 – 0)

CCE 5560 Foundation Design Foundation analysis and design for different civil engineering facilities. High-rise buildings, bridges, and other complex structures such as piles, drilled piers, and caissons. Theoretical aspects of engineered foundations as well as practical applications are discussed. Open to upperclass and graduate students. Prerequisites: CCE 3360 and CCE 4400 or permission of instructor. 3 hours

CCE 5610 Design of Wastewater Systems Design of wastewater collection and transport systems. Unit operations in wastewater treatment; physical, chemical, and biological processes for treatment of wastewater; sludge treatment and disposal; design of a wastewater treatment plant; site visits to wastewater treatment plants. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: CCE 3200 and CCE 3210. 3 hours

CCE 5650 Sustainability Design for Civil and Environmental Engineering The concept of design for sustainability will be introduced to the students. Sustainability will be represented as an extension of current practices and standards and simply addresses new concerns and constraints of civil engineering design and construction. Open to upperclass and graduate students. Restricted to majors in civil engineering or construction engineering, and masters in civil engineering. 3 hours (3 – 0)

CCE 5690 Principles of Fatigue and Fracture Basics of experimental techniques and modeling used in industry to study inelastic deformations, fatigue, and fracture of engineering materials and structures. Open to upperclass and graduate students. Cross-listed with ME 5690. 3 hours (3 – 0)

CCE 5960 Special Topics in Civil and Construction Engineering New or special topics on current developments in different aspects of civil engineering will be provided. Specific topics and prerequisites are identified by the instructor and will vary from semester to semester. Open to upperclass and graduate students. Restricted to major’s in Construction Engineering; and major’s or master’s in Civil Engineering. Prerequisite: Instructor approval. 3 hours

Counselor Education and Counseling Psychology
CECP 4840 Community Diversity in Substance Abuse Services This course of study will help students to understand diverse cultures and incorporate the relevant needs of culturally diverse groups, as well as people with disabilities, into clinical practice. This course will also examine ethical topics directly related to diverse populations, such as different strategies of coping and how various cultures view addiction and recovery. 3 hours

CECP 5200 Foundations of Rehabilitation Counseling This course surveys the role of the rehabilitation counselor in establishing eligibility, planning services, the tracking system, counseling, case management, work evaluation, work adjustment, supported employment, transition, client assistance programs, job analysis, job development, post-employment, and advocacy. Major emphasis is given to the operation of the state vocational/federal system. Open to upperclass and graduate students. 3 hours

CECP 5830 Workshops in Counselor Education and Counseling Psychology Workshops designed to enhance skill development related to Counselor Education and Counseling Psychology practices. Open to Upperclass and Graduate students, but is not intended for counseling majors. May be repeated for credit. 1 to 4 hours
College of Education and Human Development

CEHD 1000  Topics in Education and Human Development   An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings. May be repeated for credit.  1 to 6 hours

CEHD 2000  Topics in Education and Human Development   An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings. May be repeated for credit.  1 to 6 hours

CEHD 2010  Academic Discovery   The focus of this course is on the development of strategies for overcoming barriers to academic and personal success. Students will explore academic skills and non-cognitive barriers, connect with their strengths to develop an internal motivation to sustain academic success, and either choose or affirm a career focus through career assessment and exploration of campus and community resources.  1 hour

CEHD 3000  Topics in Education and Human Development   An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings. May be repeated for credit.  1 to 6 hours

CEHD 4000  Topics in Education and Human Development   An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings. May be repeated for credit.  1 to 6 hours

CEHD 5000  Topics in Education and Human Development   An interdisciplinary topics course exploring issues and trends in education and human development that are not offered in other courses. Topics will be designated by faculty offering the course and announced in the schedule of course offerings. May be repeated for credit. Open to upperclass and graduate students.  1 to 6 hours

College of Fine Arts

Chemical Engineering

CHEG 1010  Introduction to Chemical Engineering   Introduction to chemical engineering, including process safety, basic laws at the foundation of chemical engineering, units and measurements, chemical equipment and instruments used in the process industries. Emphasis will be on oral and written communication skills and career planning development. Prerequisites: CHEM 1100 and IEE 1020 both with a grade of "C" or better (may be taken concurrently).  3 hours (2 - 3)

CHEG 1810  Introduction to Chemical Engineering Computation   An introduction to computer tools used to solve chemical engineering problems. These tools will provide a framework for doing homework, laboratory exercises, and research in later chemical engineering courses. MathCad and Excel with Visual Basic for Applications will be utilized. Prerequisites: MATH 1180; CHEG 1010 or PAPR 1000. (CHEG 1010 or PAPR 1000 may be taken concurrently.) A minimum grade of "C" is required in CHEG and PAPR prefixed prerequisites.  2 hours (0 - 3)

CHEG 2610  Environmental Engineering   The sources, impacts, and management practices for gas, liquid, and solid by-products of natural, industrial, and municipal sources. Legal, ethical and economic implications included in evaluation of applicable emission reduction and emission control techniques and processes will be stressed. Will be offered as honors courses for interested students. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. Prerequisite: CHEM 1100  3 hours (3 – 0)

CHEG 2611  Environmental Engineering I   The sources, impacts, and management practices for gas, liquid, and solid byproducts of natural, industrial, and municipal sources. Legal, ethical, engineering, and economic implications included in evaluation of applicable emission reduction and emission control techniques and processes will be stressed. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. Prerequisites: CHEM 1100, CHEM 1110 and either (MATH 1230 or MATH 1710).  3 hours (3 – 0)
CHEG 2810 Data Acquisition and Handling  A lecture/laboratory consideration of the methods used to collect experimental or process data, data handling, and data presentation; methods and limitations when applying or collecting process information. Prerequisite: CHEG 1810, a minimum grade of "C" is required in CHEG prefixed prerequisites.

1 hour (0 – 3)

CHEG 2960 Material and Energy Balance  Fundamentals of chemical engineering dealing with behavior of gases, thermophysical properties of solids, liquids and gases, thermochemistry and associated problem solving. Emphasis is on material and energy balances. The laboratory session will be used as a problem solving workshop. Will be offered as honors courses for interested students. Prerequisites: CHEG 1810, PHYS 2050 (both CHEG 1810 and PHYS 2050 may be taken concurrently), MATH 1230, CHEM 1100. A minimum grade of "C" is required in CHEG prefixed prerequisites.

4 hours (3 - 3)

CHEG 3100 Work Experience/Coop  Full-time employment in chemical process industries that provides first-hand experience in application of chemical engineering principles. A written report at the end of the semester is required. Students who will work full time (30 hours or more per week) may register for CHEG 3100 and will be granted full-time student status. May be repeated for credit. Restricted to majors in chemical engineering, paper engineering or paper science. Prerequisites: Departmental consent; junior standing.

1 to 2 hours

CHEG 3110 Unit Operations in Chemical Engineering I  A consideration of the unit operations in the area of fluid mechanics. Emphasis is on principles of fluid mechanics, equipment design, and applications. The laboratory is centered around problem solving, design, and optimization issues. Relevant software will be used in visualizing and solving industrial problems. Will be offered as honors courses for interested students. Prerequisite: CHEG 2960, a minimum grade of "C" is required in CHEG prefixed prerequisites.

3 hours (2 - 3)

CHEG 3120 Unit Operations in Chemical Engineering II  A consideration of the unit operations in the area of heat transfer. Emphasis is on the principles of heat transfer, equipment design, and applications. The laboratory is centered around problem solving, design, and optimization issues. Relevant software will be used in visualizing and solving industrial problems. Will be offered as honors courses for interested students. Prerequisite: CHEG 3110, a minimum grade of "C" is required in CHEG prefixed prerequisites.

3 hours (2 - 3)

CHEG 3200 Chemical Engineering Thermodynamics  A lecture consideration of the fundamental laws and concepts of thermodynamics and how they explain the behavior of matter in its different phases. Special emphasis on application to industrial situations. Prerequisites: CHEM 1120 and CHEG 2960. A minimum grade of "C" is required in CHEG prefixed prerequisites.

3 hours (3 - 0)

CHEG 3300 Mass Transfer  Fundamentals of diffusional mass balances; diffusion in solids, liquids, and gases. Convective heat and mass transfer. Component separation in continuous processes; gas absorption and adsorption; liquid-liquid extraction and distillation. Corequisites: CHEG 3120. 3 hours (3 - 0)

CHEG 3550 Bioprocess Engineering  The extension of chemical engineering fundamentals to biological systems. Topics include: bioreaction engineering, bioseparations, and commercial applications of biomaterials and bioprocesses to societal needs. Prerequisite: BIOS 1500 and CHEG 2960. A minimum grade of "C" is required in CHEG prefixed prerequisites.

3 hours (2 – 3)

CHEG 3611 Advanced Topics in Environmental Engineering  Advanced treatment and design practice for air, water, and solid waste unit operations. Introduction to light, noise, and heat pollution. Prerequisite: CHEG 2610, a minimum grade of "C" is required in CHEG prefixed prerequisites.

3 hours (3 – 0)

CHEG 3810 Computer Modeling and Simulation - Chemical Processes  A laboratory class covering usage and application of process simulation packages; module set up, data inputting and optimization techniques. Prerequisite: CHEG 2960, a minimum grade of "C" is required in CHEG prefixed prerequisites.

1 hour (0 - 3)

CHEG 4100 Chemical Reaction Engineering  Chemical kinetics and equilibria; reaction rate expressions from mechanisms and experimental data; design and analysis of homogeneous flow and batch reactors; heterogeneous reactor design; solid catalyzed reactions. Restricted to majors in chemical engineering and paper engineering. Prerequisites:
CHEG 4400 Safety and Hazards Management in Chemical Processes
A study of the technical fundamentals of process safety and hazards associated with chemical, physical and biological processes. Includes fires and explosions, relief systems, hazard identification, risk assessment, hazardous waste generation, toxicology, case studies, and regulatory requirements. Prerequisite: CHEG 3120, a minimum grade of "C" is required in CHEG prefixed prerequisites.
1 hour (0 - 2)

CHEG 4440 Energy Management Engineering
Energy systems including combustion processes and steam generation and distribution. Practical issues and equipment used in the energy industry. Energy efficiency, economic operation, and reduction of emissions. Prerequisites: (CHEG 3120 and 3200) or (ME 4310 and 4320) or (CHEG 3120 and CHEM 4300). (CHEM 4300 may be taken concurrently). A minimum grade of "C" is required in CHEG prefixed prerequisites.
3 hours (2 - 3)

CHEG 4600 Plant Economics and Project Design
A lecture and laboratory consideration of: Process synthesis and operability characteristics; dynamics of chemical process industries; project evaluation and review; optimization in design and selection of process and/or equipment alternatives; environmental, health, final disposal, and safety in the design of chemical processes; basis for cost estimation. Emphasis will be on acquiring business skills, understanding of project planning and management, life cycle, economics, and the impact of projects on various stakeholders. Oral and written reports of individual and team efforts. CHEG 4600 is cross-listed with PAPR 4600. Will be offered as honors courses for interested students. Prerequisites: CHEG 3120, CHEG 3300, and CHEG 3810. (CHEG 3810 may be taken concurrently.) A minimum grade of "C" is required in CHEG prefixed prerequisites.
3 hours (2 - 3)

CHEG 4611 Sustainable Chemical Process Development
3 hours (3 - 0)

CHEG 4810 Unit Operations Lab: Fluid Flow, Heat and Mass Transfer
A unit operations laboratory course designed to demonstrate the principles of transport phenomena. A variety of experiments will be done requiring the application of transport principles covered in fluid dynamics, heat transfer, and mass transfer. Restricted to majors in Chemical Engineering. Prerequisites: CHEG 3120, CHEG 3300 and IEE 2610 with a grade of “C” or better in all prerequisites.
2 hours (0 - 6)

CHEG 4811 Unit Operations Lab: Fluid Flow and Heat Transfer
A unit operations laboratory course designed to demonstrate the principles of transport phenomena. A variety of experiments will be done requiring the application of transport principles covered in fluid dynamics, and heat transfer. Restricted to majors in Paper Engineering. Prerequisites: CHEG 3120 and IEE 2610 with a grade of “C” or better in all prerequisites.
1 hour (0 - 6)

CHEG 4830 Process Control I
Introduction to automatic control covering control methods, theory, loop analysis, and control loop hardware, including sensors, transmitters, controller and control valves. Includes the necessary secondary loop topics such as circuits (RC and RL) and circuit laws. Prerequisites: CHEG 3120, MATH 3740, and PHYS 2070. A minimum grade of "C" is required in CHEG prefixed prerequisites.
4 hours (3 - 3)

CHEG 4840 Process Control for Energy Management
The use of instrument systems, digital computers and programmable logic controllers to control process and utility boilers and energy management systems. Design of control systems, principles of analog and digital systems, digital signal processing and architecture of programmable logic controllers. Prerequisite: CHEG 4830, a minimum grade of "C" is required in CHEG prefixed prerequisites.
4 hours (4 – 0)

CHEG 4870 Senior Design Project
Application of chemical engineering to the solution of a complex, open-ended research problem selected in consultation with faculty. The project will involve feasibility analysis, design, and optimization of chemical processes. The project is the culmination of the curriculum and is a major design experience based on the knowledge and skills acquired in earlier coursework and will incorporate appropriate engineering standards and multiple realistic constraints. Emphasis will be on working in small design groups, submission of written report, and oral
presentation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing
requirement of the student's curriculum. Will be offered as honors courses for interested students.
Prerequisite: CHEG 4600, a minimum grade of "C" is required in CHEG prefixed prerequisites. 3 hours (1 – 2)

CHEG 4950  Topics in Chemical Engineering  A specialized course dealing with a specific area in chemical
engineering not included in other course offerings. May be repeated for credit with a different topic up to six hours.
Prerequisite: Instructor approval. 1 to 3 hours

CHEG 4990  Independent Studies  A program of independent study in an area arranged in consultation with the
instructor. One to three hours per semester, cumulative to six hours. Prerequisite: Instructor approval.
1 to 3 hours

CHEG 5100  Medical and Biomolecular Engineering Concepts  A course focused on molecular
biotechnology, bioprocessing, and pharmacology concepts related to engineering. Topics may include but are not limited to
molecular biology and biochemical techniques, PCR and primer design, chromatography, gel electrophoresis and Western
blotting, mass spectrometry, advanced bioprocessing, pharmacokinetics, and pharamacodynamics. Open to upperclass and
graduate students. Prerequisites: BIOS 1610, CHEM 3750, and MATH 2720, or by instructor approval.
3 hours (3 – 0)

CHEG 5950  Topics in Chemical Engineering  A specialized course dealing with some particular area of
chemical engineering not included in other course offerings. May be repeated for credit with a different topic to a total of six
credit hours. Open to upperclass and graduate students. Prerequisite: Approved application and department
approval. 1 to 3 hours

Chemistry

CHEM 1000  Introduction to General Chemistry  A course for students with insufficient background for college
level chemistry which develops skills essential to a working understanding of the science of chemistry. Instruction and
practice in the fundamental tools for solving chemical problems: chemical formulas, chemical equations, stoichiometry,
measurement units, conversions. An introduction to the nature of matter is developed. Enrollment is restricted to students
without high school chemistry or to those who demonstrate inadequate retention of their chemistry background. This course
credit will not apply to curricular requirements of chemical science at this university and should be followed by CHEM 1100.
Offered fall and spring. Prerequisite: One of the following: MATH 1100 or Math 1110 or Math 1180 (with a minimum
grade of “C” or better in any prerequisite) or ACT minimum score 20 or SAT minimum score 460 or adequate performance
on the MATH placement tool. 3 hours

CHEM 1100  General Chemistry I  The theory and fundamental principles of chemistry are emphasized in
this foundation course which serves primarily those who intend to enroll for more than two semesters of chemistry. Students
well prepared may earn credit by taking an examination. To count for General Education Area VI: Natural Science credit,
both CHEM 1100 and CHEM 1110 must be passed. Offered fall spring, summer I and summer II. Prerequisites:
One year of high school chemistry, CHEM 1000 with a minimum grade of "C" or better; and one of the following: MATH
1110 or MATH 1180 or MATH 2000 (with a minimum grade of "C" or better in any prerequisite) or ACT minimum score 25
or SAT minimum score 560 or adequate performance on the MATH placement tool; and CHEM 1110 with a minimum grade
of "C" or better (may be taken concurrently).
3 hours

CHEM 1110  General Chemistry Laboratory I  The companion laboratory course to CHEM 110. This course
is also intended for students who completed a general chemistry course without laboratory at another institution. To count for
General Education Area VI: Natural Science credit, both CHEM 1100 and CHEM 1110 must be passed. Offered fall spring,
summer I and summer II. Prerequisite: One of the following: Math 1110 or MATH 1180 or MATH 2000 (with a minimum
grade of "C" or better in any prerequisite) or ACT minimum score 25 or SAT minimum score 560 or adequate performance
on the MATH placement tool; and CHEM 1110 with a minimum grade of "C" or better (may be taken concurrently).
1 hour

CHEM 1120  General Chemistry II  The properties of a number of the more representative elements and the
compounds which they form are studied. Chemical relationships in the periodic table, electrochemistry, and the equilibrium
principle are also treated. Offered fall spring, summer I and summer II. Prerequisites: CHEM 1100 and CHEM 1110 (with a minimum grade of “C” or better in all prerequisites); and CHEM 1130 with a minimum grade of “C” or better (may be taken concurrently). 3 hours

CHEM 1130 General Chemistry Laboratory II The companion laboratory course to CHEM 1120. Offered fall spring, summer I and summer II. Prerequisites: CHEM 1100 and CHEM 1110 (with a minimum grade of “C” or better in any prerequisite); and CHEM 1120 with a minimum grade of “C” or better (may be taken concurrently). 1 hour

CHEM 1510 Chemistry for Health Professionals I First semester of a two course sequence for College of Health and Human Services students whose curricula require an introduction to biochemistry. The first semester emphasizes general and organic chemistry. This course does not satisfy curricular requirements for chemistry outside of the College of Health and Human Services. Offered fall. Prerequisite: CHEM 1520 with a minimum grade of “C” or better (may be taken concurrently). 3 hours

CHEM 1520 Chemistry for Health Professionals I Lab This laboratory course is designed to complement CHEM 1510. Offered fall. Prerequisite: CHEM 1510 with a minimum grade of “C” or better (may be taken concurrently). 1 hour

CHEM 1530 Chemistry for Health Professionals II The continuation of CHEM 151, emphasizing biochemistry. This course does not satisfy curricular requirements for chemistry outside the College of Health and Human Services, nor the chemistry requirements of the Physician Assistant Program. Offered spring. Prerequisites: CHEM 1510 and CHEM 1520 (with a minimum grade of “C” or better in any prerequisite); and CHEM 1540 with a minimum grade of “C” or better (may be taken concurrently). 3 hours

CHEM 1540 Chemistry for Health Professionals II Lab This is the laboratory course which should be taken concurrently with CHEM 1530. Offered spring. Prerequisites: CHEM 1510 and CHEM 1520 (with a minimum grade of “C” or better in any prerequisite); and CHEM 1530 with a minimum grade of “C” or better (may be taken concurrently). 1 hour

CHEM 1850 Chemistry Freshman Seminar Chemistry Seminar introduces students that major in Chemistry and Biochemistry to various research and career opportunities in the field. Students will have an opportunity to meet with experts in their field and understand ways to establish goal for success in their major. Offered fall. Prerequisite: Department approval. 1 hour

CHEM 1900 Chemistry of Climate Change This course is designed to provide an introduction to the chemistry of climate change and will provide an understanding of the climate's influence on society and our influence on the climate. An introduction to the molecules of the atmosphere and how these interact with solar radiation to keep our planet temperate will be provided. Changes in chemical equilibria, due to natural and anthropological causes, leading to an increase in global temperatures will be discussed. Strategies to mitigate climate change will also be covered. Outcomes include the ability to scientifically evaluate effects of climate change and respond to a changing environment. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. Offered fall. Prerequisite: One of the following: MATH 1100 or MATH 1110 or MATH 1180 (with a minimum grade of "C" or better in any prerequisite) or ACT minimum score 19 or SAT minimum score 460 or adequate performance on the MATH placement tool. 3 hours

CHEM 2250 Quantitative Analysis This course includes the theory, techniques, and calculations of quantitative analysis. Instrumental techniques are used to supplement classical analytical procedures in the laboratory. Offered fall and spring. Prerequisites: CHEM 1120 and CHEM 1130 (with a minimum grade of “C” or better in any prerequisite); and CHEM 2260 with a minimum grade of “C” or better (may be taken concurrently). 3 hours

CHEM 2260 Quantitative Analysis Laboratory This is the laboratory course which should be taken concurrently with CHEM 2250. Offered fall and spring. Prerequisites: CHEM 1120 and CHEM 1130 (with a minimum grade of “C” or better in any prerequisite); and CHEM 2250 with a minimum grade of “C” or better (may be taken concurrently). 1 hour
CHEM 2800 Active Chemistry This course aids students in developing meaningful and functional understanding of chemistry concepts, their interrelations and their implication for everyday chemical technology. Students work in open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity, explore alternative conceptions of chemical phenomena, help students develop more positive attitudes about chemical technology and increase their confidence in their ability to do chemistry. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. Offered fall and spring. 3 hours (0 – 4)

CHEM 3550 Introductory Biochemistry A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Offered fall spring, and summer I. Prerequisites: (CHEM 3700 AND CHEM 3710) or (CHEM 3770 and CHEM 3780); with a minimum grade of “C” or better in any prerequisite. 3 hours

CHEM 3560 Introductory Biochemistry Laboratory Basic biochemistry laboratory techniques. Isolation and properties of proteins, enzymes, carbohydrates, lipids and nucleic acids. Use of instrumentation for bioanalytical determinations. Offered fall spring, and summer I. Prerequisite: CHEM 3550 or CHEM 5500 (either may be taken concurrently); with a minimum grade of “C” or better in any prerequisite. 1 hour

CHEM 3700 Introduction to Organic Chemistry A one semester course which surveys the chemistry of aliphatic and aromatic carbon compounds, designed for those needing a working knowledge of organic chemistry without the theoretical detail of a full year course. Credit may not be received for both CHEM 3750 and CHEM 3700. CHEM 3700 is not a satisfactory prerequisite for CHEM 3770. Offered spring and summer I. Prerequisites: CHEM 1120, CHEM 1130 and CHEM 3700 (may be taken concurrently); with a minimum grade of “C” or better in any prerequisite. It is strongly recommended that students take CHEM 3710 concurrently. 3 hours

CHEM 3710 Introduction to Organic Chemistry Lab This course is the laboratory to accompany CHEM 3700 and should be taken concurrently with CHEM 3700. Offered spring and summer I. Prerequisite: CHEM 1120, CHEM 1130 and CHEM 3700 (may be taken concurrently); with a minimum grade of “C” or better in any prerequisite. It is strongly recommended that students take CHEM 3700 concurrently. 1 hour

CHEM 3750 Organic Chemistry I The preparation and chemical properties of aliphatic and aromatic compounds are studied. The emphasis is placed on the nature of covalent bonds and molecules and the general reactions of functional groups. Offered fall spring, and summer I. Prerequisites: CHEM 1120, CHEM 1130 and CHEM 3760 (may be taken concurrently); with a minimum grade of “C” or better in any prerequisite. It is strongly recommended that students take CHEM 3760 concurrently. 3 hours

CHEM 3760 Organic Chemistry Lab I This course is the laboratory to accompany CHEM 3750. Should be taken concurrently with CHEM 3750. Offered fall spring, and summer I. Prerequisites: CHEM 1120, CHEM 1130 and CHEM 3750 (may be taken concurrently); with a minimum grade of “C” or better in any prerequisite. It is strongly recommended that students take CHEM 3750 concurrently. 1 hour

CHEM 3770 Organic Chemistry II This course is the continuation of CHEM 3750. Offered fall spring, and summer II. Prerequisites: CHEM 3750, CHEM 3760 and CHEM 3780 (may be taken concurrently); with a minimum grade of “C” or better in any prerequisite. It is strongly recommended that students take CHEM 3780 concurrently. 3 hours

CHEM 3780 Organic Chemistry Lab II This course is the laboratory to accompany CHEM 3770. Should be taken concurrently with CHEM 3770. Offered fall spring, and summer II. Prerequisites: CHEM 3750, CHEM 3760 and CHEM 3770 (may be taken concurrently); with a minimum grade of “C” or better in any prerequisite. It is strongly recommended that students take CHEM 3770 concurrently. 1 hour

CHEM 3900 Special Problems in Chemistry This course is designed to give students that have completed basic chemistry an opportunity to receive credit for experience in chemical laboratory independent study in association with a faculty member. May be repeated once for credit. Graded on a Credit/No Credit basis. Prerequisite: 18 hours of chemistry (with a minimum grade of “C” in all courses), and approval of the department chairperson and a faculty director. 2 hours
CHEM 4300  Physical Chemistry I  Lectures on kinetic theory of gases, thermodynamics, phase rule, equilibria, electrochemistry, quantum theory, spectroscopy, statistical mechanics, chemical kinetics and mechanisms, transport properties, surface chemistry, macromolecules, crystal structure, etc. Offered fall. Prerequisites: CHEM 1120, CHEM 1130, MATH 2720, PHYS 2050, PHYS 2060, PHYS 2070, and PHYS 2080; with a minimum grade of “C” of better in any prerequisite. 3 hours

CHEM 4310  Physical Chemistry II  A continuation of CHEM 4300. Offered spring. Prerequisite: CHEM 4300 with a minimum grade of “C” or better. 3 hours

CHEM 4360  Physical Chemistry Laboratory I  Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 430, with consideration of the limitations of physical measurements and their quantitative and qualitative interpretation. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Offered fall and spring. Prerequisites: CHEM 2250, CHEM 2260 and CHEM 4300; with a minimum grade of “C” or better in any prerequisite. 2 hours

CHEM 4370  Physical Chemistry Laboratory II  Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 4310. This course expands on the qualitative and quantitative interpretation or physical and chemical measurement skills introduced in CHEM 4360. Offered fall and spring. Prerequisites: CHEM 4310 and CHEM 4360 (both may be taken concurrently); with a minimum grade of “C” or better in any prerequisite. 1 hour

CHEM 4950  Co-op/Internship  Research or practical training experience outside the department or university. This work is to be summarized in a written report. May be repeated for credit. Students may take up to a maximum of six credit hours. Graded on a Credit/No Credit basis. Prerequisite: Department approval will be required so that students can be matched appropriately with employers according to the course work they have completed. 1 to 4 hours

CHEM 5070  Ethical Chemical Practice  This class addresses ethical standards and professional practice for the conduct of chemists. Students will learn to access and search the scientific literature, develop a set of ethical standards, and maintain a safe laboratory environment in an atmosphere of responsible care. The course will also address responsibilities of the individual professional care. The course will also address responsibilities of the individual professional in group, academic, and industrial settings. Open to upperclass and graduate students. Offered spring. Prerequisite: Junior standing and 24 hours of Chemistry (with a minimum grade of “C” in all courses), and department approval. 3 hours

CHEM 5090  Topics in Chemistry  A topic is presented in greater depth or from a perspective different from that of a typical undergraduate course. Representative topics such as microprocessors, industrial chemistry, chemical pollution, etc. according to student interest and request. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Junior standing and 16 hours of chemistry (with a minimum grade of “C” or better in all courses), and department approval. 3 hours

CHEM 5150  Inorganic Chemistry  The course, along with CHEM 5700 and 5750, provides a capstone chemistry experience for undergraduates. The course will present the principles of inorganic chemistry in terms of its relevance to the "real world" of industry and environmental protection. Topics include symmetry, structure, and bonding, as well as a survey of the descriptive chemistry of the elements. Open to upperclass and graduate students. Offered fall. Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 4310 (with a minimum grade of “C” or better in all courses); and department approval. Students are strongly advised to have already completed CHEM 5700 and be registered concurrently in CHEM 5750. 3 hours

CHEM 5200  Instrumental Methods in Chemistry  An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. This course includes lecture and laboratory. Open to upperclass and graduate students. Offered fall. Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 4310 and CHEM 4360 (with a minimum grade of “C” or better in all courses); and department approval. 3 hours
CHEM 5280 Chemical Separations  Principles and applications of chemical separations, including distillation, crystallization, extraction, electrophoresis and a variety of chromatographic techniques are presented. Laboratory exercises illustrate typical applications of the methods. Open to upperclass and graduate students. Offered spring of odd years. Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 3770 (with a minimum grade of “C” or better in all courses); and department approval. 3 hours

CHEM 5500 Biochemistry I  The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids, enzymes and biochemical energetic. Open to upperclass and graduate students. Offered fall. Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 3770, CHEM 3780, and CHEM 4300 (with a minimum grade of “C” or better in all courses); and department approval. 3 hours

CHEM 5510 Biochemistry I Laboratory This is the lab course that complements CHEM 550. Experiments involve more advanced techniques and instrumentation than in CHEM 356. Emphasis will be on purification and properties of proteins and nucleic acids. Open to upperclass and graduate students. Offered fall. Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 3770, CHEM 3780, CHEM 4300, and CHEM 5500 (may be taken concurrently); with a minimum grade of “C” or better in all courses; and department approval. 2 hours

CHEM 5540 Biochemistry II  Continuation of CHEM 5500. Chemistry and metabolism of carbohydrates and lipids. Metabolism of amino acids and nucleic acids. Open to upperclass and graduate students. Offered spring. Prerequisite: Junior standing and 12 hours of work in chemistry, including CHEM 5500 (with a minimum grade of “C” or better in all courses); and department approval. 3 hours

CHEM 5700 Advanced Organic Chemistry and Spectroscopy  This course, along with CHEM 5150 and 5750, provides a capstone chemistry experience for undergraduates. The course expands on fundamentals of organic reactions and mechanisms through investigation of molecular structure and reactivity. Students will gain experience in modern spectral interpretation and will learn to use the organic chemical literature and databases. Open to upperclass and graduate students. Offered fall of even years. Prerequisites: Junior standing, CHEM 3770, CHEM 3780, and 24 hours of chemistry (with a minimum grade of “C” or better in all courses); and department approval. 3 hours

CHEM 5720 Medicinal Chemistry  Contemporary principles of organic chemistry relevant to drug development and action as they apply to biochemical systems. Open to upperclass and graduate students. Offered fall of odd years. Prerequisites: CHEM 3770 and CHEM 3780, with a minimum grade of “C” or better in all prerequisites. 3 hours

CHEM 5750 Advanced Chemical Synthesis  This course provides a synthetic laboratory experience for undergraduates in conjunction with the CHEM 5700 and CHEM 5150 capstone courses. The fundamentals of synthetic techniques will be exercised through independent synthetic laboratory projects and detailed investigations of molecular structure using modern spectroscopic methods. Students will get hands-on experience with modern spectroscopic instrumentation and will learn to utilize the chemical literature and databases. Open to upperclass and graduate students. Offered spring. Prerequisites: Junior standing and 12 hours of work in chemistry, including CHEM 3770, CHEM 3780, CHEM 4310, and CHEM 5200 (with a minimum grade of “C” or better in all courses); or instructor approval. It is strongly recommended that CHEM 5700 be taken before CHEM 5750 to prepare students for spectral interpretation. 2 hours

CHEM 5900 Special Problems in Chemistry  Research work on a problem in chemistry in association with a faculty member. This research work is to be summarized in a written report. May be repeated once for credit. Graded on a Credit/No Credit basis. Open to upperclass and graduate students. Prerequisites: Junior standing and 24 hours of chemistry, including CHEM 4360 (with a minimum grade of “C” or better in all courses), and department approval. 2 hours

CHEM 5980 Readings in Chemistry  In consultation with a faculty member, the student will design a reading list in a specialized area. The student will master the material independently and will prepare a paper or other summary work as agreed with the faculty member. May be repeated up to a total of six hours. Open to upperclass and graduate students. Prerequisite: Junior standing and 12 hours of work in chemistry (with a minimum grade of “C” or better in all courses); and department approval. 1 to 4 hours

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CHEM 5990  Independent Study in Chemistry  Under the direction of a faculty member, highly qualified advanced students or small groups may pursue student-initiated research projects. The results will be summarized in a paper or other work as agreed with the faculty member. May be repeated up to a total of six hours. Open to upperclass and graduate students.  Prerequisite: Junior standing and 12 hours of work in chemistry (with a minimum grade of “C” or better in all courses); and department approval.  1 to 3 hours

Chinese

CHIN 1000  Basic Chinese I  Fundamentals of Chinese. Background and practice in listening comprehension, speaking, reading and writing. This course satisfies General Education Proficiency 4: Foreign Languages.  4 hours

CHIN 1010  Basic Chinese II  Continuation of CHIN 1000. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisite: CHIN 1000 or equivalent.  4 hours

CHIN 2000  Intermediate Chinese I  The development of spoken and written expression in Chinese. Review of fundamental grammar and skills. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisite: CHIN 1010 or equivalent.  4 hours

CHIN 2010  Intermediate Chinese II  The continued development of spoken and written expression in Chinese. Readings and discussions of civilization and culture materials. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisite: CHIN 2000 or equivalent.  4 hours

CHIN 2100  Business Chinese  This course is designed to introduce students to various aspects of Chinese business culture and to provide basic business Chinese training. By linking the relationship between business culture and business language, this course will equip students with basic language skills and knowledge to do business in Chinese speaking countries and areas or with Chinese companies. Topics such as the following will be studied: the first business meeting; business negotiation; business connection; signing a contract; shipping and handling; and foreign trade corporations. We will emphasize communicative activities, and combine the language training with the introduction of Chinese business culture. Although students have different language background, all students are required to make a good faith effort to speak the target language at every relevant opportunity. It is our goal to use as much Chinese as possible while participating in this program. By the end of the course, students should be able to actively participate in basic business conversations. This course satisfies General Education Proficiency 4: Foreign Languages.  3 hours

CHIN 2750  Chinese Life and Culture  This course is designed to introduce selected themes of Chinese life and culture, past and present. The main themes covered by this course are mostly linguistic, literary, philosophic, artistic, and religious. The course will be offered in English with no prerequisites and open to all students. The aim is to provide students new to the subject with an informed and balanced first impression of some of the fundamental components of Chinese culture, and to do so in such a way as to demonstrate its differences from the Western heritage while also noting their universal human value. This course satisfies General Education Area IV: Other Cultures and Civilizations.  3 hours

CHIN 2800  Chinese Calligraphy  Introduction to the history of Chinese calligraphy and a brief theoretical framework for appreciation of the aesthetic qualities of the brushwork. A series of practice sessions will be held to facilitate a hands-on learning process for the lay person on major scripts. Taught in English, with translation for Chinese characters, can count toward minor in Chinese. This course satisfies General Education Area I: Fine Arts.  3 hours

CHIN 3160  Chinese Composition  Advanced study of composition in Chinese. Emphasis is upon increasing the student's command of written Chinese. Chinese characters competency and basic skills of using Chinese word processors are reinforced. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisite: CHIN 2010 or equivalent.  3 hours

CHIN 3170  Chinese Conversation  Advanced study of conversation in Chinese. Students practice spoken Chinese through role-playing, the viewing of films, discussion, and other oral activities. Emphasis on both listening and speaking of the language. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisite: CHIN 2010 or equivalent.  4 hours
CHIN 4760  Foreign Study – non WMU  Student participation in pre-approved program of study abroad that is not through Western Michigan University. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson. 1 to 16 hours

CHIN 4770  Foreign Study  Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson. 1 to 16 hours

CHIN 5020  Chinese for Graduate Study  Chinese instruction for graduate students enrolled in a degree program who need knowledge of Chinese for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures. 3 to 4 hours

CHIN 5030  Chinese – English Translation Practicum  This is a practical course to teach the skills for translating texts from Chinese into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of Chinese texts, such as news, essays, documents, poetry, and short fiction. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: CHIN 2010 or instructor approval. 1 to 4 hours

CHIN 5200  Topics in Chinese Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/ GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upperclass and graduate students. 3 to 4 hours

CHIN 5500  Independent Study in Chinese  Directed individual study of a specific topic in Chinese language, literature, or culture. May be repeated for credit to a maximum of three hours. Open to upperclass and graduate students. Prerequisite: Completion of four courses in Chinese or equivalent; minimum grade point average of 3.0 in Chinese; departmental approval required. 1 to 3 hours

Chemical and Paper Engineering

CHP 3100  Work Experience/Co-op  Full-time employment in a chemical process industry, pulp, paper, printing, or related industry that provides first-hand experience in a job applying the process principles directly related to the student's major. A written report is required. Students who will work full-time (30 hours or more per week) may register for CHP 3100 and will be granted full-time student status. May be repeated for credit up to a maximum of three times. Restricted to the three departmental majors- Chemical Engineering, Paper Engineering, and Graphic and Printing Science. Prerequisite: Junior standing and departmental approval. 1 hour

Computer Information Systems

CIS 1020  Introduction to Business Computing  Course focuses on developing students’ skills in business applications of productivity software and information technologies. All course activities relate to data manipulation, communication, organization, or analysis for decision making in various business functional areas. Specific topics covered include advanced use of spreadsheets, development of integrated electronic documents for business communications, database storage, retrieval, and reporting, creating and editing Internet web pages for business information display and data transfer, development of professional business presentation, and Internet search. A student may receive credit for only one of CIS 1020, CIS 1100, CS 1050, FCS 2250, HPHE 1490, or SOC 1820. 3 hours

CIS 1100  Business Computing  This self-paced one-credit course focuses on business computing skills needed by individuals to increase their productivity. It is designed as an equivalent course to CIS 1020 for students with partial skills in computer usage. This course develops student’s skills with spreadsheets, databases, search techniques, basic web page creation and the use of computers as a presentation medium. A student may receive credit for only one of CIS 1020, CIS 1100, CS 1000, CS 1050, FCS 2250, HPHE 1490, or SOC 1820. Graded on a Credit/No Credit basis. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: Department approval. 1 hour
CIS 2600 Business Application Programming This course introduces the fundamental concepts and implementations of modern visual programming language in a business environment. Major topics include general programming tools for business applications, fundamentals of business programming such as data types, expressions, and operators, etc., and basic programming structures of business applications. Prerequisite: CIS 1020, CIS 1100, CS 1000, CS 1050, FCS 2250 or MUS 3860. 3 hours

CIS 2610 Business Mobile Programming This course introduces the fundamental concepts and implementation of modern visual programming language in a mobile business environment. Major topics include general mobile programming tools for business mobile applications; fundamentals of business programming such as data types, expressions, and operators, etc.; and basic programming structures of business mobile applications. Prerequisite: CIS 1020, CIS 1100, CS 1000, CS 1050, FCS 2250 or MUS 3860. 3 hours

CIS 2640 Business Analytics I This is the first business analytics course designed to give students comprehensive skills and in-depth knowledge to summarize, filter, present, transform and analyze business data to support business decisions. Emphasis will be placed on uncovering insights through visualization, basic business analytics techniques, report solutions, queries and database manipulation. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: CIS 1020 or CIS 1100 or CS 1000 or FCS 2250 or HPHE 1490; and sophomore standing. 3 hours

CIS 2650 Programming for Data Analytics Introduces programming for predictive analytics utilizing popular software languages. Programming concepts of, data structures, input-output, and flow control will be covered, as well as techniques applied by analysts to organize and interpret data that varies in type, volume, and rate of change. Prerequisite: CIS 2020, CIS 1100, CS 1000, CS 1050, FCS 2250 or MUS 3860. 3 hours

CIS 2660 Networking and Data Communications This course provides an introduction to modern computer networking, data communications, network security, and associated technologies. The content focuses on the design, implementation, administration, and security of computer (wired and wireless) networks and data communications. The concepts of business networks as business process integration (BPI) tools to facilitate business-to-business (B2B) and business-to-customer (B2C) operations are also discussed. Case projects and hands-on labs are used throughout the course. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: CIS 1020 or CIS 1100 or CS 1000 or FCS 2250 or HPHE 1490. 3 hours

CIS 2700 Business-Driven Information Technology This course provides an introduction to information-communication literacy, system literacy, and business information technologies. It emphasizes the relationship between Information Technology (IT) and business processes and the importance of aligning business information systems with business strategy. By interacting with integrated enterprise system(s), this course helps students understand the modern IT-driven business value chain and business process integration (BPI). The role of IT in organizational change and business transformation, IT history, and IT cultural issues are discussed. Team/individual class projects are used throughout the course. Restrictions: Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: (CIS 1020 or CIS 1100 or CS 1000 or CS 1050 or FCS 2250 or MUS 3860 or HPHE 1490) and (BCM 1420 or ENGL 1050 or IEE 1020); sophomore class standing required. 3 hours

CIS 2800 Internet Programming This course is a programming course that develops the basic knowledge and skills needed to implement solutions with Internet programming tools. Students will create Internet solutions using current client-side programming technologies such as XHTML, CSS, JavaScript and VBScript, as well as current server-side programming technologies such as PHP and ASP. Prerequisites: CIS 1020, CIS 1100. CS 1000, CS 1050, FCS 2250 or MUS 3860. 3 hours

CIS 2900 Web Applications for Business In this course students will explore diverse Web applications from micro-blogs, to social networks, to mashups. Students will experience Web application technologies through a series of hands-on projects designed to help them tailor the tools according to the business needs. Students might create a new niche product by combining interactive ads with GIS-enabled maps or harness the power of social media to promote their business in this class. Students will also learn how to read and analyze personalized tracking technologies and apply them to various business contexts. No programming knowledge is assumed for this course. Prerequisites: (CIS 1020 or CS
CIS 3600 Systems Analysis and Design  This course focuses on the methodologies that employ multi-phased process for developing information systems to be deployed in an organization. The course introduces various methods, techniques, and tools to determine and meet the information requirements by building proper information models that can be further implemented. This course is not merely a technical or computer course. It is a business course with strong focus on business applications. The course will cover roles, responsibilities, and mindset of the business analyst as well as the project manager rather than those of the programmer. Restricted to majors or minors in Computer Information Systems, Electronic Business Design and Health Informatics and Information Management. Also open to Telecommunication and Information Management majors. Prerequisite: Junior standing and (CIS 2700 or COM 2000 or HSV 2350 or NUR 2350). 3 hours

CIS 3620 Practical Project Management  This course teaches project management knowledge, methodologies, techniques and tools based on international project management standards. Students are trained in project management software, team techniques and methodologies for key project process groups, including project initiation, planning, execution, monitoring and control, and project closure. Techniques and standard-based project management knowledge learned from this course are practical for projects in a wide variety of disciplines. Prerequisite: CIS 2700 or instructor approval. 3 hours

CIS 3640 Business Analytics II  This course is designed to give students, experienced in reporting with spreadsheets and databases, in-depth knowledge on analytical problem solving through business examples and cases. Tools and techniques within the realm of business intelligence will be explored, utilizing both productivity and specialized software. Prerequisite: CIS 2640 3 hours

CIS 3660 Information Assurance and Compliance  This course examines information security and its managerial and legal requirements. The content focuses on information security fundamentals and technologies, security policy, risk assessment, network defense strategy and design, and information compliance. This course helps students understand and learn the information security architecture and management requirements for business process integration (BPI), disaster recovery, business continuity, incident response, and security management. Case projects are used throughout the course. Restricted to majors or minors in Computer Information Systems, Electronic Business Design and Health Informatics and Information Management; majors in Telecommunication and Information Management; and minors in Health Informatics and Information Management. Prerequisite: Junior standing and (CIS 2700 or COM 2000 or HSV 2350 or NUR 2350). 3 hours

CIS 3900 Business Web Architecture  This course applies human computer interaction theories, principles, and techniques to develop effective and usable Web applications for the business environment. Topics include WWW architecture, modern web-based languages, search engines, interactive content, multimedia, and other technologies for the WWW. Students will evaluate the effectiveness of various websites and develop Web applications to support Internet commerce. Prerequisite: Admission to the business administration program; also open to telecommunications and information management majors and electronic business design minors, both require junior standing. 3 hours

CIS 4100 Internship  Under the direction of a faculty advisor, qualified students may engage in a variety of professional experiences. Scheduled meetings with advisor and written experience reports required. May be repeated for a maximum of 4 hours credit. Prerequisite: Approved application. 1 to 4 hours

CIS 4360 Technology Entrepreneurship  This course provides students with a unique understanding of how technology-focused firms are created and technologies are commercialized. Technology commercialization topics that lie at the intersection of technology and business will be the focus of the class. Topics include intellectual property, technological convergence, industry creation, technology standards, modularity, and technology strategy. Students will apply these principles by assessing the commercial potential of real technological ideas. Restricted to majors in entrepreneurship. This course is cross-listed with MGMT 4360. Prerequisites: MGMT 2500, MKTG 2500, FIN 3200 and (CIS 2700 or BUS 2700); or instructor approval. 3 hours

CIS 4500 Customer Relationship Management  Examines customer relationship management (CRM) and its application in marketing, sales, and service. Effective CRM strategies help companies align business process with
customer centric strategies using people, technology, and knowledge. Companies strive to use CRM to optimize the identification, acquisition, growth and retention of desired customers to gain competitive advantage and maximize profit. Anyone interested in working with customers and CRM technology will find this course beneficial. Emphasis is given on both conceptual knowledge and hands-on learning using a CRM software. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: CIS 2700 and MKTG 2500.

3 hours

CIS 4600 Business Database Applications

This course focuses on the design and development of business database applications. Content includes data modeling, data dictionary, normalization theory, logical and physical database design, database inquiry using query languages, database implementation using modern database management systems and networking technologies, and data maintenance and administration skills. Students are required to construct and develop a business database using current technology and graphic user interface design packages. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: CIS 2700 and MKTG 2500.

3 hours

CIS 4610 Database for Business Analytics

Database for Business Analytics emphasizes on preparing students with database skills necessary for them to thrive in Business Analytics positions. The course focuses on delivering relational database modeling techniques along with teaching advance SQL code to create flexible and usable solutions to solve business problems. Students will work on Data Migration e.g., Extraction from multiple sources, Transformation and Loading into the target database. A portion of this course will involve hands-on experience in data access and analytics reporting. Students will learn how to use SQL Server Reporting Services (SSRS) for report generation and data visualization. The course will finish with coverage of current database options such as NoSQL DB and/or DB for Big Data as well as 5 Vs of Big data. This class will build upon individual's strengths in business, information technology and analytics. Prerequisites: CIS 2650 and junior standing.

3 hours

CIS 4640 Business Data Mining

This course focuses on the theoretical understanding and practical applications of data mining as a decision support tool. Specifically, it covers several types of modeling techniques and tools such as prediction, classification, segmentation and association detection algorithms. Students are introduced to the state-of-the-art data mining application software such as SAS Enterprise Miner or SPSS Clementine for their class assignments and term project. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: CIS 2610

3 hours

CIS 4700 Mobile Commerce Development

This is an advanced mobile programming course that focuses on advanced mobile commerce, or m-commerce, programming to include location-based services, mobile payment services and transactions, as well as designing and delivering advanced content and advertising for smartphones, tablets, and other mobile devices. Because m-commerce is constantly evolving, this course will integrate new topics as necessary as reflected in the mobile application development area. Prerequisite: CIS 2610

3 hours

CIS 4900 Electronic Commerce Development

The trends in e-commerce architecture are studied within the scope of consumer-to-business, business-to-business relations and the enterprise evolution. The impact of e-commerce solutions upon local, national, and global trading are examined in order to plan a customized solution for a given business. A part of the course is skills-oriented with computer projects that employ modern web technologies with interactive database processing in support of cybercash, and other e-commerce components and activities, including security protection. Websites are developed with strong links to real world business applications. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Restricted to majors/minors in Computer Information Systems and Electronic Business Design. Prerequisites: CIS 3900 and CIS 4600 (may be taken concurrently).

3 hours

CIS 4950 eBusiness Technologies

This course allows students to master Internet marketing technologies to create customized solutions to business marketing challenges. Using technologies such as Google Analytics and Web tracking programs, students will create personalized offerings for diverse customer demographics. Moreover, students will create rich Internet applications that will be deployed not only over websites but also various Internet-enabled devices such as smart phones and desktop widgets. This course requires a large collaborative project. After completing the course, students will be able to understand, implement, and manage advanced eBusiness technologies within various organizational contexts. Prerequisites: CIS 2800, CIS 2900, and CIS 3900.

3 hours
CIS 4960 Independent Study A directed independent project in the area of Computer Information Systems. May be repeated for credit. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: Approved application. 1 to 4 hours

CIS 4980 Readings A series of direct readings in the area of Computer Information Systems. May be repeated for credit. Restricted to Pre-Business, Business Administration and General Business majors. Prerequisite: Approved application. 1 to 4 hours

CIS 4990 Enterprise Project This is the capstone course of the CIS curriculum. Applications of computer, programming, and system knowledge, and skills gained from the previous classes are applied in developing an enterprise-wide software project. Some industrial enterprise-wide packages are reviewed. A team approach is applied to develop and integrate different computerized business functions into an integrated software system. Project management techniques and computer simulated solutions are formally presented to emphasize team dynamics and management skills. A student with a major in Health Informatics and Information Management is strongly recommended to take CIS 3660 and HSV 4900 prior to or concurrently with this course. Restricted to majors/minors in Computer Information Systems; and majors in Health Informatics and Information Management, and Telecommunication and Information Management. Prerequisite: CIS 4600 3 hours

CIS 5550 Topics in Computer Information Systems Special topics appropriate to business applications such as data base management systems, structured concepts, networking, programming documentation and efficiency, planning, organizing and directing management information systems. May be repeated for credit. Open to upperclass and graduate students. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: Instructor approval. 3 hours

CIS 5650 Big Data Analytics This course introduces students to the concept of big data, Hadoop (the industry standard for big data), and its ecosystems (i.e., the supporting software that enhances the core Hadoop system or bridge the core system with other existing systems in use). The course will focus on how to leverage the big data analytics to make better business decisions. It teaches students the skills to manipulate and analyze big volumes of data, which usually is not easily possible with traditional systems. There will be a lot of hands-on exercises in class. Open to upperclass and graduate students. Prerequisite: CIS 4610 or instructor approval. 3 hours

CIS 5710 Information Security Fundamentals This course examines information security fundamentals needed for a basic understanding of the Information Security discipline. The course covers basic attacks and vulnerabilities against an organization as well as their mitigation, managerial and legal requirements for organizations, professional ethics, and security policy formation and implementation. This course will help students understand identity and access management, asset security, and risk management. Finally, students will learn the importance of assessing and testing security frameworks to ensure robust incident response, disaster recovery, and business continuity plans. Case projects and scenarios are used throughout the course to illustrate, test, and understand these topics. Open to upperclass and graduate students. Prerequisite: Admission to the Graduate College or senior standing. 3 hours

College of Education and Human Development

Communication

COM 1000 Communication and Community Engagement This course will introduce and develop basic skills in major areas of communication, with an emphasis on the ways in which those skills can be used to engage and improve the communities in which we live. The course will address ethics, media literacy, digital media, citizen-oriented journalism, public dialogue, co-cultural communication, team and service leadership, and interpersonal communication. This course is a pre-requisite for students planning to major in any area of communication. Students must complete COM 1000 with a grade of “C” or better to fulfill the pre-requisite. Priority registration is given to Communication Majors and minors. This course satisfies General Education Proficiency 4: Critical Thinking, and Proficiency 4: Oral Communications. 3 hours
COM 1040 Public Speaking  Study of the application of principles of communication underlying effective oral presentations, with attention given to speaking in business, professional and public settings. Includes practice in preparing, presenting and evaluating speeches and other forms of oral presentations. This course may be offered in an accelerated format. This course satisfies General Education Proficiency 4: Oral Communications. 3 hours

COM 1700 Interpersonal Communication  An introductory course in communication theory and practice in which students utilize their powers of speech to increase their effectiveness in interpersonal relations through understanding of self and others. This course may be offered in an accelerated format. This course satisfies General Education Proficiency 4: Oral Communications. 3 hours

COM 2000 Human Communication Theory  An introduction to major theories of human communication, designed to give students a critical understanding of key theories in the field and to show how these theories illuminate the nature of human interaction. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

COM 2040 Advanced Public Speaking  Advanced study and presentation of informative, argumentative, persuasive and special occasion speeches. Prerequisite: (COM 1000 or COM 1040) with a grade of “C” or better; or school approval. 3 hours

COM 2400 Introduction to Media and Telecommunications  This course proposes to help students attain understanding of how media and telecommunication technologies are organized and how media products impact personal attitudes and life styles, patterns of social and public communication, as well as national and international policies and governance. The course surveys the history of these technologies, the scientific development of these technologies, the legal and ethical environment in which they operate, and the organizational, political, economic and social structures that sustain the telecommunication technologies and corresponding industries. Special attention is given to four sectors of the media and telecommunications fields: broadcasting, cable, telephony, and the Internet. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

COM 2410 Film Communication  An introduction to the unique language and elements of the film medium through the study of outstanding examples of historical and contemporary narrative fiction, documentary, experimental, and animated films, with attention to the impact of digital technology on production, distribution, reception, and aesthetics. 3 hours

COM 2500 Introduction to Public Relations  This course examines the role of public relations and public information in a variety of organizations with a communication theory perspective. The course is designed to prepare individuals for positions in public relations and public information, or for other positions in organizations concerned with the flow of information across organization boundaries. Restricted to the following majors/minors: Communication Studies, Pre-Communication Studies, Journalism, Pre-Journalism, Organizational Communication, Pre-Organizational Communication, Public Relations, Pre-Public Relations, Pre-Communication. Prerequisite: COM 2000 with a grade of “C” or better. 3 hours

COM 2550 Introduction to Digital Filmmaking  This course introduces the basic skills of digital filmmaking including scripting, shooting, editing, and exhibiting moving images. Students will use personal mobile devices and/or other emerging personal technologies, will learn to use basic editing software and techniques, and will develop and exhibit their work on free video hosting sites. Restricted to the following majors/minors: Communications Studies; Pre-Communication Studies; Pre-Film, Video & Media Studies; Film, Video & Media Studies; Pre-Interpersonal Communication; Interpersonal Communication; Pre-Journalism; Journalism; Pre-Organizational Communication, Organizational Communication; Pre-Public Relations; Public Relations; Pre-Telecommunications & Information Management; Telecommunications & Information Management. Prerequisite: COM 1000 with a grade of "C" or better. 3 hours

COM 2560 Digital Media: Planning and Operations  An introduction to the media profession, which explores the structure, technology and personnel of the media industry. Includes significant course material on media planning and design of convergent media. Emphasis on developing professional skills related to production courses and careers in multimedia related professions or organizations. 3 hours
COM 2570 Introduction to Audio Production  
This introductory level course familiarizes students with the production of sound as a creative element in radio broadcasting and audio production. Students participate in the studio experience by writing and producing commercials, dramas, soundscapes, documentaries and other formats for radio and alternative creative media outlets. Restricted to the following majors: Film, Video and Media Studies; Pre-Film, Video and Media Studies; Journalism; Pre-Journalism; Public Relations or Pre-Public Relations. Prerequisites: Either (COM 1000 or COM 2000) and either (COM 2410 or COM 2560), with a grade of "C" or better in any prerequisite, or instructor approval. 3 hours

COM 2800 Introduction to Organizational Communication  
Provides a broad overview of the field of organizational communication, addressing both traditional and contemporary theories, concepts, and research. Students will undertake the systematic study of internal and external organizational communication processes at the individual, group, and organization-wide levels. Prerequisite: (COM 1000 or COM 2000); with a grade of "C" or better. 3 hours

COM 3000 Communication Research Methods  
This course introduces students to systematic approaches to asking and answering significant questions about communication. Research methods include experimentation, survey, content analysis, and field description. An introduction to data analysis and statistical testing is included. Prerequisites: COM 1000 and COM 2000, with a grade of "C" or better. 3 hours

COM 3050 Special Topics in Communication  
Group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the School office, 301 Sprau Tower. May elect COM 3050 no more than twice, providing the topics are different. 3 hours

COM 3070 Freedom of Expression  
This course examines the meaning, scope and challenge of “free expression” in the American experience. Beginning with the historical and philosophical roots of free speech rights, students will critically examine how the courts, scholars and activists have interpreted and applied these rights to a number of controversial issues. Possible topics include free expression on the Internet and in the mass media, political protests, copyright law, and international differences in speech rights. This course satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

COM 3320 Teamwork and Communication  
This course examines the theories and research pertaining to team communication with an emphasis on practical application of decision making, conflict management, leadership, and critical thinking skills. Individuals will work together in teams learning to communicate competently, make effective decisions, analyze group communication dynamics, and write and present team reports. Prerequisites: COM 1000 or COM 2000, with a grade of "C" or better. 3 hours

COM 3340 Argumentation and Debate  
Theory and practice in argumentation and debate. Included are the analysis of propositions and the use of logic and evidence. Students will build, present, and defend cases. Students will also gain practical experience in managing forensic activities. Prerequisite: COM 1040 with a grade of "C" or better and declared Secondary Communication Education minor. 3 hours

COM 3350 Leadership Communication  
An overview of theories of leadership with a focus on key communication processes. Emphasis will also be placed on the application of these theories to organizational contexts. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to the following majors/minors: Communication Studies, Pre-Communication Studies, Organizational Communication, Pre-Organizational Communication, Pre-Communication, Public Relations, Pre-Public Relations, Communication minor. Prerequisites: (COM 1000 or COM 1700) and COM 2000; with a grade of "C" or better. 3 hours

COM 3400 Global Media Literacy  
This course provides a theoretical and analytical understanding of global media culture and its impact on human society. It examines the media messages from economic, political, communicative and psychological perspectives. The course examines policy issues such as privacy around digital communication, including social media, and promotes critical reflection with the aim of equipping students to be reflective users and creators of media messages. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours
COM 3410 Film Modes and Genres  This course focuses on analytic studies of representative films from various modes of cinema (narrative; non-narrative; film movements) and film genres (including, but not limited to, the musical, the western, the horror film, film melodrama, the science fiction film, film comedy, experimental film, etc.) This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  Prerequisite: COM 2410 with a grade of “C” or better.  3 hours

COM 3420 The International Film Industry  This course surveys the history and development of commercial film and video from a global perspective, with an emphasis on critical analysis of film and video content as well as industry practices in both Western and non-Western nations. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  Prerequisite: COM 2410 with a grade of “C” or better.  3 hours

COM 3430 American Film History  This course surveys developments over time in the production and reception of feature films. Major concerns will include the evolution of the studio system, the impact of technological change on film practice, influences on Hollywood of other national cinemas, and the changing relationship between Hollywood and American society. Representative films will provide key texts for each unit of the course. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  Prerequisite: COM 2410 with a grade of “C” or better.  3 hours

COM 3440 History of Animation  This course surveys the history of animation from its beginnings in the early twentieth century to its shift toward computer-generated imagery in more recent decades. We will examine short and feature-length animated films from across the world, focusing on the social, cultural, and economic circumstances that have influenced their production and reception.  Prerequisite: COM 2410 with a grade of “C” or better.  3 hours

COM 3480 Public Relations Writing  The course covers the styles and various forms of advanced PR writing including news releases, fact sheets, media lists, speeches, feature stories, letters, memoranda, company histories, annual reports, etc. Students develop the analytical and writing skills required in the field. Media and message targeting to appropriate audiences are examined and evaluated through the preparation of a traditional an social media campaign. Additionally, this course examines the ethics involved in researching and writing for public relations contexts. Restricted to declared Public Relations majors.  Prerequisite: COM 2500 or COM 3500, with a grade of "C" or better.  3 hours

COM 3500 Public Relations and Organizations  This course examines the role of public relations and public information in a variety of organizations with a communication theory perspective. The course is designed to prepare individuals for positions in public relations and public information, or for other positions in organizations concerned with the flow of information across organization boundaries. Restricted to the following majors/minors: Communication Studies, Pre-Communication Studies, Journalism, Pre-Journalism, Organizational Communication, Pre-Organizational Communication, Public Relations, Pre-Public Relations.  Prerequisite: COM 2000 with a grade of “C” or better.  3 hours

COM 3540 Web Design and Digital Communication  Focuses on intelligent website design, including principles of accessibility, usability, information-richness, and effective communication in a digital environment. Students will learn HTML and CSS as well as the fundamentals of Photoshop and Dreamweaver.  3 hours

COM 3550 Digital Video Production: Nonfiction  Familiarizes students with the techniques electronic field production (EFP) in HD format, including planning, shooting, and editing. Students will develop their own short nonfiction projects, serve as crew on various team projects, and learn the basics of non-linear editing. Restricted to the following majors: Public Relations, Journalism or Film, Video and Media Studies.  Prerequisites: (COM 1000 or COM 2000 or JRN 1000) and either (COM 2410 or COM 2550 or COM 2560); with a grade of "C" or better in all prerequisites.  3 hours

COM 3560 Digital Video Production: Fiction  Familiarizes students with the techniques of narrative fiction filmmaking in the HD format, including planning, scripting, shooting, and editing. Students will develop their own short projects, serve as crew on various team projects, and learn the basics of nonlinear editing. Restricted to the following majors: Film, Video and Media Studies and Public Relations.  Prerequisites: (COM 1000 or COM 2000) and either (COM 2410 or COM 2550 or COM 2560); with a grade of "C" or better in all prerequisites.  3 hours
COM 3570 Introduction to TV Studio Production  Explores the elements of television studio production planning and collaborative implementation. Students are introduced to TV studio operations including equipment operation, crew responsibilities, producing and directing various types of television studio formats. Restricted to the following majors: Film, Video and Media Studies; Journalism; or Public Relations. Prerequisites: (COM 1000 or COM 2000) and either (COM 2410 or COM 2560); with a grade of “C” or better in all prerequisites. 3 hours

COM 3580 TV and Film Scripting  The styles and techniques of film and television scripting for broadcast formats, station continuity, commercials, dramatic scripts, small format video, and documentary. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to the following majors/minors: Communication Studies; Pre-Communication Studies; Film, Video and Media Studies; Pre-Film, Video and Media Studies; Journalism; Pre-Journalism; Public Relations; Pre-Public Relations. Prerequisite: Admitted Communication major or declared Communication minor status. 3 hours

COM 3590 Digital News Production  Digital news and information gathering for radio and television media. Studies and applies principles of news gathering, reporting and writing, commentary, on-the-spot news coverage, features, and the structure of the newscast in a multimedia newsroom. Restricted to the following majors/minors: Communication Studies; Pre-Communication Studies; Film, Video and Media Studies; Pre-Film, Video and Media Studies; Journalism; Pre-Journalism; Public Relations; Pre-Public Relations. 3 hours

COM 3740 Interracial Communication  Explains the inextricable and multidimensional relationships among race, culture, and communication. A theoretical framework to enhance understanding of interracial communication is provided, and attention is focused on the construction of one’s own racial/ethnic identity as well as those of other groups. Through experiential learning opportunities and assignments, students are encouraged to increase their awareness of the powerful role that race plays within communication processes. 3 hours

COM 3840 Organizational Communication Technologies  This course reviews the significance of communication technologies in our capacity to organize and engage in collective action; and how communication technologies affect the communication processes and outcomes at the interpersonal, organizational, and social contexts. Our approach encompasses both of the dominant ideological perspectives – techno-determinism and social constructivism in order to develop a more holistic perspective on the impact of communication technologies on our lives. 3 hours

COM 3980 Independent Study Communication  Designed to allow outstanding students to work independently under faculty supervision. Includes extensive study, research or special creative projects in any of the several areas of communication. One to six hours credit may be accumulated. Prerequisite: Approval of the School of Communication Director. 1 to 6 hours

COM 4300 Persuasion and Social Influence  This course examines theory and research on social influence processes including compliance, conformity, and persuasion. Specifically, the course examines cognitive, interpersonal, and structural-level models of social influence and persuasion, and the impact of source, message, receiver, context, and channel on the influence process. Restricted to juniors and seniors only. 3 hours

COM 4400 Public Relations Case Studies  This course uses a case study approach to apply principles of communication and persuasion theory to public relations problems. The course examines a variety of types of organizations in relation to issue advocacy and public policy, risk communication, legitimization, defense, and crisis management. Restricted to the following majors/minors: Communication Studies; Pre-Communication Studies; Journalism; Pre-Journalism; Organizational Communication; Pre-Organizational Communication; Public Relations; Pre-Public Relations; Pre-Communication. Prerequisites: COM 2500 or COM 3500 with a grade of “C” or better. 3 hours

COM 4410 Documentary in Film and Television  A study of documentary philosophies, strategies, and accomplishments through an examination of important documentarists, movements, and films. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to the following majors/minors: Communication Studies; Pre-communication Studies; Film, Video and Media Studies; Pre-Film, Video and Media Studies; Journalism; Pre-Journalism; Public Relations; Pre-Public Relations: Communication minor; Journalism minor. Prerequisites: COM 2410 with a grade of “C” or better. 3 hours
COM 4430 Media and Social Change The course examines the role of the media in diffusing information, ideology, and persuasive messages, and explores the influences/effects of these transactions on individuals, groups and institutions. The course critically situates media within diverse elements of culture as an agent of social change. Restricted to juniors and seniors only. 3 hours

COM 4440 Mass Communication, News, and Public Affairs The course examines the role of the media in covering public affairs news and disseminating it to the public. Questions related to media access, fairness, media regulation and message production are discussed in light of current events. Restricted to juniors and seniors only. 3 hours

COM 4450 Media Criticism Examines the content, production, circulation, and consumption of media. Students will apply analytical techniques for breaking down and evaluating media texts developed by various schools of media criticism; these may include semiotics, narrative theory, and political economy. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to juniors and seniors only. 3 hours

COM 4460 Telecommunications Law and Policy This course provides an overview of the essential regulatory and policy issues governing the field of media and telecommunications. Special attention is given to such topics as First Amendment, libel, intellectual property, media ownership and privacy. A case study approach is used for the purpose of understanding legal precedent. Prerequisite: Junior or senior standing or instructor approval; COM 3070 recommended. 3 hours

COM 4480 Telecommunications Management Advancements in technology, most notably the Internet and digital media arts, are changing many of our basic assumptions regarding information, news and entertainment content. This course examines the business strategy and management principles involving five sectors of the media and telecommunications fields, including: Broadcast Television, Cable Television, Telephony (wired & wireless communication), Satellite Communication and the Internet. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to the following majors/minors: Communication Studies; Pre-Communication Studies; Film, Video and Media Studies; Pre-Film, Video and Media Studies; Journalism; Pre-Journalism; Organizational Communication; Pre-Organizational Communication; Public Relations; Pre-Public Relations; Telecommunications and Information Management; Pre-Telecommunications and Information Management; Telecommunications and Information Management: Business; Pre-Telecommunications and Information Management: Business; Pre-Communication; Communication minor. Prerequisites: (COM 1000 or COM 2000 or CIS 2700) and COM 2400; with a grade of “C” or better in all prerequisites. 3 hours

COM 4490 Communication Technology and Innovation Innovation can also be described as the "power to redefine an industry." From Direct Broadcast Satellites to fiber optic delivery and smart homes, this course will examine a number of media and information technologies that have transformed the business of communication. It is intended for the student and working professional who requires an applied understanding of the design characteristics and performance features of several important communication technologies including satellite communications and television broadcasting, fiber optic delivery and smart homes, the Internet and E-commerce, smart phones and wireless communication, and intelligent networking and virtual reality. Restricted to Junior or senior standing or by instructor approval. Prerequisite: CIS 2700 or COM 2400; with a grade of "C" or better. 3 hours

COM 4500 Public Relations Program Development This is an advanced course in public relations emphasizing research methodology, developing planning objectives, and program evaluation for corporate, governmental, educational, and social service organizations. Restricted to the following majors/minors: Communication Studies, Pre-Communication Studies, Journalism, Pre-Journalism, Organizational Communication, Pre-Organizational Communication, Public Relations, Pre-Public Relations, Pre-Communication. Prerequisites: (COM 2010 or COM 3000) and (COM 2500 or COM 3500); with a grade of "C" or better in all prerequisites. 3 hours

COM 4570 Advanced Video Production This is an advanced course that gives students the opportunity to apply concepts developed in several other media production classes. Students work in production teams and independently to conceptualize, design, and produce segments for collaborative long-form programs and/or single video projects. Students serve as crew for other members of the class as needed. The course includes specialized areas of focus within single-camera, digital media field production such as pre-production planning, lighting, audio, directing, post-production, and working with talent. Familiarity with Apple/MAC platform is highly recommended. Restricted to the following majors: Film, Video and
Media Studies; or Public Relations. Prerequisites: Two of the following: COM 3550, COM 3560 or COM 3570; with a grade of “C” or better in all prerequisites; or instructor approval. 3 hours

COM 4700 Advanced Interpersonal Communication This course will provide students with an in-depth treatment of advanced interpersonal communication. Students will complete an applied project within a particular interpersonal context, synthesizing existing competencies in public presentation, research methods, and interpersonal communication theory. Restricted to the following majors/minors: Organizational Communication, Pre-Organizational Communication, Communication Studies, Pre-Communication Studies, Interpersonal Communication, Pre-Interpersonal Communication, Pre-communication, Communication minor. Prerequisites: (COM 1000 or COM 1040), and COM 1700, and (COM 2010 or COM 3000), with a grade of "C" or better in all prerequisites. 3 hours

COM 4720 Nonverbal Communication The course examines theory and research in the nature and function of nonverbal message systems. Topics include: the role of nonverbal communication in the developmental stages of humans; individual differences in ability to interpret messages; the relationship of nonverbal communication to the concept of culture; extension of a person such as space, clothing, possessions; and specific messages related to the face and body. Restricted to juniors and seniors only. 3 hours

COM 4740 Intercultural Communication An examination of the factors contributing to effective communication in an intercultural context. The course focuses on such topics as ethnocentrism, cultural perceptions, values and beliefs, language and meaning, and nonverbal factors. Communication systems of selected cultures are described and analyzed. Restricted to juniors and seniors only. 3 hours

COM 4750 Family Communication Examines the current literature pertaining to holistic systems, power influences, and satisfactory patterns of family communications. Students analyze family interactions and identify satisfactory patterns of marital family communication. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to juniors and seniors only. 3 hours

COM 4770 Communication Ethics Ethical theories and justification models are studied and related to ethical decision making in a variety of communication contexts, including mass communication, organizational communication, and interpersonal communication. The course will examine the components of good ethical decision making in communication, as well as obstacles that can stand in the way of responsible choices. Restricted to juniors and seniors only. 3 hours

COM 4790 Gender and Communication Examines the variable of gender as it influences communication between women and men. Topics include female-male stereotypes, interpersonal attraction, differences in female-male verbal and nonverbal codes, relational dialogues and patterns, and female-male interaction on the job. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to juniors and seniors only. 3 hours

COM 4800 Applied Topics in Organizational Communication This course will enable students to master knowledge and skills in an applied specialty area of organizational communication. Students will participate in an extensive hands-on project addressing a pragmatic problem in an organizational setting. Topics will vary. Six hours of COM 4800 may be taken for credit toward the Organizational Communication major. May be repeated for credit when topics vary. Restricted to the following majors/minors: Communication Studies, Pre-Communication Studies, Organizational Communication, Pre-Organizational Communication, Public Relations, Pre-Public Relations, Pre-Communication. Prerequisites: COM 1040, COM 2800, and (COM 2010 or COM 3000); with a grade of "C" or better in all prerequisites. 3 hours

COM 4830 Interviewing Theories and principles of planning, conducting, and evaluating interviews are studied and applied to specific interview types, including selection, performance appraisal, survey, and journalistic interviews. Emphasis is placed on the perspective of the interviewer rather than interviewee. Restricted to juniors and seniors only. 3 hours

COM 4840 Health Communication Studies concepts and theories relevant to the maintenance and enhancement of effective communication in health care settings. Emphasis is given to the study and application of communication theories, to the transactions which occur among health professionals, and between professionals and
clients/patients. This course may be offered in an accelerated format. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to juniors and seniors only. 3 hours

COM 4990 Internship  This internship for academic credit is available only to students who meet School requirements of prerequisite courses and grade point average. Specific requirements for various types of internships are described in the School's undergraduate handbook, available in the School of Communication office. May be repeated for credit. Graded on a Credit/No Credit basis. Prerequisite: Minimum G.P.A. of 2.5; junior standing or higher, declared major or minor in the School of Communication. 1 to 6 hours

COM 5060 Special Topics in Global Communication  Study of special topics in global/international communication such as comparative media systems, development communication, Asian/African/South American communication, Governments and Propaganda, Transnational Media Corporations and Communication. May be repeated for credit. Open to upperclass and graduate students. Restricted to majors in the School of Communication, or instructor approval. 3 hours

COM 5550 Multimedia Production  Designed to help students develop competencies required to produce linear and nonlinear interactive multimedia projects. By the end of the semester students will gain an understanding and appreciation of the steps necessary to produce interactive multimedia projects and the concepts, tools, and techniques involved in the design and delivery of such projects. Open to upperclass and graduate students. Restricted to the following majors: Film, Video and Media Studies; or Public Relations. Prerequisite: (COM 2410 or COM 2560); with a grade of “C” or better; and approval of advisor and/or instructor. 3 hours

COM 5600 Teaching Communication  This course provides an overview of the concepts, materials, and methods used in teaching communication courses. The focus will be on the following: (a) philosophies and theories of speech communication, (b) development of instructional strategies and objectives, and (c) development and evaluation of teaching materials. Students will take part in, observe, and evaluate teaching-learning processes. Open to upperclass and graduate students. Restricted to: Communication: Secondary Education minor. Prerequisites: COM 1000 and COM 1040 and COM 2000; with a grade of “C” or better or better in all prerequisites; and approval of advisor and/or instructor. 3 hours

COM 5640 Telecommunications Networks  This course provides an overview of telecommunications networking technologies, standards, and protocols. Network configurations, switching technologies and signaling standards that sustain voice and data communications networks, corporate networks, and advanced intelligent networks are major sections of the course. Open to upperclass and graduate students. Restricted to the following: majors in Communication Studies, Organizational Communication, Public Relations, Telecommunications and Information Management; minor in Communication; and associated pre-programs Prerequisites: (COM 1000 or COM 2000 or CIS 2700) and COM 2400; with a grade of “C” or better; and approval of advisor and/or instructor. 3 hours

Community and Regional Planning

CORP 2560 Introduction to Community and Regional Planning  This course introduces students to the contemporary practices of community and regional planning in American cities, towns and metropolitan areas. Within this context, the course will provide students with a basic understanding of the history, theory and practice of community and regional planning as means by which communities broadly engage in efforts to confront social issues and improve their quality of life. The course will also introduce a variety of techniques commonly used in the professional practice of planning from the perspective of a general understanding of ways by which planning contributes to changing social, economic, and physical conditions in American cities, towns and regions. This course satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

CORP 3000 History and Theory of Planning  The history of urban and regional planning in the United States as well as some introduction to the history of urban and regional planning internationally. The development of the theory of planning through readings, lectures and discussion. Topics include history of city and regional planning; theory about the manner in which planning and policy-making is undertaken – economic theories, theories of government intervention, decision theory, and theories of knowledge in planning – and contributions of significant persons, events, publications, projects, organizations, plans, and programs at local, state, and national levels to the evolution of planning practice and the profession in America. Prerequisite: CORP 2560. 3 hours
CORP 3030 Planning Inquiry

Students will be introduced to Planning as a field of study, research, and professional opportunity. Students will have an opportunity to investigate social and environmental problems through data collection, analysis, interpretation, and graphic and written presentation. The emphasis throughout will be on the application of inquiry models to geographic and planning problems. For Planning majors and minors. Course meets University Baccalaureate Writing Requirement. Prerequisite: STAT 2160 or STAT 2600 or STAT 3640 or STAT 3660. 4 hours

CORP 3040 Methods of Planning Analysis

Introduction to a variety of methods of planning analysis used in the investigation of community and regional issues, and the practice of community and regional planning. Topics include population and demographic analysis, local and regional socio-economic analysis, and spatial and environmental analysis. Prerequisites: CORP 2560 and STAT 2160 or STAT 2600 or STAT 3660. 3 hours

CORP 4030 Planning Law and Administration

The course will focus on the legal foundations of land use planning in the United States and in the state of Michigan including governmental institutions, real property, constitutional law, land use law, and environmental law. Administrative aspects of governmental practice as applied to land use regulation, land development, and the processes of local and regional plan development and implementation will also be covered. Prerequisite: CORP 2560. 3 hours

CORP 4120 Professional Practice (Internship)

Provision for an advanced student to benefit by supplementary practical experiences in a particular branch of community and regional planning, either by assisting faculty engaged in research or by working in a departmentally-approved off-campus agency. Specific assignments are arranged in consultation with departmental advisors during the semester preceding that in which the student expects to enroll in 4120. The student may enroll for one additional semester, but no student will be allowed more than three hours total credit for 4120. Prerequisites: Junior standing and Department Chair approval. 3 hours

CORP 4560 Seminar in Community and Regional Planning

A survey of the field of land use planning; concepts of land use planning; traditional and contemporary approaches to land use planning; the background and practice of zoning and subdivision regulations in American municipalities; land use and transportation planning. Prerequisite: CORP 2560 or instructor approval. 3 hours

CORP 5430 Transportation Planning

This course covers the practice of planning multimodal transportation systems including motorized transportation networks (roads, cars, and trucking), public transportation (buses and rail), paratransit, non-motorized transportation (trails, bikes, and pedestrian), airlines and airports, freight (road, rail, water, and air), and information networks. Information processing applications covered in this course include GIS-T and Intelligent Transportation Systems. Open to upperclass and graduate students. Prerequisites: 14 credit hours of geography or community regional planning; or advisor and/or instructor approval. 3 hours

CORP 5540 Outdoor Recreation: Resources and Planning (Science Credit)

Examination of extensive, resource-based outdoor recreation (such as parks, wilderness, wild rivers, hunting and fishing, hiking, etc.) with emphasis upon recreational planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and student-designed and executed individual studies provide professional orientation. Open to upperclass and graduate students. Prerequisites: 14 credit hours of geography or community regional planning; or advisor and/or instructor approval. 3 hours

CORP 5580 Planning Studio

A project oriented studio course designed to focus on applied planning and design techniques. Integration and application of skills and knowledge from other courses to “real-life” community-based planning projects. Projects will integrate the physical and human environments: terrain and landscape, natural and cultural context, microclimate, infrastructure, and adjacent land uses, economic and environmental impacts, etc. Studio seminars, discussion, and field visits will explore theory and practice in observation, problem formulation, alternatives generation, and plan development and presentations. Open to upperclass and graduate students. Prerequisites: 14 credit hours of geography or community regional planning, including CORP 2560; or advisor and/or instructor approval. 3 hours
CORNELL 5700 Cities and Urban Systems  Study of processes and forms of urban settlement highlighting problems relating to (1) political and geographical realities of urbanized regions, (2) factors in city growth (or decline), (3) the sizes, functions, and geographical distribution of cities, and (4) population patterns in contemporary cities. Activities are designed to provide the student with experience in the use of source materials and methods of analysis utilized in urban geography. Open to upperclass and graduate students. Prerequisites: 14 credit hours of geography or community and regional planning; or advisor and/or instructor approval. 3 hours

Computer Science
CS 1000 Fluency With Information Technology  Foundational concepts of information technology (IT), plus the opportunities and limitations of computer systems. Various computer applications - including operating systems, file managers, Internet browsers and search engines, email and other network applications, word processing, spreadsheet, database and presentation software. Application of IT methodologies in high-level problem-solving through self-learning computer projects. Specialized lab assignments (or sections) available to meet needs of a discipline (or department). A General Education Area VII course. Cannot be used to satisfy computer science major or minor program requirements. 3 hours

CS 1021 Introduction to Engineering Computing 1: Spreadsheets  An introduction to computing for engineers and technologists using spreadsheets. Basic concepts and structures of spreadsheets are presented. Examples come from diverse disciplines of engineering, technology, and computer science. Students learn how spreadsheets are different from and similar to mathematical software and computer programming. Practical experience with spreadsheets is gained in laboratories built into this course. Prerequisite: MATH 1180. 1 hour

CS 1022 Introduction to Engineering Computing 2: Mathematical Software  An introduction to computing for engineers and technologists using mathematical software. Basic concepts and structures of mathematical software are presented. Examples come from diverse disciplines of engineering, technology, and computer science. Students learn how mathematical software is different from and similar to mathematical software and computer programming. Practical experience with mathematical software is gained in laboratories built into this course. Prerequisite: MATH 1180. 1 hour

CS 1023 Introduction to Engineering Computing 3: Computer Programming  An introduction to computing for engineers and technologists using elementary computer programming. Basic concepts and structures of computer programming are presented. Examples come from diverse disciplines of engineering, technology, and computer science. Students learn how computer programming is different from and similar to mathematical software and computer programming. Practical experience with elementary computer programming is gained in laboratories built into this course. Prerequisite: MATH 1180. 1 hour

CS 1050 Introduction to Computers  This course, which consists of one hour of lecture and two hours of laboratory/recitation each week, provides an introduction to computers and their applications. Topics include computer terminology and social and ethical issues of computing. Students will be introduced to a variety of computer applications which may include spreadsheets, databases, word processing or an introduction to the BASIC programming language. Recitation and laboratory sections may vary according to the applications covered. Students will also be introduced to the campus network and system utilities available there. A student may not receive credit for both BIS 1020 and CS 1050. This course may not be used in computer science major or minor programs. 3 hours

CS 1106 Computational Thinking  Gets students thinking about computing, their education and their career. Introduces algorithms and algorithmic thinking to solve problems using computers. Introduces working with open data and Big Data as well as data visualization. Discusses the evolution of the Internet and World Wide Web including an introduction to XML and the Semantic Web. Explores computing disciplines and professional organizations. 3 hours

CS 1110 Computer Science I  A first course in the science of programming digital computers. Analysis of problems and development of correct procedures for their solution will be emphasized along with the expression of algorithmic solutions to problems in a structured high level computer language. Applications will solve both numerical and non-numerical problems for the computer. This course satisfies General Education Proficiency 4: Computer Programming and Applications. Prerequisite: MATH 1180 or MATH 1220 or MATH 2000 or MATH 1700 or MATH 1230 or
MATH 1710 or MATH 2720 or MATH 3740. (Any of these courses may be taken concurrently with CS 1110 and must earn a grade of "C" or better.)

4 hours

CS 1120 Computer Science II
This course is a continuation of Computer Science I with more emphasis on top-down, modular, structured design and techniques involved in the production of large computer programs. Advanced language features such as recursion, sets, pointers, records/structures will be discussed. Data structures and their various implementations are introduced. Design and analysis of various searching and sorting techniques will be presented. Elementary file processing using sequential and random access input and output will be demonstrated. A team project will be assigned.
Prerequisites: CS 1110 and one of the following: MATH 1220 or MATH 2000 or MATH 1700 or MATH 1230 or MATH 1710 or MATH 2720 or MATH 3740 (Any of the MATH prerequisites may be taken concurrently with CS 1120. Must earn a grade of "C" or better in any prerequisite.)

4 hours

CS 1200 Programming in C for Engineers
This course focuses on the fundamentals of programming and the basics of the C language. Topics include compiling, variables, math, input/output, conditional statements, loops, arrays, functions, random numbers, pointers, arrays, strings, structures, reading/writing files, and the C preprocessor.
Prerequisite: MATH 1180 or MATH 1220 or MATH 2000 or MATH 1700 or MATH 1230 or MATH 1710 or MATH 2720 or MATH 3740. (Any of these courses may be taken concurrently with CS 1200 and must earn a grade of "C" or better.)

3 hours

CS 1310 Foundations of Computer Science
Covers fundamental concepts in discrete mathematics and introduction to automata theory. Topics include: sets, functions, relations, proof techniques, graphs and trees, sequences, asymptotic behavior, counting and probability. Will also include an introduction to automata, regular expressions and grammars, machine representations of integer and real numbers. Algorithms related to the course topics will be introduced and implementations examined and their efficiency considered.
Prerequisite: MATH 1180 or MATH 1220 or MATH 2000 or MATH 1700 or MATH 1230 or MATH 1710 or MATH 2720 or MATH 3740, and some programming experience. (Must earn a grade of "C" or better in any prerequisite.)

4 hours

CS 2000 Programming Language Experience
Details of a specific computer programming language are presented. The name of the specific language discussed will appear in the student's transcript. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. It is suitable for anyone wishing to learn the specific language being taught. Course can be repeated for credit in a different language. Prerequisite: CS 1110 and 1-1/2 years of high school algebra or MATH 1110.

1 to 3 hours

CS 2100 Introductory Topics in Computing Technology
A topics course presenting introductory computer science material suitable for credit in some undergraduate computer science major and minor programs. Topic can vary with each offering. The course can be repeated with different topics for credit.

1 to 3 hours

CS 2230 Computer Organization and Assembly Language
This course introduces concepts of computer architecture and assembly language. CISC and RISC instruction sets, along with associated hardware issues (e.g., data representation and instruction formats, instruction pipelining, register windows, context switching, and memory management) will be discussed. The student will program in both assembly language and the C programming language as well as interfacing the two languages.
Prerequisite: CS 1110 with a grade of "C" or better.

3 hours

CS 2610 R Programming for Data Science
This course provides the student with an advanced understanding of the R system. It prepares the student for effective usage of and program development in the R system. This includes: understanding functional programming in R, understanding R objects, and how to develop reliable R programs. R graphics for interactive data exploration, producing publication quality graphics and producing web based graphics will also be covered. This course will be very small team project oriented.
Prerequisite: STAT 2600 with a grade of "C" or better.

4 hours

CS 3100 Storage, Retrieval, and Processing of Big Data
This course provides the student with an understanding of the issues involved in dealing with Big Data. It prepares the student for dealing with the storage of extremely large data sets, accessing the data, reduction of the data into manageable size and processing the results. Such Big Data can come from stored structured information, unstructured distributed information or streaming sources. Students will reduce Big Data sets, use R packages and other code to analyze the data, and produce graphics to explore and explain the
Data. This course will be very small team project oriented. Prerequisite: CS 2610 with a grade of "C" or better and a suitable laptop.

CS 3240 System Programming Concepts Topics include: program development tools, basic testing, timing, profiling and benchmarking, characteristics of physical devices, memory management, device drivers, pseudo-devices, file structures, file I/O (both buffered and unbuffered), processes, shells, inter-process communications, signals, exceptions, pipes, sockets, shared memory and file and record locking. All topics are viewed from a UNIX system programming perspective. Prerequisites: CS 1120 and (CS 2230 or ECE 2510), with a grade of "C" in all prerequisites.

CS 3310 Data and File Structures This course focuses on the study of internal and external data structures and algorithms with an ongoing emphasis on the application of software engineering principles. Trees, graphs and the basic algorithms for creating, manipulating and using them will be studied. Various types of hash and indexed random access file structures will be discussed and implemented. B-trees and external file sorting will be introduced. Internal and external data and file organizations and algorithms will be compared and analyzed. Students will carry out a number of programming projects which will include the various interface (person-to-person, module-to-module, person-to-module-to-person) aspects of the software development process. Prerequisite: CS 1120 and (CS 1310 or MATH 1450), with a grade of "C" or better, or equivalent.

CS 3400 Graphical User Interface Development An introduction to the design and development of graphical user interfaces. The emphasis in the course is on event-driven code design and programming using GUI toolkits, with special emphasis on the design of interactive programs, web-based interaction, and the role of usability testing. Prerequisite: CS 1120.

CS 3500 Introduction to Web Technique Covers theory and practice of major technologies involved in current web services. Topics include: installing, administering and securing a web server; http and https protocols; cgi scripts; connecting to a database; php; javascript; ajax; and css. Will include best practices in developing and securing web applications; and current attacks on web services. Practical applications will be developed in a team environment and testing for standards compliance, mobile device support, security and performance will be done. Prerequisite: Significant previous programming experience and a laptop.

CS 3950 Venture Project This course engages sophomore/junior students to gain professional experience with their specific venture topic. Participating students will operate a simulated full-scale consulting and development firm that specializes in the venture topic. The goal of the course is to have the students spend time in the lab working as part of a team that provides solutions to real clients. Computer Science major students can count up to six credits of CS electives from this course towards their degree. Prerequisite: Instructor approval.

CS 4120 Professional Field Experience This course allows students to receive academic credit for professional work experience in the computing field. The work activities must require significant computer science knowledge and education. This course may not be taken for work already completed and may not be used for computer science major or minor elective. It is a credit/no credit course and may be taken for a maximum of three credit hours. Prerequisites: CS 3310 or equivalent, and approval in advance by the Department.

CS 4310 Design and Analysis of Algorithms A continuation of the study of data structures and algorithms. It provides a theoretical foundation in designing algorithms. The focus is on the advanced analysis of algorithms and on how the selections of different data structures affect the performance of algorithms. Algorithmic paradigms such as divide and conquer, greedy method, dynamic programming, backtracking and branch and bound are covered. B-trees and 2 to 3 search trees and a variety of graph structures are discussed along with their applications to algorithm implementation. Algorithms will be analyzed for their complexity. NP-completeness will be introduced. Prerequisites: CS 3310 or equivalent.

CS 4430 Database Management Systems This course presents fundamental concepts and practices of database management systems. Database environment and administration are defined along with roles of the database administrator and the data dictionary. Conceptual and logical models are discussed with emphasis on the relational approach. Data access techniques such as sequential and multi-level sequential indexes, linked lists, inverted files and hashing are briefly reviewed. A few commercial systems will be surveyed. Security, reliability and integrity will be studied. Students will
acquire experience with the various topics by applying them to an actual database system. Students will also write application programs which use the database systems. A student may not receive credit for both CS 4430 and CS 5430. Prerequisite: CS 1120 with a grade of "C" or better, or equivalent. 3 hours

CS 4540 Operating Systems The internal and external views of computer operating systems are presented. A historical survey of the development and growth of operating systems is given. Fundamentals of systems and system design are stressed. Basic concepts and terminology are emphasized. Processes, communications and synchronizations, deadlocks, scheduling, shared resources, resource allocation and deallocation, memory management, files management, and protection are discussed. Applications to real systems are investigated to motivate the ideas presented. Students build or run simulations and modify the internals of a working operating system. Prerequisites: CS 3310 and (CS 2240 or CS 3240 or ECE 3570), with a grade of "C" or better in all prerequisites. 3 hours

CS 4850 Programming Languages Properties of various programming languages including scope of declarations, storage allocation, control structures and formal parameters will be studied, as well as run time representation of programs and data structures. A study of compilers and interpreters will be made. This will include loading, execution, storage allocation, symbol tables, lexical scan, parsing and object code generation. The relation of automata to formal languages and grammars will be discussed. Prerequisite: CS 3310. 3 hours

CS 4900 Software Systems Development I: Requirements and Design This course is the first of a capstone project sequence required for all computer science majors. Software engineering and its methodologies are explained. Various software life cycle models are introduced. Students are placed into teams and assigned to a client and project. The teams create a project plan, analyze and specify requirements for their project and develop a design. Prototype demonstrations and periodic oral and written progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. Documents include a management plan, project abstracts, a requirements specification, a user interface prototype document, and a design document consisting of architectural and detailed design elements. This course is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: CS 3310. 3 hours

CS 4910 Software Systems Development II: Implementation and Testing This course is the second of a capstone project sequence required for all computer science majors. Students are placed into teams and assigned to complete an existing project for a client. The teams implement and debug code according to a design produced earlier. They produce a testing plan, carry out testing, record test results and summarize them. Prototype demonstrations and periodic progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. These documents include a testing plan, a testing log, a summary of testing, a maintenance manual and a user manual. Teams also deliver a public demonstration at the end of the course. Discussion of current social and ethical issues related to computing and software development will be integrated into the course. Prerequisite: CS 4900. 2 hours

CS 4980 The Computer Science Profession This course examines the role of the computer scientist in society. Topics covered are designed to promote awareness of professional, ethical, and societal issues in the field of computer science. Prerequisite: Senior status. 1 hour

CS 4990 Undergraduate Research in Computer Science Supervised undergraduate research. Topics are chosen and arrangements are made on an individual student basis. With prior written approval, this course may be used for elective credit in the Theory and Analysis option of the B.S. degree in computer science. Students interested in CS 4990 should consult their department advisor or the department chair for details. Prerequisite: Department approval. May be repeated for credit to a maximum of three hours. Graded on a Credit/No Credit basis. 1 to 3 hours

CS 5250 Computer Architecture General topics in computer architecture, memory systems design and evaluation, pipeline design techniques, RISC architectures, vector computers, VLSI systems architecture. Open to upperclass and graduate students. Undergraduates with junior or senior status who have met the specific course prerequisites or have the permission of the instructor may enroll in 5000-level courses. Prerequisites: (CS 2230 or ECE 2510) and CS 3310, with a grade of "C" or better. 3 hours

CS 5260 Parallel Computations Architecture, synchronization and communication aspects of parallel and distributed systems. This course will focus on the design and analysis of parallel algorithms with a prototype treatment on current machines. The algorithms may include parallel sorting, combinatorial search, graph search and traversal,
applications in graphics, 2-d finite differences, 2-d finite element techniques, matrix algorithms and the Fast Fourier Transform. Open to upperclass and graduate students. Undergraduates with junior or senior status who have met the specific course Prerequisites or have the permission of the instructor may enroll in 5000-level courses. Prerequisite: CS 3310 with a grade of "C" or better.

CS 5270 Computer Graphics An introduction to modern computer graphics systems. Topics covered include graphics hardware, two- and three-dimensional geometry and transformations, rendering, shading, texturing, raster and vector graphics, and modeling with curves and surfaces. Students will learn basic concepts and techniques in interactive computer graphics with emphasis on modern graphics programming. Open to upperclass and graduate students. Undergraduates with junior or senior status who have met the specific course Prerequisites or have the permission of the instructor may enroll in 5000-level courses. Prerequisite: CS 3310 with a grade of "C" or better. 3 hours

CS 5300 Artificial Neural Systems An introduction to neural net concepts, algorithms, and applications. A history of neural nets will be presented along with some discussion of models of Biological neural systems. The salient features of neural nets (architecture, activation functions, weighting scheme) will be characterized. Standard algorithms will be presented including Hopfield nets, linear associative mode bidirectional associative memories, and adaptive resonance models. The student will use neural net software to experiment with standard models to develop an application for a project. An introductory statistics course is recommended. Open to upperclass and graduate students. Prerequisite: CS 3310. 3 hours

CS 5310 Algorithms This course is a continuation of the study of data structures and algorithms, emphasizing methods useful in practice. It provides a theoretical foundation in designing algorithms as well as their efficient implementations. The focus is on the advanced analysis of algorithms and on how the selections of different data structures affect the performance of algorithms. Topics covered include: sorting, search trees, heaps, and hashing; divide-and-conquer; dynamic programming; backtracking; branch-and-bound; amortized analysis; graph algorithms; shortest paths; network flow; computational geometry; number-theoretic algorithms; polynomial and matrix calculations; and parallel computing. It comprises four hours of lecture and recitation experience every week. Open to upperclass and graduate students. Prerequisite: CS 3310 with a grade of "C" or better. 3 hours

CS 5400 Design of User Interfaces An introduction to the specification, development, and evaluation of user interfaces. This course provides an overview of human capabilities, technological possibilities, interaction design, and interface evaluation. The course presents both the theoretical foundations of interaction design and practical case studies of good and bad interface design. During the course, students will design and test one or more interfaces. Open to upperclass and graduate students. Prerequisite: CS 3310 with a grade of "C" or better or permission of instructor. 3 hours

CS 5430 Database Systems An introductory course on relational database design, query and programming. Topics include relational model, relational algebra, conceptual design using entity-relationship model, functional dependency and normal forms, SQL, constraints and triggers, indexes, views, authorization, stored procedures, database programming, and transactions. Other topic include object-relational data model and an overview of database management system implementations. Students will get experience on how to design and use a relational database. A student may not receive credit for both CS 4430 and CS 5430. Open to upperclass and graduate students. Prerequisite: CS 3310 with a grade of "C" or better. 3 hours

CS 5541 Computer Systems This course offers an intensive study of computer system design, emphasizing modern operating systems and their impact on application programming. Topics covered include: processes and threads, CPU scheduling; process synchronization; deadlock, memory management; cache; main memory; virtual memory; virtual machine; shared-memory and message-passing based parallelism; clusters; database concepts; security and protection; authentication; and cloud computing. It comprises four hours of lecture and recitation experience every week. Open to upperclass and graduate students. Prerequisites: CS 2240 and CS 3310, with a grade of "C" or better. 3 hours

CS 5550 Computer Networks and Distributed Systems The design and evaluation of computer networks using current hardware and software are explained. Various types of computer buses, local area networks, and long haul networks are defined. Case studies of popular networks are presented. Layered network models are studied. There is lab...
work with local area and long haul networks. Open to upperclass and graduate students. Prerequisite: CS 3310 and (CS 3240 or ECE 3570). 3 hours

CS 5560 Network Programming  This course will cover the fundamental aspects of computer network programming, with emphasis on the Internet. The goal of this course is to introduce the students to the basics of distributed application developments. Students will be introduced to building application protocols using UDP, TCP and secure sockets programming. Students will also be introduced to multi-tier application development (presentation/client tier, application tier, data tier) and RPC technologies including: RMI, EJB and Web Services. The course will focus on web application development using XHTML, Java Script, CSS, AJAX, Java Servlets, JSP, and JSF. Open to upperclass and graduate students. Prerequisite: CS 3310.

3 hours

CS 5600 Software Requirements Analysis and Design  This course provides in-depth study of notations, methodologies, and tools for analysis and design of software requirements. This course includes object-oriented requirement development and design, the relationships between object-oriented design concepts and software engineering principles. The course concentrates on the techniques used in the early stages of software development. Open to upperclass and graduate students. Prerequisite: CS 3310.

3 hours

CS 5700 Computer Security and Information Assurance  This course is an introduction to computer/network security and information assurance. The topics include cryptographic techniques; network security - threats, controls, and tools; program security; and legal, ethical and privacy issues in computer security. Students will learn fundamental concepts of security applicable to computer programming and computer system design. Assignments will improve students’ practical skills in using computer networks and systems. Open to upperclass and graduate students. Prerequisite: CS 5550 with a grade of “C” or better.

3 hours

CS 5710 Network Security Fundamentals  This course examines the network security fundamentals needed for a basic understanding of the Information Security discipline. The course covers basic attacks and vulnerabilities against an organization's network infrastructure as well as their mitigation's. This course will help students understand network addressing, protocols, and vulnerabilities. Finally, students will learn to capture and analyze network traffic to monitor for potential attacks. Practical exercises and labs will be used during this course to allow the students to apply these concepts in real-world scenarios. Prerequisite: Admission to the Graduate College or senior standing.

3 hours

CS 5730 Secure System Administration  This course will address the theory and practices involved in securely delivering services from both Linux/Unix and Windows servers in a networked environment. Topics will include encrypted communication channels, intrusion detection systems and log monitoring, and secure consumption of services by client systems. The course covers tools and techniques for building and maintaining servers in a secure manner. Open to upperclass and graduate students. Prerequisites: CIS 5710 and CS 5710.

3 hours

CS 5740 Web Application Security  This course will address the theory and practices involved in implementing, managing, or protecting Web applications. Students will learn about the underlying technologies and architecture decisions that go into developing a secure application and will learn the skills necessary to evaluate, implement, and test security measures in web applications. Students will complete several practical exercises and labs that will demonstrate and reinforce the theoretical concepts introduced in the course. Open to upperclass and graduate students. Prerequisites: CIS 5710 and CS 5710.

3 hours

CS 5750 Secure Software Development  This course covers the theory and practice of software security, focusing on common software security risks including: identification of potential threats and vulnerabilities, methods and tools for identifying and eliminating security vulnerabilities and coding principles to avoid security holes in new software. The course covers essential guidelines for building secure software: how to design software with security in mind from the ground up and to integrate analysis and risk management throughout development. Open to upperclass and graduate students. Prerequisites: CIS 5710 and CS 5710.

3 hours

CS 5800 Theory Foundations  This course covers the theory of computer science emphasizing automata, grammars and their applications in the specification of languages and computer systems, models of computation, and complexity. Analytic and problem solving abilities will be reinforced, and concepts covered in the course will be applied
to real-world problems. It comprises four hours of lecture and recitation experience every week. Open to upperclass and graduate students. Prerequisite: CS 3310 with a grade of "C" or better. 3 hours

CS 5810 Compiler Design and Implementation The design and implementation of programming language translation. Topics include: lexical analysis, parsing, intermediate representations and code generation. A major project is required. Open to upperclass and graduate students. Prerequisite: CS 4800 or CS 4850 or CS 5800, with a grade of "C" or better. 3 hours

CS 5820 Artificial Intelligence This course covers basic AI techniques and concepts including rule-based systems, intelligent search, heuristics, knowledge representation and reasoning, predicate logic and pattern recognition. It introduces several AI application areas such as learning, vision, natural language processing, games, and expert systems. Open to upperclass and graduate students. Undergraduates with junior or senior status who have met the specific course Prerequisites or have the permission of the instructor may enroll in 5000-level courses. Prerequisite: CS 3310 with a grade of "C" or better. 3 hours

CS 5821 Machine Learning The course will cover both theory and practice, applying a variety of Machine Learning techniques and models using available tools on large widely available data sets. R will be presumed, but Python and Numpy/Scipy will be used freely, as well as the natural language tools available in Python. Feature selection, model choices and relative performance measures will be presented within a Bayesian framework. Open to upperclass and graduate students. Prerequisites: MATH 2300 and (CS 3100 or CS 3310). A grade of "C" for undergraduates and "B" for graduates needed in prerequisite courses. 3 hours

CS 5950 Advanced Topics in Computer and Information Science The content of this course varies. It is intended to introduce the student to advanced topics which are normally offered as separate courses. The course may be taken more than once with approval of the student's advisor. Open to upperclass and graduate students. Prerequisite: Approval of Department. 1 to 3 hours

CS 5990 Independent Study in Computer Science Advanced students with good scholastic records may elect to pursue independently the study of some topic of special interest. Topics are chosen and arrangements are made to suit the needs of each particular student. Open to upperclass and graduate students. Prerequisite: Written approval of instructor. 1 to 3 hours

Dance

DANC 1000 First Year Performance Workshops and experiences related to expanding the student’s understanding of dance as an art form and introduction of general skills necessary for a career in dance. Course culminates in performances in the final dances choreographed by DANC 3800 students. Restricted dance majors. 2 hours

DANC 1010 Beginning Ballet Elementary ballet technique for the general student. The emphasis is placed on line, control, alignment and musicality. Students will learn elementary combinations utilizing fundamental classical ballet vocabulary. 2 hours

DANC 1020 Beginning Jazz Elementary jazz technique for the general student. Rhythmical integration of isolated movements with emphasis on dynamics, style and performance is stressed. 2 hours

DANC 1030 Beginning Modern Elementary modern technique for the general student. The emphasis is placed on body integration, locomotor skills, dynamic variety, and musicality. 2 hours

DANC 1040 Beginning Tap Elementary tap technique for the general student, emphasizing the basic terminology as well as an investigation of rhythm and improvisation as audibly produced by the feet. Some turns and stylized arm movements may be included. 2 hours

DANC 1100 Ballet Technique I An introduction to the art of ballet, designed for dance majors and minors, primarily concerned with development of ballet technique. Emphasis is placed on basic ballet movement sequences and patterns used to develop control, balance, alignment, musicality, strength and vocabulary at the elementary level. Students
will continue in DANC 1100 until advanced to DANC 2100 by the instructor. The content of this course varies each semester. Repeatable for credit. Prerequisite: Advisor approval. 2 hours

DANC 1200 Jazz Technique I An introduction to the art of jazz dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, movement isolation, rhythmic awareness, basic vocabulary and both percussive and free-flow combinations. Students will continue in DANC 1200 until advanced to DANC 2200 by the instructor. The content of this course varies each semester. Repeatable for credit. Prerequisite: Advisor approval. 2 hours

DANC 1210 Roots of Jazz An introduction to the basis for the development of contemporary jazz dance forms through exposure to African dance forms and 20th Century American vernacular dance. Students will explore these forms and their interrelationships to contemporary jazz dance styles through movement explorations, videotapes, historical readings, and discussions. Emphasis will be placed on rhythm, syncopation, movement isolation, and improvisation. Live accompaniment and historic music recordings will be used for classes. Required for dance majors and music theatre performance majors. Recommended for dance minors Not repeatable for credit. Prerequisite: Advisor approval. 2 hours

DANC 1250 Special Studies in Introductory Dance Technique A study of areas in introductory dance technique not included in regularly scheduled courses. Examples of possible topics include: Music Theatre Dance Styles, Dance Technique Skill Building, Men's Ballet, and World Dance Forms. The content of this course varies each semester. Repeatable for credit up to 6 hours. 1 to 6 hours

DANC 1300 Modern Technique I An introduction to the art of modern dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, range of movement, dynamic quality, rhythmic accuracy and the application of kinesiological principles. Students will continue in DANC 1300 until advanced to DANC 2300 by the instructor. The content of this course varies each semester. Repeatable for credit. Prerequisite: Advisor approval. 2 hours

DANC 1450 Experiencing Dance An introduction to the art of dance through historical and multicultural perspectives including direct experiences in the studio and viewing of live and recorded performances. Readings, lectures, videos/films, discussions, writings, and movement classes will be used to introduce the student to: non-Western dance, ballet, modern, jazz, tap and other theatrical dance forms. The course also addresses training in dance, the development of movement vocabulary, and the creative process from literal and metaphorical perspectives. Activities are designed to stimulate the perception and enjoyment of dance on a kinesthetic, musical and visual level. The course meets Area I, Fine Arts, General Education requirement. 3 hours

DANC 1800 The Creative Choreographer A practical experience focusing on the choreographer’s creative process for solo dances. Emphasis will be placed on identifying, selecting and utilizing a variety of source material through use of critical evaluation skills for dance, use of choreographic devices, use of improvisation for generating movement, creating meaning through the use of time, space, energy/force, and weight, and creation of a written personal artistic statement. This course is restricted to the following programs: BA in Dance, BFA in Dance and Dance minors. Prerequisite: DANC 1860 with a grade of "C" or better. 3 hours

DANC 1810 Dance Improvisation Exploration of movement through spontaneous problem-solving. The course is designed to evoke the student's creative individuality and sense of ensemble. 1 hour

DANC 1860 Music for Dancers Designed for dance students, this course addresses the interrelatedness of dance and music as applied to performance, choreography and pedagogy. Students will explore musical concepts through lecture, movement improvisation, choreography and written assignments. Embodies rhythmic skills and applied music fundamentals will be emphasized. This course is restricted to the following programs: BA Dance (DACJ), BFA Dance (DAFJ), Dance Minor (DANC). 3 hours

DANC 1950 Introduction to Bartenieff FundamentalsSM This course introduces Irmgard Bartenieff's theories of functional movement. Through practice students will explore major Fundamentals concepts such as body connections, sequencing, movement initiation, mobility/stability and spatial intent. Students will also learn the "Basic Six," a series of movement sequences which are distillations of Bartenieff's theories. 1 hour
DANC 1960 Conditioning for Dancers  An introduction to the principles of physical conditioning with a focus on specific application of the information to individual needs and capacities. The course covers methods of building strength, flexibility and cardiorespiratory endurance as a means of enhancing dance performance, including instruction on equipment such as rotator disks, Therabands, and the Current Concepts Reformer utilizing the Pilates technique. This course, in combination with DANC 2950, meets the Area VIII Health and Well-being General Education requirement for dance majors.  Prerequisite: Dance majors and minors.  2 hours

DANC 2100 Ballet Technique II  A development of ballet technique continued from DANC 1100. Emphasis is placed on challenging movement sequences used to increase strength, flexibility, musicality, port de bras and vocabulary at the intermediate level. Students will continue in DANC 2100 until advanced to DANC 3100 by the instructor. The content of this course varies each semester. Repeatable for credit.  Prerequisite: Advisor approval.  2 hours

DANC 2200 Jazz Technique II  A development of jazz technique at the intermediate level. Emphasis is on lyrical integration of isolated movements, sequential combinations involving multiple turns, and skills in performance and quick study. Students will continue in DANC 2200 until advanced to DANC 3200 by the instructor. The content of this course varies each semester. Repeatable for credit.  Prerequisite: Advisor approval.  2 hours

DANC 2250 Special Studies in Intermediate Dance Technique  A study of areas in intermediate dance technique not included in regularly scheduled courses. Examples of possible topics include: Jazz Skill Building, Repertory, Intermediate Tap, and Contact Improvisation. The content of this course varies each semester. Repeatable for credit up to 6 hours.  Prerequisite: Advisor approval.  1 to 6 hours

DANC 2300 Modern Technique II  A development of modern technique at the intermediate level. Emphasis is on quick study skills and movement which has contrasting dynamic qualities, varying rhythmic patterns and spatial complexity. Students will continue in DANC 2300 until advanced to DANC 3300 by the instructor. The content of this course varies each semester. Repeatable for credit.  Prerequisite: Advisor approval.  2 hours

DANC 2450 Ballet History  A survey of the historical development of ballet. Course content includes: roots in 16th century European peasant and court dance forms; refinement and reform in the 17th and 18th centuries; romantic and classic periods in the 19th century; and trends of the 20th century, including modernism, neo-classicism and the influences of other dance forms.  Prerequisite: Sophomore standing and Dance major/minor only.  3 hours

DANC 2800 Choreographing for the New Millennium  A practical experience focusing on the choreographer’s creative process for duet and group forms, and the application of technology to choreography. Emphasis will be placed on choreography for/with/of the camera, including commercial work, site specific study, telematic choreography, and other new technologies that may develop. This course is restricted to the following programs: BA in Dance, BFA in Dance and Dance minors.  Prerequisite: DANC 1800 with a grade of "C" or better.  3 hours

DANC 2900 Dance in the Elementary School  This course covers the principles, materials, and techniques of teaching creative movement and dance activities to elementary school children as they can be applied in various learning environments. Lecture, observation, and laboratory experiences are provided.  3 hours

DANC 2950 Introduction to Dance Science and Kinesiology  An introduction to the field of dance science for dance majors. Emphasis is placed on anatomical analysis, conditioning principles and injury prevention, with special attention given to application of information to technique class, rehearsal, choreography and individual anomalies. This course, in combination with DANC 1960, meets the Area VIII Health and Well-being General Education requirement for dance majors. Restricted to dance majors and minors.  3 hours

DANC 2960 Introduction to Laban Movement Analysis®  An overview of the theoretical framework and language for describing movement which was developed by Rudolf von Laban. This course includes the history of the development of Laban Movement Analysis, motif writing, and discussion and practice of the theories of Effort, Space, Shape and their relationship to Bartenieff FundamentalsSM.  2 hours
DANC 3100 Ballet Technique III  Ballet technique for the advanced/pre-professional student. Emphasis is placed on complex and sophisticated movement sequences used to develop strength, flexibility, endurance, artistry and vocabulary at the advanced level. The content of this course varies each semester. Repeatable for credit.  
Prerequisite: Advisor approval.  
2 hours

DANC 3200 Jazz Technique III  Jazz technique at the advanced/pre-professional level with work on quick-study and theatrical skill. Combinations will address a variety of jazz styles and develop the student's own dynamic style. The content of this course varies each semester. Repeatable for credit.  
Prerequisite: Advisor approval.  
2 hours

DANC 3250 Special Studies in Dance Theory  A study of areas of dance theory not included in existing courses. Examples of possible topics include: writing and criticism; costuming; make-up; technology (e.g., audio and video techniques; computer applications for music, lighting design, notation or choreography); and dance for the exceptional student. May be offered with a visiting instructor or artist-in-residence. Repeatable for credit up to 6 hours.  
Prerequisite: Advisor approval.  
1 to 6 hours

DANC 3300 Modern Technique III  Technique for the advanced/pre-professional student in the modern idiom. Emphasis is placed on the ability to quickly analyze and skillfully reproduce complex movement combinations within the technique. Performance skills are emphasized throughout the course. The content of this course varies each semester. Repeatable for credit.  
Prerequisite: Advisor approval.  
2 hours

DANC 3450 Twentieth Century American Dance  A survey of the purposes, functions, and manifestations of American dance from the beginning of the twentieth century to the present. Relationships are examined between dance and general cultural developments in the United States in each decade of this century. Topics covered include: the forerunners and pioneers of modern dance; avant-garde and post-modernists; and artists of jazz, tap, Broadway, movies, and the current media. Students write several short papers and prepare a research paper. Examinations emphasize essay writing. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.  
Prerequisite: Junior standing and Dance major/minor only.  
3 hours

DANC 3510 Dancer Wellness  The proposed course explores the principles of wellness concepts specifically for dancers and covers nutrition for optimal energy intake, exercise components and energy expenditure, eating disorders, weight management, the female athlete triad, injury prevention and first aid.  
3 hours

DANC 3520 Dance Studio Management  An introduction to the principles of dance studio management through the presentation of business philosophies, practical theories, and strategies crucial to managing a successful dance studio business. Topics may include: entrepreneurship, business entities and creating a business plan, studio location and facility considerations, marketing strategies for growing your business, and record keeping and basic financial statements.  
3 hours

DANC 3530 Employee Client Relations  The proposed online education course explores incorporating practical application of theories to assist in the daily interactions with clients and staff that includes hiring practices and legalities, training staff, payroll and compensation, client retention, and communication with parents.  
3 hours

DANC 3540 Recital Preparation/Production  This proposed course is an introduction to the principles of recital preparation and production as it pertains specifically to a dance studio. This course covers organizing, music selection and copy-write issues, costume ordering and inventory, financing your recital for profitability, recital services and production.  
3 hours

DANC 3550 Training Theories for Dancers  This proposed course explores the training principles of specificity, overload, recovery, adaptation and reversibility as they apply specifically for dancers studying seriously. The content addresses the subjects of anatomical consideration for dance; appropriate warm up, stretching, flexibility and endurance training; the importance of recovery and restoration; motor learning and progression along with physiological development for point work, developing hip joint flexibility and turn out as well as neuromuscular coordination for balance.  
3 hours
DANC 3560  Curriculum Development - Dance  The practical application of theories in dance studio curriculum development for ages 3-adult. Specific attention will be given to the development of age appropriate movement, physiological skill development, and logical progression of skill acquisition with pragmatic utilization in multiple dance styles. 3 hours

DANC 3800  The Choreographer in the Community  A practical experience focusing on the choreographer’s creative process for advanced choreographic work. Emphasis includes writing descriptive statements for thesis and grant proposals for choreographic work, running auditions and rehearsals, developing leadership/collaborative styles and articulating artistic visions. Focus is on complex group forms and devices as well as development and structuring of sophisticated choreographic works. Prerequisite: A grade of "C" or better in DANC 2800. 3 hours

DANC 3890  Lighting and Staging for Dance  An introduction to dance production from a lighting and staging viewpoint. Course content includes: stage equipment and terminology; stage management; lighting instruments, distribution, and color, and lighting control. Students will have hands-on experience in producing dance concerts through crew assignments completed outside of class. The culminating assignment for the course is designing and executing lighting for a dance. Prerequisite: Advisor approval. 2 hours

DANC 4000  Practicum  An individual approach to a practical field experience in dance. The student must file an approved application for his/her project with the dance academic advisor prior to registration for the course. Through reading and practice, the student will have an opportunity to explore a topic of interest in dance. Repeatable for credit up to 4 hours. Prerequisite: Advisor approval. 1 to 4 hours

DANC 4100  Supplemental Ballet Technique  Advanced ballet technique for the upper level dance major or minor. The content of this course varies each semester. Repeatable for credit. Prerequisite: Junior standing and advisor approval. 1 hour

DANC 4200  Supplemental Jazz Technique  Advanced jazz technique for the upper level dance major or minor. The content of this course varies each semester. Repeatable for credit. Prerequisite: Junior standing and advisor approval. 1 hour

DANC 4250  Advanced Technique  A study of areas in advanced dance technique not included in regularly scheduled courses. Examples of possible topics include: Pointe and Variation, Partnering, Advanced Tap, and Senior Technique. The content of this course varies each semester. Repeatable for credit up to 6 hours. Prerequisite: Advisor approval. 1 to 6 hours

DANC 4300  Supplemental Modern Technique  Advanced modern technique for the upper level dance major. The content of this course varies each semester. Repeatable for credit. Prerequisite: Junior standing and advisor approval. 1 hour

DANC 4400  Teaching Dance Technique  This course is designed to develop the skills to teach introductory ballet, jazz and modern dance techniques to children and adults in both academic and private studio environments. Topics will include developing creative teaching skills, methods of class preparation, ways of communicating and correcting, preparing age-appropriate material, choosing music, use of imagery and issues of body image for dance students. Prerequisite: dance major only and junior standing. 2 hours

DANC 4450  Senior Seminar  An exploration of current trends, literature and developments in dance in a seminar format. Students will discuss, compare and analyze ideas generated by assigned readings. Restricted to dance majors. Prerequisite: Senior standing. 1 hour

DANC 4600  Performance  An experience in guest artist or faculty choreographed dance works, in fully produced projects not encompassed in specific courses. Registration concurrent with semester of performance. The content of this course varies each semester. Repeatable for credit. Prerequisite: Advisor approval. 1 to 6 hours

DANC 4650  Dance Ensemble  An experience in a performing ensemble which provides one or more of the following: master classes, residencies, lecture-demonstrations, and concerts in various dance styles in the region. Members must show proficiency in performance, improvisation, teaching, and public speaking. Members must concurrently
enroll in at least one technique course at the 2000- or 3000- level as specified by the ensemble director. The content of this course varies each semester. Repeatable for credit.  Prerequisite: Dance majors and minors only, sophomore standing, and audition.  1 to 3 hours

DANC 4700 Senior Capstone Project A seminar course in which each student completes a Senior Capstone Project that integrates curricular content with the student's career objectives. Students will meet weekly to discuss and present topics related to the preparation of the Senior Capstone Project. Each student will have his/her project evaluated by the course instructor and another member of the faculty.  Prerequisites: Senior standing; BA dance major.  2 hours

DANC 4800 Graduating Presentation The preparation and presentation of an advanced choreographic project accompanied by a portfolio and an oral examination. Prior to registration the student must complete an application, select a faculty advisory committee, and secure the faculty committee's approval. Course guidelines are available from the Department and should be reviewed by the student at least one semester prior to enrollment.  Prerequisite: A grade of "C" or better in DANC 3800 and advisor approval.  3 hours

DANC 4890 Dance Management Course covers front-of-house management and publicity, budget, programming, organization of elements involved in company management, and grantsmanship. Practical application of these principles will be evaluated wherever possible.  Prerequisite: College of Fine Arts only and Sophomore standing.  2 hours

DANC 4950 Music Theatre Performance Workshop II Students will perform a variety of roles and styles from a broad spectrum of music theatre repertoire. Scenes will be performed before a public or invited audience. Performers will be directed and evaluated by a faculty team from Dance, Music and Theatre.  Prerequisite: MUS 2950.  3 hours

DANC 4960 Performance in Music Theatre Students will perform in music theatre productions both on and off WMU campus. Their performance will be evaluated by a team of evaluators, to include at least two WMU faculty/staff and/or two full-time professional staff members of the producing theatre. Music Theatre majors (MTFJ) only.  2 hours

DANC 4990 Non-Reading Independent Study in Dance Advanced undergraduate students with good academic standing may elect to independently pursue the study of some area of dance through the creative process. Topics are chosen and arrangements are made to suit the needs of each particular student. Repeatable for credit up to 4 hours.  Prerequisite: Advisor approval; Dance Majors only.  1 to 4 hours

Employee Assistance
EAP 3180 EAP Assessment Interviewing This course focuses on the theories and methods of assessment interviewing for EAP services. Course content addresses client readiness; relationships, rationality and resources and drug training. Prerequisite: EAP 2200.  3 hours

EAP 4700 EAP Field Placement I The placement is a field based learning experience in assuming responsibilities in Work Organization and Human Resource Management and EAP Administration. Through the field placement, the student will actively apply the foundations of their knowledge and skill.  Prerequisite: Successful completion of all EAP course work.  6 hours

EAP 4710 EAP Field Placement II This course is a continuation of EAP 470 EAP Field Placement I. The placement is undertaken only after the successful completion of EAP Field Placement I. The placement is a field based learning experience in assuming responsibilities in EAP Direct Services and Substance Abuse and Addictions and Personal Psychology and Problems. Through the field placement the students will actively apply the foundations of their knowledge and skill.  Prerequisite: EAP 4700.  6 hours

Electrical and Computing Engineering
ECE 1000 Fundamentals of Circuits and Electronics Basic principles of electricity, magnetic devices, and electronics. May not be used as prerequisite for other ECE courses except 1010. Cannot be used as credit in engineering curricula. Prerequisites: MATH 1110 or equivalent and high school physics.  3 hours (2 - 3)
ECE 1010 Fundamentals of Electronics and Machines - Basic principles, characteristics, and applications of semiconductor devices, AC machines, and DC machines. May not be used as prerequisite for other ECE courses. Cannot be used as credit in engineering curricula. Prerequisite: ECE 1000. 3 hours (2 - 3)

ECE 2100 Circuit Analysis - Analysis of linear electric circuits using methods based on Kirchhoff's laws and network theorems. RL, RC, and RLC transients. Sinusoidal steady state analysis. Prerequisites: PHYS 2070 (or taken concurrently) and MATH 1230 or 1710; with a grade of “C” or better in all prerequisites. 4 hours (3 - 3)

ECE 2110 Machines and Electronic Circuits - Introduction to machines and electronics for non-electrical engineering students. Principles of operation, characteristics, ratings, and applications of transformers, alternators, motors, diodes, and transistors. EE and CPE students may not use credit in ECE 2110 toward graduation. Prerequisite: ECE 2100. 3 hours (2 - 3)

ECE 2120 Electronic Circuits and Systems - DC and AC analysis of linear electric circuits. Simple first and second order transients. Analog signals and instrumentation. Applications of operational amplifiers. The first course in a two-course sequence for non-electrical engineering majors. Prerequisites: PHYS 2070 or taken concurrently; MATH 3740. 3 hours (3 - 0)

ECE 2210 Electronics I - Junction theory, semiconductor diode and models, bipolar transistors and models, field-effect transistors and models. Semiconductor circuits, biasing, and stabilization. Computer-aided design of single- and two-stage amplifiers. Principles and basic technology of MOS and bipolar digital and linear integrated circuits. Prerequisites: ECE 2100 and PHYS 2070; with a grade of “C” or better in all prerequisites. 4 hours (3 - 3)

ECE 2500 Digital Logic - Design of digital logic circuits used in computers and mobile devices such as laptops, smartphones and tablets. Boolean algebra, logic circuit minimization, arithmetic logic, programmable logic, memory circuits and state machine design. Prerequisite: MATH 1110 or equivalent; with a grade of “C” or better. 3 hours (2 - 3)

ECE 2510 Introduction to Microprocessors - Machine and assembly language programming of small computers. Introduction to microcomputer architecture and interfacing. Prerequisites: ECE 2500 and (CS 1110 or CS 1200); with a grade of “C” or better in all prerequisites. 4 hours (3 - 3)

ECE 2990 Cooperative Education - A cooperative education program involves a planned and supervised work experience in an ECE relevant industry during the semester. A job offer letter that includes the job title and a description of job tasks and responsibilities is required to be submitted and reviewed prior to enrollment. In addition, a written report of the student's work activities and an employer COOP survey is required. The report and survey must be submitted to the course coordinator/instructor of record in order to receive course credit. This course is restricted to computer engineering and electrical engineering majors only. It may be repeated up to a maximum of 3 credit hours. Graded on a Credit/No Credit basis. Prerequisites: ECE 2510 with a grade of “C” or better and course coordinator/instructor of record approval. 1 to 3 hours

ECE 3100 Network Analysis - Classical and transform methods of network analysis, signals and waveforms. Fourier series and Fourier transforms. Frequency response. Prerequisites: ECE 2100 and MATH 3740; with a grade of “C” or better in all prerequisites. 3 hours (3 - 0)

ECE 3120 Fundamentals of Electronics and Machines - Fundamentals of operation, characteristics, ratings, and applications of electronic and magnetic devices such as diodes, transistors, digital logic devices, transformers and motors. Laboratory provides experience with actual hardware. This is the second in a two-course sequence for non-electrical engineering majors. Prerequisite: ECE 2120. 3 hours (2 - 3)

ECE 3200 Electronics II - Design, analysis, simulation, and laboratory evaluation of electronic amplifiers, filters, and nonlinear signal shaping circuits composed of transistors, diodes, and integrated circuits. Transient response and steady state frequency response behavior for both small and large signal excitation conditions. Amplifier macro-model description and synthesis is introduced. Prerequisites: ECE 2210 and ECE 3100; with a grade of “C” or better in all prerequisites. 4 hours (3 - 3)
ECE 3300 Electrical Machinery
Three-phase analysis. Analysis and design of transformers, electromechanical devices, and machines. Prerequisites: ECE 3100 and ECE 3610; with a grade of “C” or better in all prerequisites. 4 hours (3 - 3)

ECE 3510 Engineering of Real Time Systems
Characterizing, modeling, and specifying real time systems. Designing, programming and verifying sequential and concurrent real time systems. Software engineering processes in real time system development. Case studies and project. Prerequisites: ECE 251 and CS 2230; with a grade of “C” or better in all prerequisites. 3 hours

ECE 3550 Digital Design
Analysis of the real-time behavior of combinational and sequential circuits. Analysis and synthesis of synchronous and asynchronous sequential logic circuits. Systems level design of digital logic circuits using Programmable Logic Devices. Prerequisite: ECE 2500 with a grade of “C” or better. 4 hours (3 - 3)

ECE 3610 Electromagnetic Fields
Static and time-varying electric and magnetic fields, plane waves, guided waves, transmission lines, radiation and antennas. Prerequisites: ECE 2100, MATH 3740, and PHYS 2070; with a grade of “C” or better in all prerequisites. 4 hours (4 - 0)

ECE 3710 Linear Systems
Study of linear controls systems and their models. This course addresses the classical analysis and design of linear, time-invariant systems including stability and performance using the Laplace and frequency domain techniques for analog systems as well as the design and synthesis of analog and digital controllers. Prerequisite: ECE 3100 with a grade of “C” or better. 3 hours (3 - 0)

ECE 3800 Probabilistic Methods of Signal and System Analysis
Introduction to probability, random variables, random processes, correlation functions, spectral density, response of linear systems to random inputs, optimum linear systems. Prerequisite: ECE 3100 with a grade of “C” or better. 3 hours (3 - 0)

ECE 4200 Power Electronics
Behavior of power semiconductor devices (such as BJT’s, MOSFET’s, SCR’s, GTO’s and IGBT’s) in circuits and as switches. Applications of the switches in AC-DC, DC-DC, DC-AC and AC-AC converters. Switch-mode converters for power supplies. DC and AC motor drives, wind and solar inverters, hybrids and utility systems. Magnetic circuits and electro-magnetic interference. Restricted to majors in computer engineering or electrical engineering. Prerequisites: ECE 2210 and ECE 3300; with a grade of “C” or better in all prerequisites. 3 hours (3 - 0)

ECE 4300 Electrical Power Systems
Transmission lines, network analysis, load flow, system faults, fault calculation, transients, and system stability. Prerequisite: ECE 3300 with a grade of “C” or better (or taken concurrently). 3 hours (3 - 0)

ECE 4500 Digital Electronics
The electrical and logic aspects of digital integrated circuits and their applications. Transistor-level design and simulation of digital electronic circuits. Prerequisites: ECE 2210, ECE 2500, and ECE 3570; with a grade of “C” or better in all prerequisites. 4 hours (3 - 3)

ECE 4510 Microcontroller Applications
Hardware and software design of real-time embedded microcontroller systems. Prerequisites: ECE 2210 and ECE 2510; with a grade of “C” or better in all prerequisites. 4 hours (3 - 3)

ECE 4550 Digital Signal Processing
Introduction to discrete time systems. Z-transforms. Discrete Fourier transforms and Fast Fourier transforms. Design and implementation of digital filters. Statistical methods, optimal filters and error analysis. Prerequisite: ECE 3800. 3 hours (3 - 0)

ECE 4600 Communication Systems
Introduction to digital and analog communication systems. Design constraints of noise and bandwidth, comparison of various modulation techniques, and statistical methods. Information and channel capacity. Prerequisite: ECE 3800. 3 hours (3 - 0)
ECE 4700 Feedback Systems  Design principles of linear and non-linear feedback systems in both the frequency and time domain. Prerequisite: ECE 3710. 3 hours (3 - 0)

ECE 4710 Motion and Control  Analysis and implementation of linear closed-loop motion control systems containing electrical, hydraulic, pneumatic and mechanical components. Analytical and experimental development of models for components and systems. This course is cross-listed with ME 4710. Prerequisite: ME 3600 or ECE 3710. 3 hours (2 – 3)

ECE 4810 Electrical/Computer Engineering Design I  First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design is expected at the conclusion of this course. This course is restricted to computer engineering and electrical engineering majors only. Prerequisites: IEE 3160 and ECE 2510, and either (ECE 3200 or ECE 3300) or (ECE 3550 and ECE 4510); with a grade of "C" or better required in all prerequisites. 2 hours (1 - 3)

ECE 4810 Motion and Control  Analysis and implementation of linear closed-loop motion control systems containing electrical, hydraulic, pneumatic and mechanical components. Analytical and experimental development of models for components and systems. This course is cross-listed with ME 4710. Prerequisite: ME 3600 or ECE 3710. 3 hours (2 – 3)

ECE 4820 Electrical/Computer Engineering Design II  Senior electrical/computer engineering design project. A continuation of ECE 481. A formal written report and a formal presentation is required at the end of the semester. Prerequisite: ECE 4810. 3 hours (0 - 6)

ECE 4900 Independent Research and Development  Individual research or special project in Electrical/Computer Engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 4 hours. 1 to 4 hours

ECE 4950 Topics in Electrical/Computer Engineering  A specialized course dealing with some particular area of electrical/computer engineering not included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Consent of department chair. 1 to 4 hours

ECE 4980 Readings in Electrical/Computer Engineering  A course in which advanced students may elect to pursue a program of readings in areas of special interest. Prerequisite: Permission of the instructor with whom the student wishes to work and consent of department chair. 1 to 4 hours

ECE 5150 Real-Time Computing  Characterizing, modeling, and specifying real-time systems. Software life cycle. Designing and programming sequential and concurrent real-time systems. Scheduling. Distributed real-time computing. Engineering case studies using C++/Ada. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval. 3 hours

ECE 5200 Power Electronics  Behavior of power semiconductor devices (such as BJT's, MOSFET's, SCR's, GTO's, and IGBT's) in circuits and as switches. Applications of the switches in AC-DC, DC-DC, DC-AC, and AC-AC converters. Switch-mode converters for power supplies, DC and AC motor drives, wind and solar inverters, hybrids, and utility systems. Magnetic circuits and electro-magnetic interference. Open to Graduate students only. Restricted to master's or doctoral students in electrical and computing engineering. 3 hours (3 – 0)

ECE 5240 Introduction to VLSI Technology  A course in VLSI semiconductor devices, modern CMOS technology, crystal growth, fabrication, and basic properties of silicon wafers. It will focus on lithography, thermal oxidation, (Si/Si)2, interface, dopant diffusion, ion implantation, thin film deposition, etching, and back-end technology. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval. 3 hours

ECE 5300 Electric Power Systems  Three-phase circuits and pre-unit notation. Network analysis, load flow studies, symmetrical system faults, and unbalanced faults using symmetrical components, system stability and transients. Open to Graduate students only. Restricted to graduate students in electrical or computing engineering. 3 hours (3 – 0)
ECE 5410 Electronic Instrumentation  Analysis of instrumentation systems including basic instrumentation concepts, dynamic analysis of instruments, transducers, classical analog methods, digital methods and application. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering.  3 hours

ECE 5450 Introduction to Micro Electro Mechanical Systems  This course introduces students to the rapidly emerging, multi-disciplinary, and exciting field of Micro Electro Mechanical Systems (MEMS). It will teach fundamentals of micromachining and microfabrication techniques, including planar thin-film process technologies, photolithographic techniques, deposition and etching techniques, and the other technologies that are central to MEMS fabrication. Skills needed for the design and analysis of devices and systems in mechanical, electrical, fluidic, and thermal energy/signal domains, and will teach basic techniques for multi-domain analysis (e.g., electromechanical, electrothermal). Fundamentals of sensing and transduction mechanisms (i.e. conversion of non-electronic signals to electronic signals) including capacitive and piezoresistive techniques, and design and analysis of micromachined miniature sensors and actuators using these techniques will be covered. Many examples of existing devices and their applications will be reviewed. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.  3 hours

ECE 5510 Application Specific Integrated Circuit Design  Design, analysis and implementation of application-specific circuits (ASIC.) Emphasis will be placed on programmable design (including field programmable gate arrays (FPGA) and programmable logic devices (PLD). Semi-custom design will also be discussed and full-custom design will be briefly introduced. Introduction to contemporary CAD systems. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.  3 hours

ECE 5530 Microcontroller Applications  This course is intended to give students the ability to specify, design, and test real-time embedded microcontroller systems. Open to graduate students only. Restricted to graduate students in electrical or computer engineering.  3 hours

ECE 5540 Digital Electronics  The electronic and logic aspects of digital integrated circuits and their applications. Transistor-level design and simulation of digital electronic circuits. Open to Graduate students only. Restricted to graduate students in electrical or computing engineering.  3 hours

ECE 5550 Digital Signal Processing  Discrete-time signals and systems, time and frequency domain representations. Structures of discrete-time systems and digital filters. DFT and FFT methods of special analysis and estimation. Discrete Hilbert Transforms and multidimensional signal processing. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.  3 hours

ECE 5570 Design of Reconfigurable Digital Machines  Introduction to hardware design languages. Modeling and simulation using VHDL. Advanced design techniques for digital machines based on Field Programmable Gate Arrays and Complex Programmable Logic Devices. System design with on-line reprogrammable FPGAs. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.  3 hours

ECE 5580 Computer Architecture  This course examines fundamental computer system design trade-offs and the state-of-the-art in computer architecture with case studies of current and proposed microprocessor architectures. Students will study datapath pipelining/superpipelining, dynamic instruction scheduling, hyper-threading, improving memory throughout, SIMD parallelism, VLIM/EPIC processors, and multi-core processors. Open to upperclass and graduate students. Restricted to accelerated master's and graduate students in electrical and computer engineering.  Prerequisite: ECE 3570 or graduate student in electrical and computer engineering or instructor's approval.     3 hours (3 – 0)

ECE 5600 Time-varying Fields  Electrodynamics, Maxwell's equations, Boundary value problems and solutions of Helmholtz Equation in different coordinate systems, Green's functions, transmission lines and wave guides. Introduction to perturbational and variational methods.  This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.  3 hours
ECE 5640 Communication Systems  Introduction to digital and analog communication systems. Design constraints of noise and bandwidth, comparison of various modulation techniques, and statistical methods. Information and channel capacity. Restricted to graduate students in electrical or computer engineering.  3 hours

ECE 5705 Feedback Systems  Design principles of linear and non-linear feedback systems in both the frequency and time domain. Open to graduate students only. Restricted to master's or doctoral students in electrical and computer engineering.  3 hours

ECE 5710 State Space Control Systems  An introduction to the state-space representation of linear system. As such, familiarity with the classical Laplace transform techniques will be assumed but not emphasized. Instead, time--domain analysis of differential equations on linear systems will be performed. This course forms the basis upon which modern electrical engineering is founded. Open to Graduate students only. Restricted to graduate students in electrical or computing engineering.  3 hours

ECE 5730 Foundations of Neural Networks  Biological and artificial neural networks from an electrical and computer engineering perspective. Neuron anatomy. Electrical signaling, learning, and memory in biological neural networks. Development of neural network circuit models. Artificial neural systems including multilayer feedforward neural networks, Hopfield networks and associative memories. Electronic implementations and engineering applications of neural networks. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.  3 hours

ECE 5800 System Modeling and Simulation  This is a first course in the principles of mathematical modeling of stochastic and deterministic systems. It will focus on analytical models, mathematical rigor and computer simulation of problems. Students will simulate a number of systems using appropriate stochastic and deterministic models using a computer. This course is cross-listed as ME 5800. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.  3 hours

ECE 5820 An introduction to probability, random variables, random processes, correlation functions and spectral density, primarily as they apply to signal processing in electrical engineering. Special consideration will be given to the stochastic signals, their corresponding response and the optimization of linear systems. Open to Graduate students only. Restricted to graduate students in electrical or computing engineering.  3 hours

ECE 5850 Mechatronics  A course in fundamentals of motion control, primarily as it is applied to robotics. Students will learn the basics of control systems as applied to multiaxis servo systems. Appropriate time will be devoted to develop a sound basis in the electro-mechanical discipline. This course is cross-listed with ME 5850. This course is restricted to graduate students majoring in either Computer Engineering or Electrical Engineering. Senior undergraduates may take this course with department approval.  3 hours

ECE 5860 System Identification  This is a course in model determination. Students will learn the basics of defining system structure and techniques for finding parametric values. The emphasis will be placed on the application of modeling to practical problems in the student's specific discipline. This course is cross-listed with ME 5860. Prerequisites: ECE 5800 or ME 5800 and CENM, EENM, or ELCD admission.  3 hours (3 to 0)

ECE 5950 Introduction to Advanced Topics  To introduce students to advanced topics in electrical/computer engineering not included in other course offerings. May be taken more than once up to six hours. Restricted to graduate students in electrical or computer engineering.  3 hours (3 to 0)

Economics

ECON 1000 Economics for Elementary Education  This course is designed to provide students with an understanding of fundamental economic concepts that are the building blocks of the fields of microeconomics and macroeconomics. These are necessary for understanding and analyzing problems from an economic perspective. This course cannot be used to satisfy major or minor requirements in Economics  3 hours

669
ECON 2010 Principles of Microeconomics  
An introduction to microeconomics, the study of the price system and resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

ECON 2020 Principles of Macroeconomics  
An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and introduction to international trade and development. This course satisfies General Education Area V: Social and Behavioral Sciences. For students who plan to take both ECON 2010 and ECON 2020, it is preferable to take ECON 2010 before taking ECON 2020. 3 hours

ECON 3040 The Organization of Industries  
This course examines the various ways in which the organization of industries affects pricing and other business behavior and more generally, competition and resource allocation. The topics covered will include the theory of competitive markets, the theory of monopoly and the theories of oligopoly. The course will address the policy implications of various horizontal and vertical agreements among firms in industries. Prerequisite: ECON 2010 3 hours

ECON 3050 History of Economic Thought  
This course surveys the origins and developments of economic analysis from the ancient Greeks to the present. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: ECON 2010 and ECON 2020. 3 hours

ECON 3090 Women and the Economy  
This course studies the role of women in the economy, both in the labor force and the household, and women's economic status. Topics covered include gender discrimination, the feminization of poverty, and the effects of public policies on the economic status of women. This course satisfies General Education Area III: The United States: Cultures and Issues. Prerequisite: ECON 1070 or ECON 1080 or ECON 2010 or ECON 2020. 3 hours

ECON 3100 Labor Economics  
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisite: ECON 2010. 3 hours

ECON 3150 Sports Economics  
This course examines the economic organization of professional and collegiate sports leagues. It also includes discussion of the characteristics of sports labor markets and the impact of teams and sporting events on local and regional economic development. Prerequisite: ECON 2010 with a “C” or better. 3 hours

ECON 3180 The Economics of Medical Care  
This course is designed to familiarize the student with the basic economic problems that exist in the field of health care. It introduces to the student some basic economic tools which are useful in analyzing these problems. The demand for medical care, the supply of health services, the role of health insurance, and pricing and output decisions are analyzed. Various policy questions are also raised, and the pros and cons of alternative policies are presented. Finally, the role of planning in the reorganization and delivery of medical services is discussed. This course satisfies General Education Area V - Social and Behavioral Sciences. Prerequisite: ECON 2010. 3 hours

ECON 3190 Environmental Economics  
The study of economic aspects of environmental problems. Benefit-cost analysis is introduced and applied to problems in the management of air, water and other natural resources. Environmental problems of selected industries—including transportation and electric power—economic growth, population and environmental quality are analyzed. Prerequisite: ECON 2010. 3 hours

ECON 3200 Money and Banking  
An analysis of the role of money and its impact on the economy—on inflation, unemployment, interest rates, income, and foreign exchange. The operations and relationships of commercial banks and the Federal Reserve are examined. Prerequisites: ECON 2010 and ECON 2020. 3 hours

ECON 3210 The Economics of Immigration  
This course seeks to provide students with background and an understanding of human migrations across the globe. Motives for migration, economic consequences of migration on both sending and receiving economies, the assimilation process of migrants, brain drain, immigration policies, refugees and forced migration will be covered. Competency in gathering and using reliable information on immigration flows will be developed throughout the semester. Prerequisites: ECON 1070 or ECON 1080 or ECON 2010 or ECON 2020. 3 hours
ECON 3240  Public Finance  Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation.
   Prerequisite: ECON 2010
   3 hours

ECON 3390  Exploring Economic Data  Provides students with competency in the use of economic data. Goals are to learn to obtain, process and use economic data. Using statistical software to unlock the richness in economic data is a key component of this class.  Prerequisites: ECON 2010 or ECON 2020.
   3 hours

ECON 3450  Business, Government, and Society  This course examines the interrelationships among business, government and society. The course attempts to provide insights into how, when and why government policy towards business firms can either benefit or harm society. Topics covered include antitrust policies, economic regulation and social regulation.  Prerequisite: ECON 2010
   3 hours

ECON 3800  International Economics  A study of the fundamentals of international trade and related problems, with special reference to the implications of the international economic policies of the United States both for the economy and for the firm.  Prerequisites: ECON 2010 and ECON 2020.
   3 hours

ECON 3840  Economic Development  A study of the economic problems of developing countries and of policies designed to foster economic development. The course includes discussion of the role of education, capital formation, technology transfer, saving, population growth, innovation, and international trade on the process of economic growth and development.  Prerequisites: ECON 2010 and ECON 2020.
   3 hours

ECON 3870  Studies in Asian Economies  The course concentrates on the study of the Japanese, Chinese, and Indian economic systems. These models are then applied as a basis of comparison to other Asian economies. This course satisfies General Education Area IV: Other Cultures and Civilizations.  Prerequisite: ECON 1070 or ECON 1080 or ECON 2010 or ECON 2020.
   3 hours

ECON 3880  African Economies  This course provides students with an understanding of the crucial role of culture and tradition in shaping the economic evolution of African nations. It is intended for undergraduate majors and minors in African Studies, Black Americana Studies, Economics, Environmental Studies, international business, and other undergraduate students interested in comparative economic and cross-cultural issues focused on Africa. This course satisfies General Education Area IV: Other Cultures and Civilizations.  Prerequisite: ECON 1070 or ECON 1080 or ECON 2010 or ECON 2020.
   3 hours

ECON 3890  Latin American Economies  An examination of the economic problems and challenges of the Latin American region. Topics covered include structure and performance of the Latin American economies, the industrialization process, economic integration, stabilization programs, and capital formation. This course satisfies General Education Area IV: Other Cultures and Civilizations.  Prerequisite: ECON 1070 or ECON 1080 or ECON 2010 or ECON 2020.
   3 hours

ECON 4000  Managerial Economics  An introductory examination of the application of tools of economic analysis to management problems and decision making. The basic concepts include marginalism and cost analysis, demand pricing, capital budgeting, and selected optimality models.  Prerequisites: ECON 2010 and MATH 1160
   3 hours

ECON 4020  Introductory Economic Statistics  An introduction to statistical methods and techniques used in the acquisition and analysis of economic data. Data acquisition topics include collection and preparation techniques, survey design and sampling. Students will be familiarized with several government and private economic data sets and their strengths and weaknesses. Data analysis topics emphasize statistical methods used to analyze economic data such as descriptive statistics, hypothesis testing and regression analysis.  Prerequisites: ECON 2010 and ECON 2020 and MATH 1180.
   3 hours

ECON 4030  Intermediate Microeconomics  An examination of microeconomic theory, with emphasis on the theory of consumer behavior (the derivation of the demand curve), the theory of the firm and factor pricing.  Prerequisite: ECON 2010
   3 hours
ECON 4031 Intermediate Microeconomics with Calculus
An examination of microeconomic theory using calculus as an analytical tool. Course emphasizes theory of the consumer (the derivation of the demand curve), the theory of the firm and factor pricing. NOTE: One cannot simultaneously receive credit for both ECON 4031 and ECON 4030.
Prerequisites: ECON 2010 and MATH 1220. 3 hours

ECON 4041 Organization of Industries with Calculus
This course uses calculus to examine the various ways in which the organization of industries affects pricing and other business behavior and more generally, competition and resource allocation. The topics covered will include the theory of competitive markets, the theory of monopoly, the theories of oligopoly, and horizontal and vertical industry agreements. NOTE: One cannot simultaneously receive credit for both ECON 4041 and ECON 3040.
Prerequisites: ECON 2010 and MATH 1220. 3 hours

ECON 4060 Intermediate Macroeconomics
An examination of macroeconomic theory with particular emphasis on business cycles, economic growth, and price level instability. The interplay between theory and policy is analyzed.
Prerequisite: ECON 2020 3 hours

ECON 4090 Econometrics
Instruction is given on the design and conduct of economic research and the analysis of economic data. Each student designs a research project drawing upon economics courses already taken by the student. In addition to examinations, the student conducts in-depth research, gives an oral report, and submits a written report.
Prerequisites: Either (ECON 4020 or STAT 2160) and ECON 4030 and ECON 4060. 3 hours

ECON 4191 Economic Policy Analysis with Calculus
Government policies often generate welfare changes (i.e. benefits and costs) to individuals. Assessment of the magnitude of welfare changes - and how they are distributed across all members of society - is important considerations for effective policy design. This course develops a mathematical theory of welfare economics with emphasis on social choice, efficiency, policy design, and welfare measurement. Practical applications in the methodology of welfare analysis - including cost-benefit and non-market valuation - will highlight the theory.
Prerequisites: (ECON 4030 or ECON 4031) and MATH 1220. 3 hours

ECON 4840 Comparative Economic Systems
The economic institutions and conditions of capitalism, socialism, communism, fascism, and the cooperative movement are critically examined as to ideology and actual operation. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.
Prerequisites: ECON 2010 and ECON 2020, instructor approval. 3 hours

ECON 5040 Mathematics for Economists
This course presents the mathematical material necessary as background for the topics covered in graduate-level economics courses. Topics covered include differential calculus, optimization, comparative statics, and mathematical programming. These techniques are applied to selected economic problems. Open to upperclass and graduate students.
Prerequisites: Junior standing and 12 or more credit hours of economics, including ECON 2010, ECON 2020, and either (MATH 1220 or MATH 1700); or instructor approval. 3 hours

ECON 5880 Economic Development
An analysis of the economic factors such as population, resources, innovation and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural patterns and economic reasons for lack of development and the steps necessary to promote economic progress.
Open to upperclass and graduate students.
Prerequisites: Junior standing and 12 or more credit hours in economics, including ECON 2010 and ECON 2020, or department approval. 3 hours

ECON 5910 Guest Economist Seminar
Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary. May be repeated for credit. Open to upperclass and graduate students.
Prerequisites: Junior standing and 12 or more credit hours in economics, including ECON 2010 and ECON 2020, or department approval. 1 hour

ECON 5920 Guest Economist Seminar
Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary. May be repeated for credit. Open to upperclass and graduate students.
Prerequisites: Junior standing and 12 or more credit hours in economics, including ECON 2010 and ECON 2020, or department approval. 1 hour

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ECON 5980  Readings in Economics  An independent program of study for qualified advanced students to be arranged in consultation with the instructor. Open to upperclass and graduate students. Prerequisite: Junior standing and 12 or more credit hours in economics; and department approval. 1 to 3 hours

Teaching, Learning, and Educational Studies
ED 2300  The Nature of Creativity  This course explores the nature of creativity - its processes, its products, its characteristics, its values, and its relationship to human beings and society. Growth in aesthetic sensitivity, personal interaction, self-confidence, and ability to solve problems creatively are the objectives of this course. This course satisfies General Education Area I: Fine Arts. Open to all students. 3 hours

ED 2500  Human Development: Applications in Education  This course traces the psychological and social development of human beings from conception through adolescence, with specific emphasis on applications in the field of education. Consideration is given to those factors which facilitate or inhibit normal progress in the areas of physical, emotional, social, intellectual, and moral development. Attention is also given to the development of the self-concept for purpose of helping students to become more aware of themselves and of their relationships with others. Students are required to observe human beings at different stages of development in a variety of cultural settings. Restricted to majors in Education, and Speech Pathology and Audiology. 3 hours

ED 2900  K-8 Teaching as a Profession  This course is designed around four inter-related purposes: First, pre-education students explore their suitability and interest in teaching grades K-8, including developing and applying fundamental skills of reading and academic writing. Second, it engages students in fieldwork to examine the profession and activities of teaching with children in grades K-8. Third, the course explores the interface between K-8 schooling and the social, political, and cultural concepts and issues in education. Fourth, it introduces the Elementary Education program at WMU, emphasizing program expectations that include students' passion for teaching and learning, development of academic skills and knowledge, and critical dispositions necessary to become an exceptional teacher. 3 hours

ED 3000  Adolescent Development and School Learning  This course examines adolescence as a contemporary socio-anthropological phenomenon. Students will trace the bio-psycho-social development of adolescents with emphasis on the analysis of cognitive and motivational theories related to school learning. Special consideration will be given to opportunities for self-reflection as well as examining the needs of diverse learners This course may involve a field experience in a senior or youth-serving setting. Program requires a grade of "CB" or better. May repeat course one time only. Prerequisite: ES 2000 with a grade of "CB" or better, and admission to Secondary Education program. 3 hours

ED 3090  Assessment and Instruction in Early Childhood Inclusive Education  This course will develop an understanding of how children learn from ages birth through 9 years. Students will use formal and informal assessment information, child development theory and knowledge of children's cultural and family backgrounds to develop individualized learning goals for diverse learners. Requires 3 hours per week participation in the classroom Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors/minors in child and family development, or early childhood. Prerequisite: (ED 2500 or FCS 2140) and (ED 2900 or FCS 1010), with a grade of "CB" or better in all prerequisites. 3 hours

ED 3100  Educational Psychology of Childhood  Students in this course will develop an understanding of how children learn, from birth through early adolescence. Emphasis will be placed on major learning theories, on the growth of positive self-concepts, and on the cognition of these age levels. Students will examine the effects of cultural and gender differences and of discrimination on learning. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors in Elementary Professional, Special Education: Learning Disabilities, and Speech Pathology and Audiology. Prerequisite: ED 2500 and ED 2900; with a grade of "CB" or better in all prerequisites. 3 hours

ED 3500  Young Children, Their Families, and Their Society  Students in this course will study the effects of family, peer group, and society on the development of young children. Emphasis will be placed on family styles and child-rearing practices and their effects on learning and other behavior. Family constellations, the learning of sex roles, the effects of divorce, and similar phenomena will be studied. Consideration will be given to the effect of cultural and subcultural differences on early childhood development and students will look at the contemporary American scene as it affects young children. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors/minors in child and family development, or early childhood professional education. 3 hours
ED 3690 Early Childhood Classroom Organization and Management  Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task; appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Requires a minimum of one (1) day per week participation in a classroom. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors/minors in early childhood professional education. Prerequisites: ED 3090 with a grade of "CB" or better. 3 hours

ED 3710 Elementary Classroom Organization and Management  Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task; appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Requires a minimum of two (2) full days per week participation in a classroom. Includes a weekly two-hour seminar at the school to which the student is assigned. Seminar focuses on building relationships with students, responding effectively to students from diverse cultural backgrounds, accommodating students with special needs, effective record keeping, and problem-solving in daily teaching situations. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors in early childhood professional education, elementary education, physical education: teacher coach, special education curricula endorsement - cognitive impairments and learning disabilities K-12. Prerequisite: ED 3090 or ED 3100, with a grade of "CB" or better in all prerequisites. Corequisite: ED 4500. 3 hours

ED 3980 Special Studies in Education  With variable topics and variable credit, this course is designed for undergraduates who, by virtue of their special interest or concerns, find it desirable to pursue in greater depth topics or problems related to children's educational development. The course will be offered under the following conditions: (1) that a written outline of the offering be approved by the Department Chairperson, and (2) that prior arrangement be made with a faculty member. The course offers variable credit from one through six semester hours. Students may repeat the course so long as topics differ. Each offering of 3980, Special Studies in Education, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 3980 may be applied toward meeting professional program requirements. 1 to 6 hours

ED 4010 Teaching Elementary School Science  This course is designed to introduce students to an inquiry-based sampling of the elementary school science program. Emphasis will be given to the exploration of science concepts, techniques, philosophies, and teaching strategies that form current "best practices" for the elementary and middle school science classroom. The course will introduce pre-service teachers to effective methods for helping children to understand fundamental science concepts while they simultaneously develop an interest in and an appreciation for science. A constructivist approach to learning will form the foundation for all aspects of this course. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors/minors in child and family development, or early childhood professional education. Prerequisite: ED 3090 with a grade of "CB" or better. 3 hours

ED 4060 Instructional Design and Methodology in Secondary Education  This course is designed to prepare students to face the challenges of planning, implementing, and assessing instruction. Emphasis is placed on developing meaningful unit and lesson plans that consider the needs of all learners, as well as instructional tasks that will engage learners. Finally, students will examine the assessment process, with attention to designing appropriate assessment strategies. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors in Secondary Education. Prerequisite: ES 2000 and ED 3000, with a grade of "CB" or better in all prerequisites. Corequisite: ED 4065. 3 hours

ED 4065 Secondary Teaching Methods Pre-Internship  This lab section is the pre-internship experience for pre-service teachers in the secondary education program. Teacher candidates will enroll in one credit of ED 4065 concurrent with ED 4060. This field experience and seminar is a supervised placement in a middle or high school setting with a mentor teacher. Candidates will spend five to six hours per week in the schools. Discussions within ED 4060 are designed to further
the candidates' practical understanding and knowledge about teaching and learning, and to support the development of a professional identity through self-reflection. May repeat course one time only. Graded on a Credit/No Credit basis. Restricted to majors in Secondary Education. Prerequisites: ES 2000 and ED 3000, with a grade of "CB" or better in any prerequisite. Corequisite: ED 4060. 1 hour

ED 4070 Teaching Elementary Social Studies This course is designed to help students understand the role of social studies in the elementary school; gain insight into important considerations in the selection of content, skills, and attitudes; and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with individuals, groups, and the total class will be emphasized. Multicultural and non-sexist content and strategies will be emphasized. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors/minors in Education. Prerequisites: ED 3090 or ED 3100 with a grade of "CB" in any prerequisite; and twelve (12) hours of social science courses. 3 hours

ED 4085 Organizing Learning Environments Students/teacher candidates will examine the organization of classroom environments in terms of effective interaction, instruction, and learning. Students will engage in a critical examination of classroom climate and management, interpersonal relationships as motivational context, and the social context of education. Students will participate in a field-based pre-internship as a component of this course, spending two half days per week in a secondary classroom. Program requires a grade of "CB" or better. May repeat course one time only. Prerequisite: ES 2000, ED 3000, ED 4060, and ED 4065; with a grade of "CB" or better in all prerequisites. Corequisite: Ed 4086. 3 hours

ED 4086 Classroom Environments Pre-Internship Teacher candidates will enroll in one credit of ED 4086 concurrent with ED 4085. This field experience and seminar is a supervised placement in a middle or high school setting with a mentor teacher. The focus of this pre-internship is classroom organization and the learning environment. Candidates will spend five to six hours per week in the schools. Discussions within ED 4085 are designed to further the candidates' practical understanding and knowledge about establishing and organizing the classroom environment, and to support the development of a professional identity through self-reflection. May repeat course one time only. Graded on a Credit/No Credit basis. Prerequisite: ES 2000, ED 3000, ED 4060, and ED 4065; with a grade of "CB" or better in all prerequisites. Corequisite: ED 4085. 1 hour

ED 4090 Seminar in Early Childhood Education The seminar will be directly related to the students' early childhood education classroom experiences; it will further the students' practical understanding of research on effective teaching and effective schools, help to refine their techniques of effective classroom management and curriculum design and enhance students' sense of their own teaching style. The seminar will build the students' self-image as professionals as they are encouraged to take professional responsibility and to practice professional ethics. Must be taken concurrently with ED 4700. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors/minors in child and family development, or early childhood professional education. Prerequisite: ED 3690 with a grade of "CB" or better. Corequisite: ED 4700. 1 hour

ED 4100 Seminar in Education The seminar will be directly related to the students' classroom experiences; it will further the students' practical understanding of research on effective teaching and effective schools, help to refine their techniques of effective classroom management and curriculum design, and enhance the students' sense of their own teaching style. The seminar will build the students' self-images as professionals as they are encouraged to take professional responsibility and to practice professional ethics. It is in the seminar that the ongoing Teaching Portfolio will be completed and reviewed by a faculty committee. Must be taken concurrently with ED 4700 or ED 4710 or ED 4750, depending on program. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors/minors in education. Prerequisites: ED 4700 or ED 4710 or ED 4750, depending on program (may be taken concurrently). 1 to 2 hours

ED 4300 Creativity in the Elementary Classroom An exploration of the contents, processes and achievements of dance, music, theatre, and visual arts and their application as a primary media for communication, inquiry, and insight among elementary students. Emphasis is placed on development of arts literacy, the teacher as problem-solver and creative artist, and the integration of creative processes and structures in elementary school curriculum and instruction that encourages creative problem solving in children. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors/minors in education. Prerequisite: LS 3780 with a grade of "CB" or better and completion of six (6) credit hours in fine arts. 3 hours
ED 4500  Pre-Internship in Elementary Education  This capstone course, required of all students in the Elementary Professional Education minor, will afford students classroom teaching and observation experiences on a regular basis. In addition to the required pre-internship of two half-days per week, students will meet in a seminar with their faculty supervisor. May repeat course one time only. Graded on a credit/no credit (pass/fail) basis. Restricted to majors/minors in education. Prerequisites: LS 3790, ED 4010, ED 4300, ED 4070, and MATH 3520; with a grade of "CB" or better in all prerequisites. Any/all of these may be taken concurrently. Corequisite: ED 3710  3 hours

ED 4700  Intern Teaching: Early Childhood  Only for seniors who have been admitted to teacher education. This internship is required a semester or session prior to the full semester internship. This experience consists of five half-days per week in a fall or winter semester or five full days per week in a summer session in a pre-kindergarten program. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during University course work. They will participate in all phases of the early childhood program where they are assigned. May repeat course one time only. Graded on a Credit/No Credit basis. Restricted to majors/minors in child and family development, or early childhood professional education. Prerequisites: ED 3690 with a grade of "CB" or better. Corequisite: ED 4090.  5 hours

ED 4710  Intern Teaching: Elementary/Middle School  Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. May repeat course one time only. Graded on a Credit/No Credit basis. Restricted to majors/minors in education. Prerequisites: All other courses and program requirements must be completed prior to Intern Teaching. Corequisite: ED 4100. Credits: 5, 8, or 10 hours

ED 4750  Intern Teaching: Middle School/Secondary  Students devote a minimum of five days per week for one semester to Intern Teaching. They are expected to have experience in both the curricular and extracurricular programs of the school in which they teach. May repeat course one time only. Graded on a Credit/No Credit basis. Restricted to majors in secondary education. Prerequisite: All other courses and program requirements must be completed prior to intern teaching with an overall GPA of 2.75 and a grade of "CB" or above in all professional education coursework. Corequisite: ED 4100. Credits: 5, 8, or 10 hours

ED 5010  In-Service Professional Development II  This course develops specific professional skills over an extended period of time related to current school responsibilities of teachers and other school personnel. Final course outcomes need to be demonstrated application to the classroom/workplace. May be repeated, but only three credit hours may be applied to graduate programs within the department. Topics included in department program must be approved in advance of registration by the program advisor.  2 to 3 hours

ED 5020  Curriculum Workshop  Opportunity provided for teachers, supervisors, and administrators in selected school systems to develop programs of curriculum improvement. This may include short-term offerings to resolve a particular curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audiovisual materials, and the like. Each offering of 5020, Curriculum Workshop, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of ED 5020 may be applied toward a Master's degree.  1 to 6 hours

ED 5750  Administration of Child Development Centers  Presentation of trends in child care regulations and/or requirements, and knowledge of administrative materials and duties in providing optimum growth for young children. Includes management, planning, and organizing child development centers. Program requires a grade of "CB" or better. May repeat course one time only. Open to upperclass and graduate students. Restricted to majors/minors in early childhood professional education. (Cross-listed with FCS 5750.)  3 hours

ED 5950  Experiential Education and Place-Based Learning  This course is an invitation to the world of experiential education and place-based learning. In context of current policies and practices in American education, it explores the benefit of "learning by doing," and the potential of "schools without walls. This course is informed by
philosophical conceptions, psychological perspectives, and best pedagogical practices, and is designed for aspiring educators and youth development professionals. Open to upperclass and graduate students.

ED 5980 Selected Reading in Education  Designed for highly qualified students who wish to study in-depth some aspect of their field of specialization under the supervision of a member of the departmental staff. Prerequisite: Written consent of departmental advisor and instructor. 3 hours

Educational Leadership

EDLD 5980 Special Topics in Higher Education  Various seminars exploring contemporary issues and emerging trends relevant to higher education and student affairs that are not offered in other courses. Topics will be designated by professors offering the seminars. Topics are announced in the Schedule of Course Offerings. May be repeated for credit. Open to upperclass and graduate students. This course is not intended to satisfy Program of Study requirements for degree-seeking Education Leadership (EDLD) HESA Masters, Certificate of Educational Leadership Doctoral students unless approved by faculty advisor. 1 to 4 hours.

Engineering Design, Manufacturing and Management Systems

EDMM 1220 Automobile in Society  Applications of principles of Physics, Chemistry, Biology and Technology applied to the automobile. Topics included are: Occupant Protections, Vehicle Control, Physical Strength and Durability of Drivers, Power Production, Global Warming, Power Transmission, Energy Storage and Retrieval, Air Pollution, Use and Re-use of Natural Resources, Choices dealing with Vehicle Selection, Purchase Options, Insurance, Productivity, Maintenance, Societal Consequences and a history of the industry's record of successes and failures. 3 hours (3 - 0)

EDMM 1420 Engineering Graphics  Essentials of engineering graphics including technical sketching, CAD applications, applied geometry, orthographic projection, section, dimensioning, tolerancing, threads and fasteners, weldments, detail and assembly drawing, charting and basic elements of descriptive geometry. All work is according to current ANSI drafting standards. Previous technical drawing is recommended. 3 hours (2 - 3)

EDMM 1430 Product Design Fundamentals  An introduction to the professional practice of design. Topics include social and economic motives for designing; evolution of style in mass-produced products; orthographic, isometric, perspective, and model representation. Students will work on simple creative projects involving one to three part objects and will learn basic methodology principles with emphasis on research and problem identification. 3 hours (2 - 3)

EDMM 1440 Descriptive Geometry  Applications of analytical graphics in solution of engineering and technical design problems. Study of spatial concepts involving points, lines, planes, and solids. Prerequisite: Recommended, EDMM 1420. 3 hours (2 - 3)

EDMM 1500 Introduction to Manufacturing  Analysis and application of a broad range of modern manufacturing techniques utilized in industry. Exploration of production methods as influenced by historical impact, materials, processes, productivity, ethics, and social/environmental concerns. The global challenges to product design, performance, quality, and economic considerations will be investigated. 3 hours (3 - 0)

EDMM 1501 Processes and Materials in Manufacturing Laboratory  The purpose of this laboratory course is to use introductory processes and materials found in manufacturing. Major topics include manufacturing principles and organization, principle processes used to make metal, plastic and ceramic parts, design considerations for computer integrated manufacturing, simultaneous engineering. Prerequisite: EDMM 1500 (may be taken concurrently). 1 hour (0 – 3)

EDMM 2001 Applied Electricity/Electronics  A hands-on foundation exploring and applying fundamental electrical and electronics theory to practical application in everyday industrial settings. An emphasis on the control of various motion actuations and how to troubleshoot the system. Prerequisites: (PHYS 1070 and PHYS 1080) or (PHYS 1150 and PHYS 1160) or (PHYS 2070 and PHYS 2080) with a grade of "C" or better in all prerequisites. 3 hours (2 - 6)

EDMM 2220 Mobile Energy Sources and Lubricants  Principles of energy sources, conversion from fuel to propulsion energy, and recovery of kinetic energy. Lubrication used in transportation will also be discussed and tested. The
course will identify energy development, processing, transport along with specifications and standard testing procedures. The course will include conventional and alternative fuels as well as advanced power production. Prerequisite: College writing.

EDMM 2460 Introduction to Computer-Aided Design Principles of computer graphics technology and applications in CAD hardware and software components, and system operation. Survey of selected commercial CAD systems for production of 2-dimensional drafting and 3-dimensional wireframe part design creation. Emphasis placed upon factors affecting performance and capabilities of comparative CAD systems operation. Prerequisite: EDMM 1420, with a grade of "C" or better.

EDMM 2500 Plastics Properties and Processing Effects of polymer chemistry, additives, plasticizers, fillers, and reinforcements on the properties of plastics. Molding, forming, extrusion, casting, lamination, coating, welding, and decorating of thermoplastic and thermoset materials. Prerequisite: Recommended, CHEM 1100/1110.

EDMM 2540 Machining Processes Introduction of both traditional and non-traditional methods of machining of materials. Relationship of machines, jigs and fixtures, and productive tooling to the machining of discrete components. Introduction to measuring and gauging as it relates to machining practices. Hands on experience with traditional CNC equipment, including production techniques. Prerequisite: Recommended, EDMM 1500

EDMM 2560 Properties of Materials A study of materials and metallurgy involving the mechanical properties of various industrial alloys used in hot and cold processes. Students will gain an understanding of physical properties and microstructures for various industrial alloys. Applications of the foremost ASTM standard tests methods used in primary metals industry (hardness, tensile and impact procedures) are performed. Prerequisites: CHEM 1100 and CHEM 1110, with a "C" or better in all prerequisites.

EDMM 2810 Statics and Strength of Materials Forces on structures, moments, equilibrium. Stresses and deformation in axially-loaded members, torsion members and beams. Elementary design of structural members. Prerequisite: MATH 1220 or MATH 1700 or MATH 2000. A grade of "C" or better is required to satisfy any course prerequisite.

EDMM 2830 Thermodynamics Fundamentals of thermodynamics, first and second laws for open and closed systems, basics of heat transfer. Laboratory practices on thermodynamic system behavior. Prerequisites: (PHYS 1130 or PHYS 2050) and (PHYS 1140 or PHYS 2060); and one of the following: (MATH 1220 or MATH 1700 or MATH 2000). A grade of "C" or better is required to satisfy any course prerequisite.

EDMM 2990 Cooperative Education A cooperative education program involves a full-time planned and supervised work experience in industry during the semester or the equivalent on a part-time basis. A written report of the student's activities will be required. May be elected four semesters for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis.

EDMM 3020 Engineering Teams: Theory and Practice Methods of understanding, planning and presenting a conference with oral and written components. Task groups will be used to explore creativity, controversy, power, and process in leadership situations. Prerequisite: IEE 1020, with a grade of "C" or better.

EDMM 3050 Work Analysis Methods engineering and measurement of human work systems. Techniques for operation analysis, work measurement, and work sampling. Predetermined basic motion-time systems and standard data development are introduced. NOT FOR ENGINEERING CREDIT.

EDMM 3120 Systems Decision Making Investigating decision-making opportunities while incorporating mathematical models and environmental factors such as time, uncertainty, constraints, and multiple goals. Specific emphasis is placed on analyzing problems using a systems approach. Topics include systems analysis, operations research methodologies, dynamic systems, and the application of a variety of computer tools to aid the decision making process. Prerequisite: STAT 2600 or IEE 2610. A grade of "C" or better is required to satisfy any course prerequisite.
EDMM 3150 Work Analysis and Design Lab The purpose of this design course is to use in a laboratory setting introductory principles of work analysis, design and measurement. Major topics include human factors, work design principles, work environment, economic justification, work measurement and the design process. NOT FOR ENGINEERING CREDIT. Prerequisite: EDMM 3050 (may be taken concurrently) 1 hour (0 - 3)

EDMM 3200 Engineering Cost Analysis A course in engineering economics and the economic comparison of alternative technical systems. Includes interest, equivalence, depreciation, taxes, and risk. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 1220 or MATH 1700. A grade of "C" or better is required to satisfy any course prerequisite. 3 hours (3 - 0)

EDMM 3240 Automotive Power Systems The construction, disassembly/reassembly, manufacture, examination of design, simulation, operation, testing of performance and durability serviceability, emissions and recyclability of current and contemporary power plants for automotive and truck use. Emphasis on current designs of SI and CI engines, ASTM tests of fuels, lubricants and coolants as well as evaluation of near-term alternatives such as synthetic diesel and fuel cells. Principles of mechanics, thermodynamics, dynamics and chemical principles as applied to engines and power systems. Prerequisite: Recommended EDMM 1220 3 hours (2 - 3)

EDMM 3250 Automotive Electrical Systems The study and simulation of electrical power production, regeneration, storage, use, and control in current and alternative automobiles and trucks. Focus on the wide variety of electronic operational enhancements as they aid vehicle, safety, comfort, with the reduction of emission, fuel consumption, driver effort, and skill. The manufacture of components and systems, interaction with other systems, efficiency, on-board and off-board diagnostics, and life cycle testing. Prerequisites: Recommended, EDMM 1220 and EDMM 2001. 3 hours (2 - 3)

EDMM 3260 Operations Planning and Control Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. NOT FOR ENGINEERING CREDIT. Prerequisite: STAT 2160 or 2600 or IEE 2610. A grade of “C” or better is required to satisfy any course prerequisite. 3 hours (3 - 0)

EDMM 3280 Quality Assurance and Control Techniques of controlling quality in manufacturing systems. Topics include organization of quality, methods of measurement, and basic statistical tools. NOT FOR ENGINEERING CREDIT. Prerequisite: STAT 2160 or 2600 or IEE 2610. A grade of “C” or better is required to satisfy any course prerequisite. 3 hours (3 - 0)

EDMM 3440 Product and Machine Design Analysis of parts and components under combined loads. Failure criteria, design factors and fatigue considerations. Selection and analysis of mechanical components to meet design requirements for applied motion and force transmission projects. CAD will be utilized to report concepts and products. Prerequisites: EDMM 1430 and EDMM 2810. A grade of “C” or better is required to satisfy any course prerequisite. 3 hours (2 – 3)

EDMM 3460 Programming for Computer-Aided Design Modular software development for interactive CAD. Topics include human interface for interactive design, programming structure for modular entity creation, storing and retrieving object data, utilizing peripheral input and output devices, attribute regulation and control, and software transfer and documentation specifications. Prerequisites: EDMM 2460 and (CS 1110 or CS 1023). A grade of “C” or better is required to satisfy any course prerequisite. (2 - 3)

EDMM 3480 Designing for Production Engineering documentation as it relates to the product development and manufacturing methods required to bring a quality product to market. ANSI and ISO standards will be studied to acquaint the students with the documentation necessary to develop assembly and part drawings and to control the changes that will effect the assembled parts. Material specifications and cost studies will be combined with geometric dimensioning and tolerancing to be applied to parts gages and tooling. The use of CAD is a major part of this course. Prerequisites: EDMM 1420, EDMM 2540, EDMM 2460, and EDMM 2810. A grade of “C” or better is required to satisfy any course prerequisite. Corequisite: EDMM 3540 3 hours (2 - 3)
EDMM 3500 Production Thermoplastic Processing  Injection molding, blow molding, extrusion and thermoforming. Effects of thermoplastic melt characteristics on product design and part quality. Effects of machine design, set-up, and operation on part cost and profitability. Overview of processing machinery including take-off and sizing equipment. Prerequisite: EDMM 2500, with a grade of “C” or better. 3 hours (2 - 3)

EDMM 3520 Metal Casting  Principles of pattern design, molding, pouring, and process analysis using a variety of materials and production techniques. Solidification of metals and alloys as a nucleation and grain growth process. Formation of inclusions and other casting defects will be discussed. Theory and practice in metal casting principles using green sand, investment, centrifugal, and loss foam processes. Prerequisites: EDMM 2540 and (EDMM 2560 or ME 2500). A grade of "C" or better is required to satisfy any course prerequisite. 3 hours (2 - 3)

EDMM 3540 Metrology  Precision measurement, its relationship to geometric tolerances, critical dimensions, and calibration. Statistical process control and quality assurance using manual and automated gauges, checking fixtures, non-destructive testing, and coordinate measuring systems. Use of vision, laser, and other non-contact measuring systems. Prerequisite: IEE 2610. Corequisite: EDMM 3480, with a grade of “C” or better. 3 hours (2 – 3)

EDMM 3580 Computer-Aided Manufacturing  Principles of operation of numerically-controlled systems for manufacturing. Application of CAD/CAM systems and graphics N/C in programming. Prerequisites: EDMM 2540 and EDMM 2460. A grade of “C” or better is required to satisfy any course prerequisite. 3 hours (2 - 3)

EDMM 3840 Fluid Mechanics and Hydraulics  Fluid properties, fluid statics, fluid dynamics, friction loss and fluid power system. Laboratory practices in hydraulic system behavior and fluid power applications. Prerequisites: EDMM 2810 and (PHYS 1130 or PHYS 2050) and (PHYS 1140 or PHYS 2060). A grade of "C" or better is required to satisfy any course prerequisite. 3 hours (2 – 3)

EDMM 4020 Supervision of Industrial Operations  The essential functions of supervision will be presented in this course. Common supervisory duties, obligations, and responsibilities are covered with emphasis on concepts and skills useful in modern engineering and technology organizations. Prerequisite: Junior standing. 3 hours (3 - 0)

EDMM 4040 Plant Layout and Material Handling  This course is designed to give students a comprehensive understanding of the issues involved in the design of an industrial production system. It will cover the problems in plant location, product analysis, process design, equipment selection, materials handling, and plant layout. NOT FOR ENGINEERING CREDIT. Prerequisites: EDMM 3050, EDMM 3260, and Senior standing. A grade of “C” or better is required to satisfy any course prerequisite. 4 hours (3 - 3)

EDMM 4120 Industrial Systems Management  Principles and applications of advanced systems management, including project management, continuous improvement and advanced quality systems. Computer tools to manage systems will be introduced. Philosophies of systems management will be discussed. Students will acquire advanced systems management skills as applied to multiple industries, including manufacturing and service. Prerequisite: Recommended, EDMM 3120 3 hours (3 - 0)

EDMM 4250 Automatic and Automated Drive Line Control Systems  The operation, study of design, manufacture of automatic and hybrid transmissions/transaxles, including hydrodynamic converter, hydraulics, electronics, torque capacities, and gear systems. Measurements and computations for pumps, motor/generator, controller, valve mechanism, clutch, band, and gear system. Includes a study of bearing application, lubrication, heat dissipation and testing of transmission/transaxle and hybrid systems. Prerequisite: Recommended, EDMM 1220 3 hours (2 - 3)

EDMM 4260 Automotive Structure, Ride, and Safety  Study and simulation of the body, structures, and control systems that allow the operator and occupants to travel in a safe, comfortable environment free of annoying vibration. Associated systems include interiors, environmental control, structural stiffness and crush control features, stopping systems including ABS and Traction Control, and Suspension Systems. Emphasis on the evaluation of design, meeting government performance requirements, manufacture, life cycle testing, diagnosis of faults and adjustments of these systems. Prerequisite: Recommended, EDMM 1220 3 hours (2 – 3)

EDMM 4460 Advanced Computer-Aided Design (CAD)  Parametric development and applications customization on selected commercial Computer-Aided Design (CAD) systems. Investigation of existing graphics packages
and advanced software design with special emphasis on surface and solids modeling for design creation, display, and analysis. Prerequisites: EDMM 2460 3 hours (2 – 3)

EDMM 4480 Computer-Aided Analysis Understanding and application of Computer-Aided Design (CAD) principles for design analysis of conceptual designs. Exposure to and utilization of commercial software packages for computer-based design analysis techniques (e.g., Finite Element Analysis - FEA) and customized design evaluation (e.g., symbolic evaluation). Interaction with, and among, selected drafting/modeling and design/analysis packages. Prerequisites: EDMM 4460 and EDMM 3440 and EDMM 3480 (EDMM 3480 may be taken concurrently). 3 hours (2 – 3)

EDMM 4490 Advanced Product and System Design This course covers advanced concepts in engineering design and CAD for proper integration of components into final product or system. Techniques and methodologies related to modeling, analysis, prototyping and improvement are presented in lecture and will be integrated with topics from previous courses. Individual and team projects are undertaken in parallel with a final comprehensive design project. Prerequisite: EDMM 3440 and EDMM 3480 (EDMM 3480 may be taken concurrently). 3 hours (2 – 3)

EDMM 4520 Die Casting A study of the elements of the process and control limits to produce sound castings. An analysis of gating systems will be evaluated with industry computer programs. Alloys will be studied in relation to parts being produced. Prerequisite: EDMM 2540 and ME 2500. Recommended EDMM 3520. A grade of “C” or better is required to satisfy any course prerequisite. 3 hours (2 – 3)

EDMM 4540 Fabrication, Assembly and Finishing Overview of assembly processes including adhesion, cohesion (welding), mechanical fasteners, snap and press fits, forming and fabricating techniques. Product finishing methods including surface preparation of various substrates, painting, plating, anodizing, printing, and vacuum metalizing. Review of the impact of the assembly and finishing procedures on product quality and reliability. Prerequisite: EDMM 2810, with a grade of “C” or better. 3 hours (2 – 3)

EDMM 4560 Process Testing and Measurement Overview of standardized mechanical and thermal testing procedures used to characterize both base materials and product assemblies. Tensile, compressive, flexural, and impact procedures for destructive testing. Measurement with thermal couples, pressure transducers, motion sensors for measurement of both process and resulting product. Prerequisites: EDMM 2810, ME 2500, and (STAT 2600 or IEE 2610). A grade of “C” or better is required to satisfy any course prerequisite. 3 hours (2 – 3)

EDMM 4570 Manufacturing for Sustainability Examines how manufacturing enterprises can develop cost-effective strategies for products and processes that address current and future needs for sustainability. The course focuses on manufacturing processes, systems, and tool/machinery, including energy, materials, and supply chain and distribution factors as they impact manufacturing. 2 hours (2 – 0)

EDMM 4580 Manufacturing Systems Integration Analysis and synthesis of integrated manufacturing systems. Topics include modeling of manufacturing systems and the role of computers in the control and integration of manufacturing systems. Prerequisites: EDMM 2460; recommended, EDMM 2001 and EDMM 3580. A grade of “C” or better is required to satisfy any course prerequisite. 3 hours (2 – 3)

EDMM 4590 Mold Design and Construction Mold and die design, processing and part requirements, molded holes and undercuts, threads, tool-making processes, tooling, materials, special fixtures. Mold and die construction using a wide range of cavity production methods. Computer analysis of temperature, pressure, and filling characteristics of a mold. Prerequisites: EDMM 2500 and EDMM 2540. A grade of “C” or better is required to satisfy any course prerequisite. 3 hours (2 – 3)

EDMM 4870 Manufacturing Productivity Techniques The application of modern systems for engineering design and the re-engineering of manufacturing and service operations from the initial product design to delivery of the final product. Emphasis will be on manufacturing systems, principles, practices and procedures to enhance productivity, quality, and customer service in a global business environment. Prerequisites: Senior standing; ISMJ or ISMN only. 3 hours (3 – 0)
EDMM 4880  Applied Process Reengineering  Application of analytical and process measurement techniques to process design decisions. Benefits of process standardization and improvement. This course is cross-listed with MKTG 4880. Prerequisites: Senior standing; ISMJ or ISMN or permission of instructor.  3 hours (3 – 0)

EDMM 4900  Independent Research and Development  Individual research or special project in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.  1 to 4 hours

EDMM 4910  Multidisciplinary Senior Proposal  Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for multidisciplinary senior project. This course, when completed satisfactorily with EDMM 4920, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Department approval.  2 hours (2 – 0)

EDMM 4920  Multidisciplinary Senior Project  Open-ended multidisciplinary team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation. This course, when completed satisfactorily with EDMM 4910, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Department approval and "C" or better in EDMM 4910.  2 hours (2 – 0)

EDMM 4930  Multidisciplinary Senior Project Consultation  Supervision of open-ended multidisciplinary team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation. Prerequisites: Department approval and "C" or better in EDMM 4910.  1 hour (0 – 3)

EDMM 4950  Special Topics in Engineering Technology  A specialized course dealing, each time it is scheduled, with some particular aspect of engineering design, manufacturing or management systems not usually included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Permission of instructor.  3 hours (3 to 0)

EDMM 4980  Readings in Engineering Technology  Independent readings in engineering design, manufacturing or management systems. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.  1 to 6 hours

EDMM 4990  Studies in Engineering Technology  Independent studies in engineering design, manufacturing or management systems. Open only to students having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.  1 to 6 hours

EDMM 5070  Computer Integrated Manufacturing  Topics related to computer integrated manufacturing. Topics include computer process control, robotics, group technology, CNC, CAD, FMS. Hands-on experience with miniature computer controlled equipment will be included. Open to upperclass and graduate students.  3 hours (3 – 0)

EDMM 5460  Concurrent Engineering  The synthesis of automated design, analysis, and manufacturing processes through integrated computer systems. Topics in automated graphics, wireframe, surface and solids modeling, boundary element analysis, and manufacturing process generation will be investigated. Open to upperclass and graduate students. Prerequisite: Recommended, EDMM 2460 or equivalent.  3 hours (3 – 0)

EDMM 5500  Advanced Plastics Processing  Review of optimum machine components and systems. Identification of key process variables within injection molding and extrusion systems. Discussion of the causes of process instability. Determination of the process capability within injection molding and extrusion systems. Open to upperclass and graduate students. Prerequisite: Recommended, EDMM 2500 or equivalent.  3 hours (3 – 0)

EDMM 5520  Casting Simulation and Solidification  The process of computer simulation illustrates the way a casting is filled and how the alloy is allowed to cool. By simulating the process conditions to observe 3-D fill and solidification, researchers will be able to predict potential defects in the casting and redesign the process to eliminate the defects, before making actual castings. Activities will compare theory to practice. Open to upperclass and graduate students.  3 hours (2 – 2)
EDMM 5570 Topics in Manufacturing
Group study of special topics in manufacturing. The specific topic will be shown in the course title when scheduled. May be repeated for credit with a different topic. Open to upperclass and graduate students. Prerequisite: Department approval. 3 hours (3 – 0)

Educational Technology
EDT 3470 Technology for Elementary Education
An introduction to the contributions of instructional technology to learning and teaching in elementary education. The course will provide a survey of critical use of technology appropriate for meeting or exceeding the 2008 ISTE National Educational Technology Standards for Teachers along with being based on an educational approach called Project-Based Learning (PBL). In PBL, students learn while working on projects, which are complex tasks that involve challenging questions with elements of design, problem-solving, decision making and/or investigative activities. Defining features of PBL instruction include authentic content, authentic assessment, teacher facilitation but not direction, explicit educational goals, reflection, the incorporation of multiple content areas (math, history, science, literature, etc.) and the development of 21st Century skills, such as teamwork, collaboration, and project management. This course introduces various digital technologies which are incorporated into PBL. Restricted to majors in education. May repeat course one time only. 3 hours

EDT 5030 Special Topics for Instructional Technology Applications
This course is designed to permit students to update knowledge and skills in current instructional technology and apply this learning for use in instructional programs. Such applications include methods of using computers, and digital technologies, video and audiovisual technologies for a variety of instructional and communication tasks. Participation in the course presumes subject matter knowledge and basic computer literacy on the part of the students. Final course outcomes include application of material to the classroom/workplace. These different instructional technology offerings bring students with specific needs, instructors with unique expertise together for intensive and highly-focused learning experiences. May be repeated for credit. Open to upperclass and graduate students. 1 to 3 hours

EDT 5410 Foundations of Instructional Technology
This course introduces foundational theories, ideas and history that are critical for the development of expertise in the field of instruction technology. Students will engage with this content in a variety of ways and will be given opportunities to synthesize and apply what they learn in ways that are meaningful and productive for their professional interests. This course also introduces students to a variety of computer-base tools and supports their development of instructional strategies that utilize these tools. Many of the tools presented in this course will be used in the delivery of the course. Open to upperclass and graduate students. 3 hours

EDT 5500 Digital Photography
Intended to sharpen visual perception while improving technical skills, this workshop course emphasizes the photographic process as a creative and expressive medium of visual communication. Using digital photographic equipment, students are expected to produce new photographic images, edit the images using common computer editing tools, and publish the images using common desktop publishing, desktop presentation, and multimedia software for group critique. Each student will be required to find access to appropriate photographic/multimedia and software. May be repeated up to a total of six credits. Open to upperclass and graduate students. 1 to 3 hours

Engineering Management
EM 5050 Continuous Improvement in Operations
The purpose of this course is to introduce business and engineering students as well as managers to the process of kaizen (Continuous Improvement) and Total Employee Involvement. Open to upperclass and graduate students. 3 hours (3 – 0)

EM 5080 Advanced Quality Management
Analysis and application of new concepts in the field of quality control. Tests of significance, probability studies, and other uses of statistics as applied to quality control. Open to upperclass and graduate students. Prerequisite: Recommended, IEE 2622 or EDMM 3280 or IEE 5010 or equivalent. 3 hours (3 – 0)

EM 5120 Management of Service Operations
An analysis of service industries, exploring differences in planning and controlling operations. Emphasis will be on service system design, service quality, and comparing customer expectations with their perceptions. Open to upperclass and graduate students. 3 hours (3 – 0)
EM 5570  Topics in Engineering Management  Study of special topics in engineering management. The specific topic will be shown in the course title when scheduled. May be repeated for credit with a different topic. Open to upperclass and graduate students. Prerequisite: Departmental approval. 3 hours (3 – 0)

Evaluation, Measurement and Research
EMR 5400  Fundamentals of Evaluation, Measurement, and Research  This course is designed to develop skills in the fundamentals of research design and the uses and interpretations of research findings. Each student is expected to prepare a review of literature and a design for a research study. Open to upperclass and graduate students. 3 hours

EMR 5410  Introduction to Educational Measurement and Assessment  This course provides the student with an examination of the basic concepts, principles, and tools used in the construction and use of educational tests, for the evaluation of classroom learning outcomes. Many aspects of testing will be presented: including writing and using educational objectives; constructing tests; evaluating the psychometric properties of a test reliability and validity; interpretation of test scores norms, scales, and grades; and some of the current controversies in testing. Class discussions will additionally include standardized testing in the areas such as achievement, intelligence, and specific aptitudes, and general teacher teaching evaluation. Open to upperclass and graduate students. Prerequisite: EMR 5400 with a grade of "B" or better, or instructor approval. 3 hours

English
ENGL 1000  The Writing Process  A writing course designed to introduce students to a variety of genres, including narrative, personal, creative, analytic, and argumentative. Focus is on development and improvement in writing process skills that can be applied in all disciplines including grammar and usage, sentence and paragraph development, and organization/focus. Does not count toward English major or minor. Graded on a Credit/No Credit basis. Credit for the course will not apply to the number of credits needed for graduation. Prerequisite: Academic Skills Center approval. 4 hours

ENGL 1050  Thought and Writing  A writing course in which the students will work closely with the instructor to develop their sense of language as a means of shaping and ordering their experience and ideas, and to develop imagination, thought, organization, and clarity in their written work. Does not count as credit towards English major or minor. This course satisfies General Education Proficiency 1: college-level writing course. The following pre-programs are excluded from enrolling: Pre-Engineering and Pre-Aviation Flight Science. Prerequisite: Satisfactory ACT English score, or placement essay, or ENGL 1000. 4 hours

ENGL 1070  Good Books  An exploration of good literature, selected from all times and countries experienced in a variety of ways - as fantasy and adventure, as imaginative response to fundamental human experience such as death or evil, as social criticism and analysis, as revelation of character and psychology, as experience of unfamiliar customs and cultures. A course for the general student rather than the student who plans to specialize in the study of literature. Credit towards English major or minor by permission of the department only. 4 hours

ENGL 1100  Literary Interpretation  An introduction to the study of literature, aimed at developing abilities to read literature and write about it with skill, sensitivity, and care. Students will read poetry, drama, and prose fiction, and through the writing of several papers will be introduced to terms and methods of formal study of literature. Course required for entry into most upper-level English courses. This course satisfies General Education Area I: Fine Arts. Prerequisite: ENGL 1050 or BCM 1420 or BIS 1420 or IEE 1020; with a grade of “B” or better in any prerequisite. 4 hours

ENGL 1120  Literary Classics  Readings in selected literary masterpieces from Homer to the present. The works studied are chosen to introduce students to the rich and diverse literary traditions which represent an invaluable aspect of their heritage. Recommended for the general student as well as for potential English majors or minors; does not, however, count for English major or minor credit. This course satisfies General Education Area II: Humanities. 4 hours
ENGL 1500 Literature and Other Arts  Study of literature through its relationship to other arts. The course approaches literature by relating novels, stories, poems, or plays to their representations in other media and art forms, particularly film (including TV), music and song, dramatic representation, and painting.  4 hours

ENGL 2070 Topics in Literature  Course description varies. May be repeated for credit under different topics.  4 hours

ENGL 2100 Film Interpretation  Studies in the motion picture as art form. This course satisfies General Education Area I: Fine Arts.  4 hours

ENGL 2110 Folklore and Mythology  Exploration of folklore and mythology from around the world and through the ages using poetry, fiction, film, and other materials. This course satisfies General Education Area II: Humanities.  4 hours

ENGL 2220 Literatures and Cultures of the United States  Through study of literary works (and, when possible, other artistic achievements or cultural artifacts) by members of the varied cultures which comprise the United States of America, this course considers the perspectives and sustaining values of these cultural groups and considers the challenges, problems, and opportunities of a pluralistic American society. This course satisfies General Education Area III: The United States: Cultures and Issues.  4 hours

ENGL 2230 African American Literature  A survey of important African American writers and the historical development of the African American image and experience in American literature and culture. This course satisfies General Education Area III: The United States: Cultures and Issues.  4 hours

ENGL 2520 Shakespeare  A survey of Shakespeare's art through study of selected tragedies, histories, and comedies. This course satisfies General Education Area II: Humanities. Prerequisite: ENGL 1100 (Theatre majors may substitute THEA 1700).  4 hours

ENGL 2660 Writing Fiction and Poetry  Study and practice in writing of fiction and poetry, intended to develop the student's understanding of formal techniques and skill in the use of these techniques.  4 hours

ENGL 2790 Introduction to English Education  An introduction to the responsibilities, aspirations, and professional knowledge of secondary English language arts teachers.  3 hours

ENGL 2980 Topics in English Studies  Topics may include literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. May be repeated for credit.  1 to 4 hours

ENGL 3050 Introduction to Professional Writing  A writing course designed to help students at the junior or senior level develop reader-centered writing strategies applicable to writing in workplaces and other dimensions of civic life. Projects may include such genres as resumes, proposals, reports, instructions, and user testing, in both print and digital forms. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to English majors/minors or by approval of the department.  4 hours

ENGL 3060 Rhetoric, Writing, and Culture  Investigates rhetorical theory and concepts as tools for analyzing consumer, corporate, organizational, and popular culture. This course satisfies General Education Proficiency 4: Critical Thinking, and Proficiency 4: Advanced Writing.  3 hours

ENGL 3070 Literature in Our Lives  This course examines the ways that literary works represent and reflect upon human experience and the human condition. It emphasizes the response of the individual reader to both the intellectual content and the aesthetic properties of texts and seeks to develop critical standards as a basis for a life-long engagement with literature; does not count as credit toward English major or minor. This course satisfies General Education Area II: Humanities.  3 hours

ENGL 3080 Quest for Self  Exploration of the perennial quest for the self through the special perspective provided by literature. The literary perspectives may be supplemented by materials from other arts or disciplines. A non-
technical course for the general student rather than the student specializing in the study of literature; does not count as credit towards an English major or minor. This course satisfies General Education Area II: Humanities. 3 hours

ENGL 3110 Our Place In Nature Exploration of the human's place in nature through the special perspective provided by literature. The literary perspectives may be supplemented by materials from other arts or disciplines. A non-technical course for the general student rather than the student specializing in the study of literature; does not count as credit towards an English major or minor. This course satisfies General Education Area II: Humanities. 3 hours

ENGL 3120 Western World Literature Study of works selected from the Western literary tradition, excluding those from Great Britain and the U.S.A. Selections may range from biblical literature and great works of Greece and Rome through classics of the Middle Ages and Renaissance to major works of the present. Works will be studied in English. This course satisfies General Education Area II: Humanities. 3 hours

ENGL 3130 Asian Literature Study of works selected from the great literature of Asia, especially the Chinese, Japanese, and Indian traditions. Works will be studied in English. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

ENGL 3140 African Literature Study of works selected from the great literature of Africa, including both traditional and contemporary material. Works will be studied in English. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

ENGL 3150 The English Bible as Literature Study of selections from the Old and New Testaments and the Apocrypha. Some attention will be given to the influence of the English Bible on a few representative writers, musicians, and artists, but emphasis will be on the poetic, philosophical, and narrative elements of the Bible itself. This course satisfies General Education Area II: Humanities. 3 hours

ENGL 3160 Storytellers Storytelling is both universal and specific to each society. The course examines storytellers in non-Western societies: how they work in traditional and written genres; how they transform inherited myths and tales into new narratives; and how they serve society by confronting pain and suffering and contextualizing them in art through the power of words. Course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

ENGL 3200 American Literature I A survey of American literature from its beginnings to 1880, with attention to the diversity of American cultures. Prerequisites: ENGL 1100 3 hours

ENGL 3210 American Literature II A survey of American literature since 1880, with attention to the diversity of American cultures. Prerequisites: ENGL 1100 3 hours

ENGL 3300 British Literature I A survey of British literature from its beginnings through Boswell. Prerequisites: ENGL 1100 3 hours

ENGL 3310 British Literature II A survey of British literature from the Romantics to the present. Prerequisites: ENGL 1100 3 hours

ENGL 3620 Readings in Creative Non-Fiction A course in literary analysis of the form and development of the non-fiction prose. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: (ENGL 1050 or BCM 1420 or BIS 1420 or IEE 1020) and ENGL 1100. 3 hours

ENGL 3660 Advanced Fiction Writing An advanced course in the writing of fiction, with emphasis on class discussion and criticism of each student's writing. May be repeated one time for credit. Prerequisite: ENGL 2660 or department approval. 3 hours

ENGL 3670 Advanced Poetry Writing An advanced course in the writing of poetry, with emphasis on class discussion and criticism of each student's writing. May be repeated one time for credit. Prerequisite: ENGL 2660 or department approval. 3 hours
ENGL 3680  Playwriting  An introductory course in the writing of drama, with class discussion and criticism of each student's writing, and including study of selected examples of drama in print and in production. May be repeated one time for credit. Prerequisite: ENGL 2660 or department approval.  3 hours

ENGL 3690  Writing in the Elementary School  Focuses on writing development of pre-school through middle school children, and on ways one can encourage and respond to student writing, assess writing growth, and use writing as a means of learning. Fosters a theoretical understanding of the writing process in part by writing in varied genres and forms. Emphasizes writing as an integral component of the entire curriculum. Restricted to education students.  4 hours

ENGL 3700  Writing Creative Non-Fiction  An introductory course in the writing of creative non-fiction, with class discussion and criticism of each student's writing, and including study of selected examples of creative non-fiction in print. May be repeated one time for credit. Prerequisites: ENGL 2660 or ENGL 3050 or instructor approval. 3 hours

ENGL 3710  Structures of Modern English  Examines the structures of the English language and surveys major grammatical theories. Emphasizes syntactic analysis of oral and written English to develop an understanding of the diversity of forms, meanings, and stylistic choices available in the language. 4 hours

ENGL 3720  Development of Modern English  Traces the development of modern English from its beginnings to the present, examining historic and linguistic influences on change in both spoken and written English. Explores theories of language development, with emphasis on their practical implications. 4 hours

ENGL 3740  Language in the Elementary School  This course will deal with the following topics: the history and structure of words, dialects, and interlanguage (i.e., lingua franca, a common language used by speakers of different languages) as cultural phenomena; teaching reading and writing in light of language variations; aspects of grammar most useful to writers; research on teaching grammar; and integrating language study into the elementary curriculum. Prerequisite: ENGL 3690  3 hours

ENGL 3770  Language and Learning in Multilingual Classrooms  This course deals with second language acquisition, both oral and written, as a foundation for understanding how the learning of English can be fostered by elementary classroom teachers when content, language, and literacy are taught and learned together. The course emphasizes strategies for teaching students with limited English proficiency while immersing them in literacy-rich classrooms with an integrative inquiry approach to learning. Prerequisite: ENGL 3690  3 hours

ENGL 3820  Literature for the Young Child  An exploration of human and literary values in the best of children's works for the very young through age nine. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature. Discussion will focus on how literature is first learned through adult-child interaction and how interaction creates changes that are influenced by time period and culture as well as the personal dynamics inherent in the oral tradition. Visual reading through picture books will be examined as well as the evaluation of good picture book literature. Developmental issues related to a child's reading capability and narrative skills will be considered through an examination of transitional reader (chapter books) and novels. Poetry, both in its oral form and its written form, will be considered as will be mythology and folklore: its versions, variants, and adaptations (both in book and film form). This course satisfies General Education Area II: Humanities. Prerequisite: Sophomore standing.  4 hours

ENGL 3830  Literature for the Intermediate Reader  An exploration of human and literary values in the best of children's works for preadolescents. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature for the older reader. Discussion will focus on narrative forms and on how the more experienced reader comes to prose and poetry. Novels will be explored both in terms of literary structure and content and in terms of what makes a piece of literature work for children. Genres such as historical fiction, realistic fiction, nonfiction, fantasy, and survival literature will be considered. Ever growing complexity in structure and content will be evaluated as they relate to child's biological, psychological, and mental development, and in the context of cultural and historical change. How media influence literature will be explored as well as the changing population of child-readers and what that means for book production. This course satisfies General Education Area II: Humanities. Prerequisite: ENGL 1100  4 hours

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 3840</td>
<td>Adolescent Literature</td>
<td>This course focuses on an analysis of literature for adolescents from a variety of critical and culturally diverse perspectives. It emphasizes the adolescent experience as reflected in literature, the history of adolescent literature and media, and the distinguishing features of classical and contemporary works.</td>
<td>Prerequisite: ENGL 1100</td>
<td>3 hours</td>
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<tr>
<td>ENGL 4060</td>
<td>Topics in Textual Production</td>
<td>Advanced writing course emphasizing the study and production of specialized genres and media, with attention to the impact of technology on composing, designing, and publishing expository texts. Course may feature such topics as web authoring, multimedia writing, composing for print-based publication, editing and style, or proposal/grant writing. May be repeated for credit under different topics. Restricted to majors or minors in English.</td>
<td>Prerequisite: ENGL 3050 with a grade of “C” or better.</td>
<td>3 hours</td>
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<tr>
<td>ENGL 4080</td>
<td>Topics in Rhetoric and Writing</td>
<td>This writing intensive course examines contributions from scholars working in various sub-fields and specializations in the field of rhetoric and writing studies, with emphasis on the relationship of compositions and/or rhetorical discourse to critical thinking. May be repeated for credit under different topics. Restricted to majors and minors in English.</td>
<td>Prerequisite: ENGL 3050</td>
<td>3 hours</td>
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<tr>
<td>ENGL 4090</td>
<td>Writing in the Sciences</td>
<td>A course designed for science majors and others interested in science communication. The course is focused on how arguments are constructed and how knowledge is formed in the sciences. Students will learn to analyze historical and current examples of scientific argumentation to inform their own writing and research. A significant component of the course will be dedicated to accommodating scientific information for non-expert audiences, and learning the stylistic and argumentative changes that occur with accommodation. The major projects in this class will revolve around students' research interests, including possible projects from coursework in the sciences. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.</td>
<td>Prerequisite: ENGL 3050</td>
<td>3 hours</td>
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<tr>
<td>ENGL 4100</td>
<td>Special Topics in Literature</td>
<td>A study in historical perspective of selected literary works of the English speaking world or international literature in translation. May be repeated for credit as long as the topics are different.</td>
<td>Prerequisite: ENGL 1100</td>
<td>4 hours</td>
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<tr>
<td>ENGL 4150</td>
<td>Literary Theory and Criticism</td>
<td>An introduction to the theory and methods of literary criticism. Readings may be drawn from the history of critical theory or from modern and contemporary schools of criticism. Strongly recommended for all English majors, especially those planning to pursue graduate study. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.</td>
<td>Prerequisites: Two upper-division English courses.</td>
<td>4 hours</td>
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<tr>
<td>ENGL 4160</td>
<td>Women in Literature</td>
<td>A study of literature of different periods and cultures to identify the images of women and to interpret the search for self as experienced by women protagonists and women writers. This course satisfies General Education Area II: Humanities.</td>
<td>Prerequisite: ENGL 1100</td>
<td>4 hours</td>
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<tr>
<td>ENGL 4400</td>
<td>Studies in Verse</td>
<td>A historical and formal study of poetry, emphasizing the development of poetic techniques, major verse forms and styles, and their relation to theories of poetry. Attention shall be paid to the critical and theoretical bases of interpretation. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.</td>
<td>Prerequisites: Two courses at the 3000-level that count toward English major.</td>
<td>4 hours</td>
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<tr>
<td>ENGL 4420</td>
<td>Studies in Drama</td>
<td>Studies in the major styles and forms of drama. Attention shall be paid to the critical and theoretical bases of interpretation. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.</td>
<td>Prerequisites: Two courses that count toward the English major at the 3000-level.</td>
<td>4 hours</td>
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<tr>
<td>ENGL 4440</td>
<td>Studies in the Novel</td>
<td>The study of the development and diversity of the novel as a literary form. Emphasis will be on the novel from the eighteenth- to the early twentieth-century. Attention shall be paid to the critical and theoretical bases of interpretation. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.</td>
<td>Prerequisites: Two courses that count toward the English major at the 3000-level.</td>
<td>4 hours</td>
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<tr>
<td>ENGL 4520</td>
<td>Shakespeare Seminar</td>
<td>Intensive study of selected aspects of Shakespeare's poetic and dramatic art. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.</td>
<td>Prerequisite: ENGL 1100 or ENGL 2520.</td>
<td>4 hours</td>
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</table>
ENGL 4720 Language Variation in American English  A study of regional and social varieties of American English from sociolinguistic perspectives, focusing on the forces which influence different types of language variation. Examines issues of linguistic bias, and offers a multi-cultural perspective on the role of language in daily life. 4 hours

ENGL 4790 Writing in the Secondary School  Focuses on the continued development of student writers in grades 7 to 12, and on ways one can encourage and respond to student writing, assess writing growth, and use writing as a means of learning. Fosters a theoretical understanding of the writing process, in part by writing in varied genres and forms. Emphasizes writing as an integral component of the entire curriculum. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: ENGL 2790 with a grade of "C" or better and two 3000-level English courses that count toward the major. 4 hours

ENGL 4800 Teaching Literature in the Secondary Schools  A study of techniques and theories of teaching literature to young adults. Does not count as credit toward the major. Prerequisites: ENGL 3820 or ENGL 3830. 4 hours

ENGL 4840 Multi-Cultural American Literature for Children  A course designed to develop an understanding of the cultural diversity of the American experience through multi-cultural oral and written literature for young people. Attention will be paid to developing criteria for selecting and evaluating literature which reflects diversity within the American heritage. This course satisfies General Education Area III: The United States: Cultures and Issues. Prerequisites: 16 hours of course work in English, including ENGL 3820 or ENGL 3830. 4 hours

ENGL 4950 Internship/Field Work  Open to juniors and seniors with a 3.0 GPA, this course enables advanced students to gain practical writing experience in the working world while earning academic credit. Specific arrangements are made in consultation with the Director of Undergraduate Studies. May be repeated; no more than four hours total credits. Prerequisite: Writing majors or minors. 1 to 4 hours

ENGL 4970 Studies in English: Variable Topics  Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower. May be repeated for credit. Prerequisite: Department approval. 1 to 3 hours

ENGL 5220 Studies in American Literature  Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5300 Medieval Literature  Readings in the medieval literary tradition. Some Middle English works will be studied in the original; works in Old English and continental literature will be mainly in translation. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5320 English Renaissance Literature  Readings in representative writers of the period 1500-1660. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5340 Restoration and 18th-Century Literature  British Literature 1660-1800. Readings in representative writers of the period, focusing on the diversity of literary forms in the period. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours
ENGL 5360  Romantic Literature  Readings in poetry and criticism, with emphasis on such writers as Blake, Burns, Dorothy Wordsworth, William Wordsworth, Coleridge, Scott, Byron, Mary Shelley, P.B. Shelley, and Keats. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5370  Victorian Literature  Readings emphasizing such writers as Carlyle, Mill, Dickens, Thackeray, George Eliot, Tennyson, Robert Browning, Elizabeth Barrett Browning, and Arnold. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5380  Modern Literature  Readings in representative writers in the period 1890-1945, not exclusively in British and American literature. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5390  Post-colonial Literature  Readings in representative writers from colonial and post-colonial cultures. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5400  Contemporary Literature  Readings in representative writers who have come to prominence chiefly since 1945. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5550  Studies in Major Writers  Study of the works of classical, European, British or American writers. Limited to one or two authors. May be repeated for credit as long as the authors covered are different. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 3 hours

ENGL 5660  Creative Writing Workshop - Fiction  A workshop and conference course in the writing of fiction, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: ENGL 3660 or department approval. 4 hours

ENGL 5670  Creative Writing Workshop - Poetry  A workshop and conference course in the writing of poetry, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: ENGL 3670 or department approval. 4 hours

ENGL 5680  Creative Writing Workshop - Playwriting  A workshop and conference course in playwriting, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: ENGL 3680 or department approval. 4 hours

ENGL 5700  Creative Writing Workshop – Creative Non-fiction  A workshop and conference course in the writing of creative non-fiction, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: ENGL 3700 or department approval. 4 hours

ENGL 5740 Grammar in Teaching Writing  Dealing with issues and methods in the teaching of grammar, this course for teachers focuses on using grammar to develop content, style and voice, and skill in revising and editing writing. Open to upperclass and graduate students. Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies. 4 hours

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ENGL 5750 Icelandic Sagas in Translation  
Readings in medieval Icelandic literature. This class provides students an opportunity to explore medieval Iceland through its rich mythology, literature, and culture. No previous coursework required in either Old Norse/Icelandic or medieval literature. Open to upperclass and graduate students.  
3 hours

ENGL 5760 Introduction to Old Norse   
An introduction to the fundamentals of Old Norse grammar and language. By translating prose and poetry, students will develop an appreciation of the literature and culture of medieval Iceland as well as a reading knowledge of Old Norse. Open to upperclass and graduate students.  
3 hours

ENGL 5770 Advanced Readings in Old Norse  
A review of the fundamentals of Old Norse grammar and language learned in ENGL 5760 by focusing on longer selections from sagas and poems. This class will further students’ knowledge of the language and the literature through discussion of them. Open to upperclass and graduate students.  
Prerequisites: ENGL 5760  
3 hours

ENGL 5820 Studies in Children's Literature  
A study in depth of significant themes, movements, types in children's literature. Open to upperclass and graduate students.  
Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level (which must include ENGL 3820 or ENGL 3830), and second semester junior status; exemption only by permission of Director of Undergraduate Studies.  
3 hours

ENGL 5830 Multicultural Adolescent Literature  
Critical analyses of literature read by young adults, with special attention paid to American and world literatures that reflect the diversity of the increasingly global community. Open to upperclass and graduate students.  
Prerequisites: 18 hours of English courses with a grade of “C” or better, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.  
3 hours

ENGL 5970 Studies in English: Variable Topics   
Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower. Open to upperclass and graduate students.  
Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.  
1 to 3 hours

ENGL 5980 Readings in English   
Individual reading project available to advanced students by special permission from the appropriate departmental advisor (undergraduate or graduate) and the staff member who will supervise the study. Normally, permission is granted only to students who have well thought-out projects dealing with authors or materials not being covered currently in the schedule. Permission is usually not granted to students who want to use the course simply to get one or two hours credit to complete an English major or minor. May be repeated for credit. Open to upperclass and graduate students.  
Prerequisites: 18 hours of English courses, including eight or more hours at the 3000-4000-level, and second semester junior status; exemption only by permission of Director of Undergraduate Studies.  
1 to 4 hours

College of Engineering and Applied Sciences
ENGR 1001 Introduction to Engineering Design  
An introduction to engineering design process and the engineering and engineering technology disciplines. Topics include engineering design process, teamwork, written and oral communications, engineering ethics, and impact of engineering solutions on society.  
1 hour

ENGR 1002 Introduction to Engineering Analyses  
Introduction to Engineering Analyses and exploration of the career opportunities and demands of the engineering and engineering technology professions. Topics include problem-solving, using computer spreadsheet program for engineering analyses, teamwork, communications, and career opportunities and demands of the engineering and engineering technology professions.  
1 hour

ENGR 1990 Engineering Mathematics  
Application of mathematics to introductory engineering problems. Topics include mechanical and electrical engineering applications using: algebra and trigonometry, vectors, sinusoids and
harmonic functions, systems of equations and matrices, simple derivatives and integrals, and simple linear differential equations. Prerequisite: ACT Math score for placement in MATH 1180 or equivalent or instructor approval.

ENGR 2100 First-Year CEAS Experience Designed for first-year CEAS Exploratory students. Focus on students transitioning from high school to college; developing an understanding of the engineering fields and the academic rigor/expectations that will be required of all CEAS students; and in making meaningful, supportive connections with faculty, staff and peers that will result in a strong foundation which leads toward persistence, academic success and graduation.

ENGR 2980 Cooperative Education and Internship A parallel cooperative education program or internship involves part-time planned and supervised work experience related to a student’s major during a semester. A written report of the student’s work activities will be required. May be elected for two semesters. Graded on a Credit/No Credit basis. Prerequisite: Sophomore standing or approval of the academic department.

ENGR 2990 Alternating Cooperative Education An alternating cooperative education program involves full-time planned and supervised work experience related to a student’s major during a semester. A written report of the student’s work activities will be required. Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. May be elected for two semesters. Graded on a Credit/No Credit basis. Prerequisite: Sophomore standing or approval of the academic department.

ENGR 3400 Engineering Global Practices in Non-Western Countries This course is designed to help students develop the necessary skills to allow them to interpret and understand non-western cultures and enable them to successfully work in a global industry. Design, business, manufacturing, problem solving, quality control, and supply chain management developed in non-western countries will be observed and studied. Theories, practices, copyright and patent protection, research protocol review boards, political practices, etc., will be examined. Discussions will include alternative views of engineering and modern technology to stimulate reflections on their characteristics from a global perspective. Pre-visit orientation will be held to provide introduction to culture and language of the host country. Prerequisite: Sophomore standing.

ENGR 3700 Engineering Global Practices in Western Countries This course is designed to help students develop the necessary skills to allow them to interpret and understand other western cultures and enable them to successfully work in a global industry. Design, business, manufacturing, problem solving, quality control, and supply chain management developed in other western countries will be observed and studied. Theories, practices, copyright and patent protection, research protocol review boards, political practices, etc., will be examined. Discussions will include alternative views of engineering and modern technology to stimulate reflections on their characteristics from a global perspective. Pre-visit orientation will be held to provide introduction to culture and language of the host country. Prerequisite: Sophomore standing.

ENGR 3980 Parallel Cooperative Education and Internship A parallel cooperative program or internship involves part-time planned and supervised work experience related to a student’s major during a semester. A written report of the student’s work activities will be required. May be elected for two semesters. Graded on a Credit/No Credit basis. Prerequisite: Junior standing or approval of the academic department.

ENGR 3990 Alternating Cooperative Education An alternating cooperative education program involves full-time planned and supervised work experience related to a student’s major during a semester. A written report of the student’s work activities will be required. Students enrolled in this course will be classified as having full-time student status for the purpose of loan deferments and insurance eligibility. May be elected for two semesters. Graded on a Credit/No Credit basis. Prerequisite: Junior standing or approval of the academic department.

ENGR 4950 Topics in Engineering and Applied Sciences A specialized course dealing with current topics and issues that cut across the engineering and applied sciences disciplines. May be repeated for credit with different topics. Graded on a C/NC basis. Prerequisite: Instructor approval.
Environmental Studies

ENVS 1000 Climate Challenged Society  This course promotes general awareness and literacy on the broad range of societal challenges that climate change presents, the role of human behavior in both the creation of and solutions to these challenges, and the prospects for fundamental societal transition in values, economics and political institutions necessary to meet these challenges. This course satisfies General Education Area V: Social and Behavioral Sciences.  3 hours

ENVS 1100 Nature and Society  This course is an interdisciplinary introduction to the study of environmental studies designed for majors and minors in the program. Through a survey of environmental topics, students will examine changing human relationships to the nonhuman world, diverse approaches to environmental problems, and environmental literature from the humanities to the sciences. The course is reading and writing intensive, and also includes a required weekend camping trip.  4 hours

ENVS 2150 Environmental Systems and Cycles  This course presents an overview of the fundamental physical, biological, and geochemical processes governing the movement of energy and matter in the environment, and the constraints imposed by these natural systems on human activities. Topics include the properties and use of energy resources, synthetic chemicals and their biological effects, the chemistry of natural and polluted water, food production and population, acid rain, ozone depletion, and global climate change.  Prerequisites: (ENVS 1100 or ENVS 3000 or GEOG 1000) and (CHEM 1000 or CHEM 1100 or GEOS 1000 or GEOS 1300) ; or program advisor approval.  3 hours

ENVS 2250 Environmental Ecology  This course focuses upon the study of living systems of various sizes and degrees of complexity. Emphasis is on how individual organisms, natural populations, biotic communities, and ecosystems vary, how they are interconnected, and how human activities influence the complex interrelationships within and among them.  Prerequisites: (ENVS 1100 or ENVS 3000 or GEOG 1000) and (BIOS 1120 or BIOS 1510).  3 hours

ENVS 2260 Field Environmental Ecology  An introduction to the major natural ecosystems of southwest Michigan, and modern ecological methods used in their study. Exercises and activities will be conducted largely in the field, primarily at the Pierce Cedar Creek Institute. Course content will complement lecture material presented in ENVS 2250.  Prerequisite: ENVS 2250 (may be taken concurrently); or program advisor approval.  1 hour

ENVS 3000 Introduction to Sustainability: A Local to Global Survey  This course examines the modern concept of sustainability; its historical roots, theories and debates, emerging principles and practices, and moral visions for the future. From household to global scales, students will analyze interrelated questions of ecological resilience, social justice, technological change, and alternative economic paradigms. Case studies will include core sustainability challenges such as energy, water, food systems, endangered species, land use, and population. The class will require community-based field experience during the semester. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications.  3 hours

ENVS 3200 Major Environmental Writings  This course uses selected readings of classical works in the environmental field, together with current works of significant import, to introduce students to the wisdom and the variety of voices speaking on behalf of the environment and environmentally responsible courses of human action. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  Prerequisites: (ENVS 1100 or ENVS 3000 or GEOG 1000) and (ENVS 2150 or GEOS 2320 or ENVS 2250 or BIOS 3010), with a grade of “C” or better in all prerequisites.  3 hours

ENVS 3300 Climate Change and the Literary Arts  This course explores human responses to the climate change crisis through the special perspective provided by literary studies. We will investigate the ways in which the stories we tell and the words we choose inform the ways we imagine, think, and communicate about, as well as how we mitigate and adapt to the consequences of a warming planet.  3 hours

ENVS 3400 Environmental Policy  This course explores why environmental policy is necessary and how environmental policy has been made, is being made, and might in the future be made in the United States. The emphasis is on environmental policy and regulation at the national level, but regional, state, and local approaches/initiatives will also be considered. In addition to considering the policy process, we will also review the state of environmental policy (legislation and effectiveness) and explore the policy evaluation process (the tools and techniques policy makers use to make better decisions - cost-benefit analysis, risk analysis, and environmental impact assessment). A substantial part of the course will
also be devoted to considering emerging alternatives that are based on the principles of sustainability and the challenges involved in institutionalizing them. Prerequisites: (ENVS 1100 or ENVS 3000 or GEOG 1000) and (ENVS 2150 or GEOS 2320 or ENVS 2250 or BIOS 3010), with a grade of “C” or better in all prerequisites, or instructor approval.

ENVS 3600 Environment and Culture
A global cross-cultural exploration of human-environment interactions. This course will examine a variety of different technological/economic systems ranging from small-scale foraging and horticultural societies to large-scale, complex and stratified societies. Special themes each semester will address different environmental problems and how they have been solved - or not - historically and contemporarily. Such themes might address: the origins and contemporary dimensions of the population debate, the role of "values" in sustainable societies, or controversies between indigenous peoples and environmentalists. Prerequisites: (ENVS 1100 or ENVS 3000 or GEOG 1000) and (ENVS 2150 or GEOS 2320 or ENVS 2250 or BIOS 3010), with a grade of “C” or better in all prerequisites, or instructor approval.

ENVS 3700 Race, Climate, and the Environment
This course provides an interdisciplinary introduction to the study of race and climate. It explores how climate shaped human population evolution, how modern "races" have experienced the impacts of recent climate change in uneven ways, and what might be done to heighten understanding of the future consequences on vulnerable populations of projected climate changes. Prerequisites: (ENVS 1000, ENVS 2150, or GEOS 1200) or instructor approval.

ENVS 4010 Selected Environmental Topics
A rotating series of environmental topics covering areas as broadly as environmental management, ecological design, applied environmental history, and environmental landscape and restoration. Topic to be announced on Course Offerings through GoWMU. This course may be repeated for credit with a second topic. Prerequisite: ENVS 2150, ENVS 3200, ENVS 3400, ENVS 3600 and either (ENVS 2250 or BIOS 3010); or instructor approval.

ENVS 4100 Appropriate Technologies and Sustainability
In the light of the debates on sustainability, the course analyzes how technologies and technological systems have interacted with and influenced social change in both industrial countries and the Third World. Criteria for assessing the appropriateness and sustainability of various technologies and technological systems in different settings will be discussed and mini-assessments will be conducted. Prerequisite: ENVS 1100 or ENVS 3000 or GEOG 1000 or instructor approval.

ENVS 4110 Climate Change and Society
This course explores the social, political, and cultural factors that collectively shape how society understands and responds to climate change. We will trace climate science from its beginnings to present day, investigate how cultural aspects influence our understanding of climate change, identify the ideological positions of supporters and skeptics, analyze current policies and politics, and explore individual and collective actions to meaningfully address the challenges climate change poses to society. Prerequisites: (ENVS 2150, GEOS 2320 or GEOG 1050) and junior standing, or instructor approval.

ENVS 4120 Climate Change and Cultural Studies
This course brings together critical theory and tools from the humanities and social sciences to consider the ethics and politics of climate change, to examine representations of climate change in fictive, documentary, and scientific discourses, and to understand efforts to address climate change as a social movement. Prerequisite: Junior standing or instructor approval.

ENVS 4150 Environmental Law
Surveys the major federal statutes and regulatory schemes relating to environmental quality; analyzes and compares the contrasting approaches to regulation with focus on the interaction of Congress, the regulatory agencies, and the courts in defining and implementing environmental mandates. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. This course is cross-listed with PSCI 4240. Prerequisite: ENVS 3400

ENVS 4200 Internship
The environmental internship gives students the opportunity to gain practical experience in a particular area of environmental activity, and to work with professionals. Students will gain "hands on" knowledge and add an important non-academic dimension to their resumes. Prerequisite: Approval of a program advisor.
ENVS 4300 Environmental Projects  This course is designed for students who wish to carry on advanced interdisciplinary work in Environmental Studies under the direction of a faculty member. Work will be geared to a single project in which there is outside investigation, research, and/or workshop experience. Students selecting this course will work on projects especially designed for their programs. They will be asked to identify a problem, outline an investigatory approach, and consider paths to solving the problem. Prerequisites: Approval of instructor and of a program advisor.  1 to 4 hours

ENVS 4400 Field Experience  This course is a vehicle to provide academic credit for students participating in legitimate off-campus environmental field programs and foreign exchange programs. May be repeated for up to eight hours of academic credit. Prerequisite: Approval of a program advisor.  1 to 4 hours

ENVS 4500 Senior Seminar in Environmental Studies  A team-taught, integrated capstone experience involving a semester-long environmental problem-solving/planning simulation. Students will be evaluated in terms of their ability to function individually and with their colleagues in a simulated professional work environment. As the capstone course, this should normally be the last course taken from the program. Prerequisite: ENVS 2150, ENVS 3200, ENVS 3400, ENVS 3600 and (BIOS 3010 or ENVS 2250/ENVS 2260); or instructor approval.  3 hours

ENVS 5400 Freshwater Policy  This course explores the structure and dynamics of the major policies and politics governing management of freshwater resources. Emphasis is on understanding how underlying social valuation systems of economics, ethics and legal theory shape policy choices and evaluating the role of freshwater policies in achieving sustainable solutions. Open to Upperclass and Graduate students Prerequisites: (ENVS 3400 or PSCI 3060) and ECON 3190, with a grade of "C" or better in all prerequisites.  3 hours

Educational Studies

ES 2000 Introduction to U.S. Education  This course is designed to explore major issues that have provoked public debate and institutional reform in U.S. education. The purpose of the course is to understand the structures and functions of education through historical, sociological and philosophical perspectives. The course explores the interface between secondary schooling and the social, political, and cultural contexts of education. A major aim of this course is to provide an opportunity for pre-education students to orient themselves to a career in teaching.  3 hours

ES 2800 Human Flourishing and the Pursuit of Happiness  This course is designed to address the enduring question "What is Human Flourishing?" Drawing from philosophy, literature and the social sciences, we introduce students to conceptions, visions, and conditions of human flourishing, its changing nature across many periods of Western history, its manifold expressions in contemporary life, and its pursuit in the local community. This course is also an invitation to explore one's own biases about what it is to flourish and achieve (or at least pursue) happiness. This course satisfies General Education Area II: Humanities. May be repeated for credit.  3 hours

ES 3950 School and Society  This course focuses on major issues affecting the advancement of American education in a culturally diverse, democratic society. Course content includes inquiry as to how social, historical, political, philosophical, economic, and legal factors influence educational policy and practice. Connections between school and issues of race, class, gender, and the environment are explored. An interdisciplinary approach is used. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. May repeat course one time only. Restricted to majors in education. Prerequisite: Minimum of 70 earned semester credit hours.  3 hours

ES 5850 Social Justice and Community Organizing  This course is a critical examination of the role of social justice and community organizing in education and society. It is informed by philosophical conceptions, literary perspectives, and best pedagogical practices, and is designed for youth development professionals and aspiring educators. This course will enjoin community partners that provide powerful examples of how individuals and organizations can address social inequities and promote human flourishing. Open to upperclass and graduate students.  3 hours

Family and Consumer Sciences

FCS 1000 Career Seminar  Orientation to special career opportunities in various majors, featuring guest speakers. Specific sections per area of interest.  1 to 2 hours
FCS 1010 Introduction to Family Science  Introduces the field of family science and explores career options in child and youth development, family studies, and family life education. Ethical standards and professional behaviors are emphasized.  
3 hours

FCS 1020 Introduction to the Food Service Industry  The purpose of this course is to learn about professions within the food service industry. Exploration of career paths available to the student will be facilitated, setting the stage for the direction of the Food Service Administration program. Includes focused discussion on sustainability and corporate responsibility in the global marketplace.  
2 hours

FCS 1030 Lifespan Development  Development of individuals and families, and their reciprocal relationships examined within a framework of life-span developmental tasks (physical, cognitive, language, social, emotional).  
3 hours

FCS 1240 Apparel Construction I  Basic construction techniques for apparel products. Addresses how to handle fabrics prior to sewing, and skills commonly used in the construction of clothing. Test available for those desiring placement in upper level courses. Restricted to majors in Fashion Merchandising and Design: Design and Development, Family and Consumer Science Teacher Education, and Pre-Family and Consumer Science Teacher Education.  
3 hours

FCS 1260 The Fashion Industry  An introduction to the manufacturing and merchandising of apparel. This course includes the business, environment, movement, and market centers of fashion. An emphasis on designers, specialty fashion retailers, trends and auxiliary services is explored.  
3 hours

FCS 1490 Design Communication I: Architectural Drafting  Introduction to the tools and techniques to enable the student to read, compose and create architectural drawings related to interior design and construction. This course is restricted to majors in interior design, and majors or minors in industrial tech.  
3 hours

FCS 1500 Introduction to Interior Design  Basic study of the elements and principles of designing and furnishing interiors. This course is restricted to Interior Design majors.  
3 hours

FCS 1550 Design Principles  Introduction to basic principles and elements of design and color fundamentals, with application particularly in the fields of fashion and textiles. Restricted to majors and minors in Fashion Merchandising and Design.  
3 hours

FCS 1560 Introduction to Design Theory and History  An introductory overview of design history and how movements in art, architecture and industrial design have influenced the articulation of interior space over the centuries. Emphasis will be placed on research projects and classroom discussions.  
3 hours

FCS 1570 Sketching for Interior Designers  Development of freehand drawing skills pertinent to interior designers by emphasizing non-mechanical perspective, controlled line quality and presentation. Prerequisite: FCS 1560  
3 hours

FCS 1650 Culinary Skills  Teach basic cooking skills with emphasis on modern trends and techniques for home as well as foodservice operations. Basic food sanitation principles, menu planning, use of kitchen tools/equipment, measurement techniques, serving size and yield information, recipe costing, planning and evaluating food budgets. Basic techniques of food preparation and service are covered emphasizing competency development in culinary skills.  
3 hours

FCS 2020 Field Experience  On-the-job experience under supervision of department with cooperating organizations. Written assignments, documentation of hours and performance appraisal required. May be repeated for credit. Graded on a credit/no credit basis. Restricted to family and consumer sciences majors only. Prerequisite: Department approval required.  
1 to 3 hours

FCS 2050 Topics in Family and Consumer Sciences  Individual topics in five/ten/fifteen week formats, ranging in 1 to 3 hours of credit. Student may elect up to 6 hours of credit if topics vary. Topics to be announced.  
1 to 3 hours
FCS 2090 Family Resource Management A study of the decisions individuals and families make about developing and allocating resources, with emphasis on money, time, and energy management. Includes an overview of decision-making, goal setting, and planning to achieve goals. 3 hours

FCS 2100 Human Sexuality A study of the bio-psychosocial factors of human sexuality, emphasizing an understanding of sexuality as a social construction. Topics include: reproduction and birth, family planning, and contraception; sexually transmitted infections; sexual responses and dysfunction; emotional and physical intimacy; the range of sexual values and behaviors; and legal, ethical, and public policy implications related to human sexuality. 3 hours

FCS 2140 Child Development A study of the development of children (including prenatal, infancy, early and middle childhood) and their families, and the adjustments required to meet children's changing physical, cognitive, and psychosocial needs. Hands-on experience (20 to 26 hours arranged) with children in a structured environment is required. 3 hours

FCS 2150 Adolescent Development A study of the development of adolescents, their families, and adjustments required to meet their changing physical, cognitive, and psychosocial needs. Special emphasis is placed on identity, social, moral, and sexual development of adolescents. 3 hours

FCS 2170 Diverse Children, Families, and Communities This course examines gender, ethnic, and cultural variations in children and families and their communities. Students will focus on the historical and social forces that helped to establish relations of dominance and subordination between groups in our society, examine how their own culture has shaped their perceptions and values, and explore best practices for effective human service work in our diverse society. 3 hours

FCS 2190 Principles of Research in Family Science This course introduces principles of scientific inquiry in social science including understanding and evaluating research, methods used in the pursuit of research, ethical considerations and dilemmas, and skill development in reviewing and writing about scholarly material. Prerequisite: FCS 1010 3 hours

FCS 2200 Textiles Basic textile course emphasizing fibers, yarns, fabric constructions, dyes and printing, and finishes. These five components are studied for their contribution to the characteristics and performance of a textile fabric, and its use and care. Restricted to majors and minors in Fashion Merchandising and Design, or majors in Interior Design. 3 hours

FCS 2220 Fashion Design Studio I A study of the drafting techniques employed in the flat pattern method for designing clothing. Restricted to majors in Fashion Merchandising and Design: Design and Development. Prerequisite: FCS 1240. 3 hours

FCS 2240 Apparel Construction II Continuation of basic construction techniques for apparel products, including skills, pattern alteration and fitting. Emphasis on self-directed individual projects with more difficult fabrics and construction techniques. May be repeated once. Restricted to majors in Fashion Merchandising and Design: Design and Development. Prerequisite: FCS 1240. 3 hours

FCS 2250 Computer Applications An introduction to the essentials of microcomputer usage. The student will gain application skills in word processing, spreadsheets, databases and operating systems. The impact of computer usage in society and ethical computer behavior will also be covered as well as terminology, electronic communications, and hardware and system components. Credit cannot be earned for both FCS 2250 and either CIS 1020, CIS 1100, SOC 1820, PEPR 1490, or CS 1000. 3 hours

FCS 2260 Fashion/Retail Buying Fundamentals of merchandising mathematics, its relationship to buying, and use in the fashion/retail industry. Includes elements of profit and loss statements, purchase discounts, dating, markup, markdown, turnover, and open-to-buy. Also includes sources of buying information, and responsibilities of buyers in various types of firms. Restricted to majors and minors in Fashion Merchandising and Design. Prerequisite: Completion of department’s computer usage requirement. 3 hours
FCS 2300  Computer Aided Design for Fashion  Introduction to the use of CAD software as applied to preproduction tasks in manufacturing of textile and apparel products. Restricted to majors in Fashion Merchandising and Design. 3 hours

FCS 2400  Woodworking  Identification of selected wood species and man-made composites. Basic principles of wood product design are introduced. Aesthetic and ergonomic criteria will be emphasized. Selection of materials, basic processes and tools, introduction to machining and selection and application of finishing materials is taught. Preparation of Industrial Design documentation is required, i.e. 3D, orthographic and working drawings of the product and its parts. 3 hours (2 – 3)

FCS 2490  Residential Architectural Design  The study of architectural plans and principles of residential structures. Plans produced and studied include floor plans, plot plans, foundation plans, electrical plans elevations and all necessary details and specifications. Prerequisites: FCS 1490, FCS 1500, FCS 1560, and FCS 1570. 3 hours

FCS 2500  Interiors CADD Applications  Introduction to computer-aided design and drafting for interior design majors. Prerequisites: FCS 1500, FCS 2250. 3 hours

FCS 2510  Period Interiors I  Influences and characteristics in period decoration and furniture of historical interiors and exteriors from antiquity up to English Victorian. 3 hours

FCS 2520  Period Interiors II  Influences and characteristics in period decoration and furniture of historical interiors and exteriors from Early American through contemporary. 3 hours

FSC 2530  Fashion Illustration  Introduction to concepts, techniques and uses of various drawing techniques and media that facilitate the communication of ideas in the fashion industry. Focus on drawing live models and rendering of fabric, color and texture. Restricted to majors in Fashion Merchandising and Design. Prerequisite: FCS 1550 3 hours

FCS 2540  Materials for Interiors: Hard Finishes  A study of products and finishing materials for the interior environment which considers basic materials, manufacturing processes and the generic characteristics of goods specified by the interior designer. Restricted to majors in Interior Design and Pre-Interior Design. Prerequisites: FCS 1490, FCS 1500, and FCS 1570. 3 hours

FCS 2560  Materials for Interiors: Soft Finishes  Evaluation and analysis of carpets, drapery and upholstery fabrics, carpet and wall coverings products with regard to quality, selection, performance, and maintenance for residential and commercial application. Special attention devoted to material estimating and installation. Restricted to Pre-Interior Design majors only. Prerequisites: FCS 1490, FCS 1570, and FCS 2200. 3 hours

FCS 2590  Studio I  Creation of artistic interiors with appropriate materials, space planning, preparation of graphic documentation, renderings and purchasing data for completing the design process. Prerequisite: FCS 2490 3 hours

FCS 2600  Nutrition  A study of the essential nutrients and their function in the human body. Prerequisites: CHEM 1100/1110 or CHEM 1510/1520. 3 hours

FCS 2660  Personal Nutrition  A study of the effect of personal nutrition on overall health. 3 hours

FCS 2700  Advanced Culinary Skills and Food Service  This course covers the concepts involved in the production of common food items prepared in food service operations. Students will apply the principles learned in a lab setting by actually preparing and sampling varied types of foods and baked goods. Students will become more familiar with ingredients, selection criteria, optimal storage, and techniques of preparation and service in order to gain more practical experience in order to feel more comfortable preparing and serving food. Prerequisite: FCS 1650 4 hours

FCS 2720  Food Purchasing and Resource Management  This course identifies and describes food, supplies, and related merchandise used in the food service industry. Provides methods and criteria for recognizing quality, and evaluating, specifying, purchasing, and inspecting these products. Application of cost controls, development of cost-reduction
methods through management policy and decisions, examination of cost-control techniques for food, labor, and supplies, and emphasis on beverage management control are addressed. Prerequisites: FCS 1650 and ACTY 2100. 3 hours

FCS 3050 Professional Job Search Strategies Extensive investigation of basic elements involved in a job search, including job resume, letter of application, career resources and establishing contacts, and questions and kinesics in the job interview. Restricted to majors in Fashion Merchandising and Design. or Food Service Administration. Prerequisite: Junior standing. 3 hours

FCS 3110 Youth Development Foundations Study of the history, status, and examples of youth programs and youth-serving contexts and organizations; theoretical frameworks used to inform youth work; positive youth development principles and practices; partnering with families, schools, and communities; ethical guidelines; safety and wellness; professional development; state and federal policies. 3 hours

FCS 3120 Curriculum and Assessment in Youth Development Study of developmentally-appropriate tools to assess social-emotional learning of youth; features and characteristics of effective youth development curricula; and methods to promote youth self-regulation, coping strategies, and positive interactions and relationships with peers and adults. Prerequisite: FCS 3110 3 hours

FCS 3140 Infant and Toddler Development Addresses theories related to early development with special emphasis placed on systems theory. Students will gain an awareness of cognitive, physical and psychosocial development of infants and toddlers within our society. This course will address children's development from conception (prenatal factors) up to age three. 3 hours

FCS 3150 Global Ecology of the Family Study of families in the global environment, using social construction theory. Includes an examination of the following factors and influences on families: religion, ethnicity, education, economics, socio-political, family structure and dynamics, gender roles, meals/food preferences, access to healthcare, housing and geographic location, mass-media, relationships with other people (friendships, community and networking systems), and issues related to globalization and tribalism. A social constructionist perspective guides explanation of families from a variety of world cultures. 3 hours

FCS 3160 Early Childhood Assessment and Curricula Study of developmentally-appropriate methods and tools used to assess young children from infancy through age 5, and of established curricula for early childhood educational programs. Emphasis on inclusive practices in assessment and curriculum development and implementation, and on the role of assessment in the selection and development of curricula. Prerequisite: FCS 2140 and FCS 3140 3 hours

FCS 3170 Crises and Resiliency in Families Investigation of violence, alcohol and drug misuse/abuse, disasters, incarceration, illness, loss, and death experienced by families. Protective factors; coping strategies; the process of resilience; resiliency; and educational, legal, and treatment interventions are highlighted. 3 hours

FCS 3180 Intimate Relationships: Friends, Family, and Marriage Exploration of research, literature, and family issues related to formation and maintenance of interpersonal relationships in adolescence and adulthood. Includes study of communication and conflict negotiation strategies for marriage and other relationships. 3 hours

FCS 3190 Administration of Programs for Young Children The focus for this course is designing and leading high quality programs for children birth through age five. Child care environments, program philosophies, administrative skills, and application of developmentally appropriate practice are addressed. Emphasis is placed on the role of parent involvement in the early education of children. Prerequisites: FCS 1010, FCS 1030, FCS 2104 or equivalent, FCS 3140 or equivalent. 3 hours

FCS 3200 Visual Merchandising Specific development of display fundamentals in composition, lighting, color, signing, motion, ideas, organization and management, installation, budget, tools, props, materials, mannequins, store planning, point of purchase, exhibits, showrooms, and special promotion. Restricted to majors and minors in Fashion Merchandising and Design. Prerequisite: FCS 1550. 3 hours
FCS 3220 Fashion Design Studio II  A study of advanced drafting techniques, including computer-aided designing, employed in the flat pattern method for designing clothing. Restricted to majors in Fashion Merchandising and Design: Design and Development. Prerequisite: FCS 2220. 3 hours

FCS 3260 History of Fashion  Survey of the development of costume throughout history and its relationship to contemporary fashion. Restricted to majors and minors in Fashion Merchandising and Design. 3 hours

FCS 3290 Promotion in the Merchandising Environment  Communication principles and strategies important to the promotion of fashion products in the merchandising environment. Restricted to majors and minors in Fashion Merchandising and Design. Prerequisites: FCS 1260 and MKTG 2500. 3 hours

FCS 3300 Entrepreneurship in Family and Consumer Sciences  The course provides students with economic, cultural, political, sociological, and psychological perspectives on the creation and evolution of entrepreneurial ventures. It will provide a broad, practice-based experience in the process of creating and managing a small business in family and consumer science professions with a focus on service-based businesses. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: FCS major, junior status, or permission of instructor. 3 hours

FCS 3460 Nutrition Education and Counseling  Analysis of the teaching-learning and individual counseling processes for dietetic professionals. Included are interpersonal communications, education skills, interviewing techniques, individual counseling techniques and skills, teaching methods for the delivery of one-on-one instruction as well as to small and large groups and to diverse populations. Prerequisites: FCS 2600 and FCS 3150 with a grade of “C” or better in all prerequisites. 3 hours

FCS 3510 Studio II  Introduces the design of the commercial environments. Prerequisites: FCS 2500, FCS 2560 and FCS 2590. Corequisite: FCS 3540. 3 hours

FCS 3520 Professional Practices  An analysis of the professional procedures and practices used in the interior design industry. A survey of the diversified career opportunities in both residential and commercial fields. Prerequisite: FCS 3510. 3 hours

FCS 3530 Introduction to the Construction Environment  The knowledge and awareness acquired in this course will allow students to better appreciate the importance of the construction environment around us. The course provides a broad view of the legal, social, economic and technical considerations necessary to the effective development of various structures. It exposes the students to global challenges such as increasing population, climatic considerations, energy efficiency in construction environments, functional efficiency of building structures, cost reduction, appropriate materials and appropriate technology. This course is restricted to either Interior Design or Industrial Technology majors. 3 hours

FCS 3540 Lighting for Interiors  Considers light as an element of design and investigates its role in designing interiors. Material covered will emphasize the practicalities of appropriate fixture location and specification, blueprint reading and budgets. Restricted to majors in interior design. Prerequisites: FCS 1570, FCS 2490, FCS 2540 and 2590. 3 hours

FCS 3550 3D Computer Visualization  Integrate computer 3D visualization into the design studio ideation process. Students will learn how to construct, work, and design in three-dimensional space. They will create and edit 3D objects and apply rendering, lighting, and material-mapping techniques. Prerequisites: FCS 2500 and FCS 3510. 3 hours

FCS 3590 Studio III  Continued exploration of the design of commercial environments with an emphasis on medium to large scale office interiors. Prerequisite: FCS 3510. 3 hours

FCS 3600 Lifespan Nutrition  This course emphasizes application of nutrition principles to the stages of the life cycle in a cultural context. Skills in assessing and meeting nutrition needs of individuals and families are developed. Prerequisite: FCS 2600. 3 hours
FCS 3650  Understanding Research in Dietetics  This course introduces students to basic research design and applied methods used in research relevant to the field of dietetics. It is designed to prepare students to evaluate and use research in dietetics practice and to equip students with the skills necessary to engage in research and scholarly activities as future investigators. Emphasis is on evaluation of research from settings appropriate to the field of dietetics. Critical examination and evaluation of current controversies and issues in nutrition and food will allow students to learn how to analyze professional and layperson literature. Restricted to majors in Dietetics; FCS 2600 and STAT 3660 with a grade of “C” or better in all prerequisites.  Prerequisites: Junior standing in Dietetics.  3 hours

FCS 3680  Quantity Foods  Course emphasizes quantity food purchasing techniques, safety and sanitation, and quantity foods preparation in residence hall kitchens, school lunchrooms, and other quantity foods institutions.  Prerequisites: FCS 1650, FCS 2600.  4 hours

FCS 3700  Introduction to Food Systems and Sustainability  This course examines the practical and ethical aspects of food production, transformation, service, and consumption on social, economic, and environmental sustainability. Major elements that impact the environment such as use of water, air, land, energy, and transportation will be discussed.  3 hours

FCS 4050  Travel/Study Seminar  Student participation in departmentally sponsored travel/study program in U.S. and/or abroad. Written assignments and planned itinerary. Maximum 2 to 3 foreign, 1 to 2 domestic, not to exceed 4 in total.  Prerequisite: Department approval.  1 to 4 hours

FCS 4110  Youth Development Skills and Processes  Focus on facilitating group interaction and teamwork; modeling effective communication skills; collaborating with families and community organizations; and improving youth development programs through professional development of youth workers.  Prerequisite: FCS 3110  3 hours

FCS 4120  Family Policy  This course will explore the reciprocal linkages between family functioning and public and private policies in this country and across the globe. Students will explore in what ways families contribute to social problems, how families are affected by these problems, and whether families should be involved in policy solutions. Students will assess the consequences policies may have for family well-being. The course will include theoretical frameworks for conceptualizing family policy, roles professionals can play in building family policy, and approaches professionals can use in implementing these roles.  3 hours

FCS 4130  Later Life Family Relationships  The study of family relationships and social roles of people in later life families. Exploration of issues related to the post-parental and aging family system and implications for the development of practice and policy. Restricted to majors in Child and Family Development, Family Studies: Child Development, Family and Consumer Sciences Teacher Education, Family Life Education, Family Studies, Home Economics: Secondary Education.  Prerequisite: FCS 3180 or approval.  3 hours

FCS 4150  Effective Parenting  Study of the relationships between the child, the child's development, the process of parental development, school, and family relationships. Special attention to systems theory as it applies to the family. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to senior standing.  Prerequisite: FCS 2140 and FCS 3180.  3 hours

FCS 4190  Teaching Family Life Education  This course reinforces family life education (FLE) principles and concepts in conjunction with planning, implementing, and evaluating FLE curriculum and programs. Emphasis is placed on developing a sensitivity to diverse personal and community values and a pluralistic understanding of families.  Prerequisites: FCS 1010, FCS 1030, FCS 2100, FCS 2170, FCS 2190, FCS 3170, FCS 3180, and 100+ hours, and either (FCS 2020 or FCS 4290). A minimum grade of "C" is required in all prerequisites.  3 hours

FCS 4220  Product Development  The study of garment manufacturing, including the decision making involved in producing apparel. This course is restricted to majors in Fashion Merchandising and Design.  Prerequisite: 88 credit hours or more and FCS 1260 and FCS 2200 and (either FCS 2260 or FCS 2220).  3 hours

FCS 4240  Apparel Line Development  Development of apparel line from concept to completion, including analysis of fit, cost, quality, and performance. Exploration of textile materials, construction methods, grading, and specifications. Restricted to majors in Fashion Merchandising and Design: Design and Development.
Prerequisites: FCS 2240, FCS 2300 and FCS 3220. 3 hours

FCS 4290 Internship  Off-campus, supervised experience. Specific sections per area of interest. Prerequisites: Department junior or senior; FCS 2020 with a grade of "C" or better; departmental approval required. 2 to 6 hours

FCS 4300 Merchandising Seminar  Capstone course for TEX majors. Students will integrate and apply principles and theories from textile and apparel, marketing and management courses to the contemporary fashion merchandising environment. Restricted to majors and minors in Fashion Merchandising and Design. Prerequisites: FCS 1260, FCS 2260, and MKTG 2500, MGMT 3000. 3 hours

FCS 4510 Studio IV  In this course each interior design student will continue investigating the design of business/commercial interiors with the first phase of a thesis project. The primary emphasis of this course will be the development of a programming document that is an organized presentation of information pertinent to the selected project. The programming document will include a summary of existing research related to the student's topic. This course will fulfill the University's Baccalaureate writing requirement for interior design students. Prerequisite: FCS 3590. 4 hours

FCS 4590 Studio V  Capstone course in investigation and execution of special problems and projects in the field of interior design. Prerequisite: FCS 4510. 4 hours

FCS 4600 Medical Nutrition Therapy I  A focus on the development of individual nutrition care plans using the techniques of the Nutrition Care Process: assessment, nutrition diagnosis, intervention, and evaluation and monitoring. Medical Nutrition Therapy (MNT) will be discussed for selected disorders. Drug-nutrient interactions and associated medical terminology are also discussed. Case studies allowing integration of MNT principles are a prominent feature of the course. Prerequisites: Senior standing in dietetics; FCS 3600, FCS 3650, BIOS 2400 and CHEM 3550 with a grade of “C” or better in all prerequisites. Corequisite: FCS 4630. 4 hours

FCS 4610 Medical Nutrition Therapy II  This course is a continuation of FCS 4600 and examines the Medical Nutrition Therapy for disorders of the liver, biliary, renal, cardiovascular, endocrine, and pulmonary systems. HIV/AIDS, critical care, and eating disorders are also discussed. Case studies allowing integration of MNT principles are a prominent feature of the course. Prerequisite: FCS 4600. Corequisite: FCS 4640. 4 hours

FCS 4620 Community Nutrition  This course will utilize online technology to engage students in a study of the structure of community nutrition programs including the roles of government, health care, economics, and public policy. Prerequisites: FCS 2600 and FCS 3600. 3 hours

FCS 4630 Medical Nutrition Therapy Laboratory I  Skill development in nutritional assessment via performing anthropometric measurements, biochemical analysis, physical exam, and diet history. Nutrition counseling and interviewing, as well as documentation and charting are also discussed. Students are also introduced to parenteral and enteral products, practice calculating individual formulations, and become familiar with feeding tubes, pumps, and catheter care. Corequisite: FCS 4600. 1 hour

FCS 4640 Medical Nutrition Therapy Laboratory II  A focus on further development and application of skills needed for Medical Nutrition Therapy of liver and gallbladder disease, diabetes, cardiovascular disease, renal disease, cancer, stress/hypermetabolism, eating disorders and weight management. Corequisite: FCS 4610. 1 hour

FCS 4660 Institutional Management  Study and application of multiple systems involved in the management of food service operations in a variety of settings. Restricted to majors in Dietetics. Prerequisite: Senior standing in dietetics or foodservice administration and FCS 2600 with a grade of “C” or better. 4 hours

FCS 4670 Professional Issues in Dietetics  This course will acquaint senior dietetic students with concepts and skills important to professional life. It will allow students to integrate knowledge and theory of nutrition, food, management, communication skills, and social and behavioral sciences necessary to support quality dietetics practice. This course will also allow students to develop a perspective in dealing with issues such as professional ethics and how to function as a member of the health care team. Current public policy and health care reimbursement issues as they influence dietetics practice and the role of registered dietitian in the U.S. health care system will be explored. Restricted to majors in Dietetics.
Prerequisites: Senior standing in dietetics; Phil 3340, FCS 3600, and FCS 3650 with a grade of "C" or better in all prerequisites. 2 hours

FCS 4680 Advanced and Experimental Foods Understanding the physical and chemical properties of foods by use of objective and subjective testing methods. This course is approved as a writing intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Senior standing in dietetics; FCS 1650, FCS 2600, FCS 3650 and CHEM 3700/3710 with a grade of "C" or better in all prerequisites. 4 hours

FCS 4690 Nutrient Metabolism This course builds on basic concepts of biochemistry to explore the structure, function, and metabolism of nutrients in the human body. Topics include energy metabolism, function and regulation of enzymes and coenzymes, and the cellular environment as it relates to metabolism of nutrients. Restricted to majors in Dietetics. Prerequisites: Senior standing in dietetics; CHEM 3550 and FCS 3600 with a grade of "C" or better in all prerequisites. 3 hours

FCS 4700 Food and Beverage Systems This course emphasizes the food and beverage concepts essential to all hospitality managers. Areas such as beverage operations, food-production systems, food-service and delivery systems are studied. Methods for identification, management and control of those beverages used in the hospitality industry are discussed. The course will include lectures and tastings of actual product, beverage service methods, spirits identification and production, legal liabilities, service methods and controls. Responsible alcohol service - personal and professional - is emphasized. The National Restaurant Association ServSafe program is utilized and students have the opportunity to gain their ServSafe certification (responsible alcohol training) by successfully completing the national certification exam. Prerequisites: FCS 1650, FCS 2700 and Senior standing. 3 hours

FCS 4720 Farm to Table and Sustainability This course focuses on improving the ways we meet the need for increased food production across America. Coursework will include how the vitality of America's communities is bound to the successes and failures of its farmers. Agricultural and operation issues address the delivery of fresh, local food and how the lives of farmers and communities have changed as we work to create healthy soil, healthy animals, and healthy food. In the context of federal policy the course examines growing competition from abroad, public misconceptions regarding government subsidies, the dangers of environmental damage and genetically modified crops, and the myths of modern economics are addressed. 3 hours

FCS 4740 Global Food Systems and Sustainability This course is designed to equip students with a basic macro-level understanding of the global food system and challenges to creating a more sustainable system. Topics covered include food production, transformation, distribution, marketing/retain, and consumption as well as food system impact on natural resources, social justice issues, diet and health, and social movements. Policy decisions and regulations to achieve societal goals will also be discussed. Prerequisite: Junior or senior standing. 3 hours

FCS 5100 Teaching Sexuality Education Teaching Sexuality Education is designed as a teaching methods course to prepare family life educators, secondary education instructors, and other human service professionals for the implementation of sexuality education in school-base curricula and/or in a variety of community settings. 3 hours

FCS 5110 Kinship Care Family Members: Strengths and Challenges Focuses on highlighting varying experiences and realities for multi-generational kinship care family members, including adult caregivers, the children in their care, and children's biological parents. Common challenges will be presented, along with strategies for assisting family members in resiliency building and accessing available resources. Socio-cultural differences, both within the United States and internationally, will be examined. Topics addressed in this course may vary to some extent each semester, depending on students' professional experiences, needs, and interests. Open to upperclass and graduate students. 3 hours

FCS 5120 Educational Systems and Kinship Care Families Explores the interface between educational systems and kinship care families. Topics will include the history of family engagement in U.S. schools, current practices in American schools, educational risks for children living in poor families, models and strategies of family engagement and common school-related experiences for kinship care family members. Students will focus on strategies for reducing educational challenges for both kinship caregivers and children living in kinship care families. Open to upperclass and graduate students. 1 hour
FCS 5130 Health Care and Kinship Care Families  Focuses on health care systems in the United States and their interfaces with kinship care family members. Topics will include the evolution of health care in the United States, current status of health care systems within the U.S., common health challenges for kinship care family members and effective responses and programming. Open to upperclass and graduate students. 1 hour

FCS 5140 Economic Realities and Kinship Care Families  Focuses on theories of family economics as well as financial challenges and realities for kinship care family members. Topics will include an overview of family economic theory, poverty in the United States, financial information and challenges for kinship care families, and an analysis of existing and needed services and programs. Open to upperclass and graduate students. 1 hour

FCS 5220 Topics in Family and Consumer Sciences  A study of the current issues impacting the areas of study in Family and Consumer Sciences: dietetics and human nutrition, family life education and family and consumer sciences, textile and apparel technology, or career and technical education. Students may elect up to six (6) hours if topics vary. Topics to be announced. Prerequisite: Seniors and graduate students only. 1 to 3 hours

FCS 5240 Socio-Psychological Aspects of Dress  Study of dress and adornment in human interaction. Considers the body in social and cultural contexts, dress in various stages of human development and in individual and group behavior. Uses an interdisciplinary approach to dress-related research. Restricted to majors and minors in Fashion Merchandising and Design, or Family and Consumer Science Teacher Education. 3 hours

FCS 5250 The Adolescent in Development  The study of individuals between 10 and 22 years of age, the changes that characterize these years, and the role of the family and school in supporting and enhancing development. 3 hours

FCS 5340 Consumer Behavior in the Fashion Environment  This course is designed to give students an overview of the important topics in consumer behavior research and practice as they relate to the fashion/retail environment. Restricted to majors and minors in Fashion Merchandising and Design. Prerequisite: Junior or Senior status or graduate level. 3 hours

FCS 5350 Communication Skills for Working with Families Across the Lifespan  Laboratory study designed to develop interpersonal helping skills in delivery of family life education. The location of family life education within the range of helping professions is examined. Open to upperclass and graduate students. Prerequisite: Graduate student or undergraduate with 100+ hours. 3 hours

FCS 5440 Global Aspects of the Fashion Industry  The course addresses issues facing fashion-related businesses in global markets, including ethical, economic, political, socio-cultural and professional aspects of working in a globally connected industry. Restricted to majors and minors in Fashion Merchandising and Design. Prerequisite: Undergraduate: Junior or Senior status or graduate level. 3 hours

FCS 5500 Raising Children in Contemporary Society  This course examines contemporary societal factors that influence children and parenting. 3 hours

FCS 5510 Families and Hospitalization I  This course introduces students to aspects of hospital and medical interventions as they affect children and their families, and the role of child life specialists in making health care experiences positive ones. Open to upperclass and graduate students. 3 hours

FCS 5520 Families and Hospitalization II  This course builds on theories and skills learned in Families and Hospitalization I, with emphasis on interventions and techniques used regularly by child life specialists. In addition, content will focus on professionalism, the process of certification as a child life specialist, and the field of child life in preparation for a successful practicum/internship. Open to upperclass and graduate students. Prerequisite: FCS 5510 with a grade of "B" or better. 3 hours

FCS 5530 Advanced Child Life Practice  This course addresses advanced practices in child life, such as administering a child life program, facilitating support groups, and pain management strategies used in pediatrics. Open to upperclass and graduate students. Prerequisite: FCS 5510 with a grade of "B" or better. 3 hours
FCS 5680  Gender, Culture, and Families  Study of the implications of gender and cultural orientation for family, work, social interactions and therapeutic interventions. Includes an examination of sexism and racism in the media, advertising, educational institutions, and social policies. Prerequisite: Graduate or undergraduate with 100+ hours. 3 hours

FCS 5750  Administration of Child Development Centers  Examination of day care and preschool regulations and/or requirements, and knowledge of administrative materials and duties in providing optimum growth for young children. Includes management, planning, and organizing child development centers. (Cross-listed with ED 5750.) 3 hours

FCS 5900  Project/Problems in Family and Consumer Sciences  Directed independent project in specialized curricula within Family and Consumer Sciences. Prerequisite: Department approval. 1 to 4 hours

FCS 5980  Independent Study in Family and Consumer Sciences  Directed independent advanced study in subject matter area not otherwise treated in departmental courses. Prerequisite: Department approval required prior to enrollment. 1 to 6 hours

Finance
FIN 1010  Personal Finance  Designed to enable a student to make informed financial decisions. The course includes management of income, savings, and investments. Various types of consumer debt are covered, including credit cards, car loans, and student loans. The course also covers personal income taxes, real estate purchases and mortgages, insurance, retirement planning, and estate planning. 3 hours

FIN 2420  Entrepreneurial Finance  This course provides an understanding of the financial decision-making process facing entrepreneurs in small business firms. The course is conducted on a lecture-case discussion basis. Among the topical areas covered are the following: Financial sources available, working capital management, capital budgeting, assessment of risk and valuation techniques. These and other areas are treated from the viewpoint of the entrepreneur in a small business setting. 3 hours

FIN 3100  Introduction to Financial Markets  A survey of financial markets and intermediaries with emphasis on their structure, social justification, and current status. This course provides additional background for advanced study in finance and a practical foundation for those students interested in an exposure to the financial system. Restricted to majors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: ACTY 2100. 3 hours

FIN 3200  Business Finance  Presents a basis for understanding the financial management function of the business enterprise. Considers financial principles and techniques essential for planning and controlling profitability and liquidity of assets, planning capital structure and cost of capital, and utilizing financial instruments and institutions for capital raising. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: ACTY 2100 and (STAT 2160 or STAT 3660 or MATH 2160 or MATH 3660 or IEE 2610), or equivalent. 3 hours

FIN 3300  Real Estate Fundamentals  Supplies the basis for comprehension of the basic economic characteristics and techniques used in the real estate business. Treats real estate resources, marketing, financing, valuation, and trends. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. 3 hours

FIN 3310  Real Estate Finance  Considers the field of real estate finance from the viewpoint of sources of funds, various real estate contracts, valuation techniques, appraisals of residential and income properties and the various aspects of risk analysis in real estate. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: FIN 3200 3 hours

FIN 3350  Small Business Finance  This course provides an understanding of the financial decision-making process facing entrepreneurs in small business firms. Among the topics covered are financial resources available, working
capital management, capital budgeting, assessment of risk and valuation techniques. Topics are treated from the viewpoint of the entrepreneur in a small business setting. Prerequisite: FIN 3200 3 hours

FIN 3360 Funding New and Growing Ventures This course focuses on how entrepreneurs obtain the financing necessary to launch and develop a venture. Students will incorporate a life cycle approach in their analysis and study the financing needs and options for entrepreneurs in the initial development, start-up, rapid growth, and maturity stages of a venture. The concepts and theories underlying the financing decision of entrepreneurial enterprises will be studied, and students will learn how the theory can be applied in practice. The course format includes both lecture and cases. Prerequisite: FIN 3200 3 hours

FIN 3410 eFinance The global electronic marketplace is causing a dramatic change in financial practices. Thus, it is necessary to understand the implications of these changes on the economic structure of financial markets and more specifically how these changes are affecting all areas of finance: corporate, investments, markets and institutions, international, personal financial planning, insurance and real estate. This course provides a framework for meeting the challenges posed by this new technology. Students demonstrate proficiency through technology-related projects, exams and team presentations. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: FIN 3200 3 hours

FIN 3450 Computer Applications in Finance Apply commonly used computer software and data systems to finance. Examples of the computer software used are Excel, Expo, Minitab, SAS, and Word. Financial information is obtained from websites or financial databases such as Compustat and CRSP. Some of the finance problems studied are creating cash budgets and loan amortization tables, estimating beta and forecasting financial needs. Students demonstrate computer proficiency through projects, exams and team presentations. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: FIN 3200 3 hours

FIN 3510 Investment Analysis A survey of the securities markets from the viewpoint of the novice investor. This course includes a study of market operations, trading techniques, special investment vehicles such as options and warrants, and a consideration of the investment objectives and practices of institutional investors. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: FIN 3200 3 hours

FIN 3600 Risk and Insurance A comprehensive course that considers the nature and orientation of insurance risks and their management. Major business and personal risks are analyzed and their insurance treatment evaluated, as are the functional aspects of insurer operations. The impact of insurance on public policy is also considered. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: FIN 3200 3 hours

FIN 3710 Personal Financial Planning This course covers the various elements of the financial planning process. Topics include Risk Management, Investment Planning, Tax Planning, Retirement Planning and Estate Planning, as well as technological innovations in the financial services industry. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: FIN 3200 3 hours

FIN 3720 Estate Planning The course examines legal, financial and practical considerations in the creation, management and conservation of an estate. Various types of property interests (joint tenancy, tenancy in common, community property) are reviewed. The use of revocable and irrevocable trusts, gifts, powers of attorneys, retirement and custodial accounts are discussed. The influence of federal estate and gift and state taxation rules on estate planning techniques is examined. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: FIN 3200 3 hours

FIN 3730 Retirement Planning and Employee Benefits This course covers all the major retirement-related issues. Retirement plan design, social security, Medicare and similar plans are studied. In addition, group life, health, and disability insurance, non-qualified deferred compensation, and other commonly-provided employee plans are examined. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: FIN 3200 3 hours
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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>FIN 4120</td>
<td>Global Financial Markets</td>
<td>This course covers the functions and operations of global financial markets. Securities markets, along with commercial and investment banking, will be studied. Consideration will be given to issues in international debt, equity, and derivative securities markets. Policy implications for investors as well as corporations and governments are included. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.</td>
<td>FIN 3100 and FIN 3200.</td>
<td>3 hours</td>
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<tr>
<td>FIN 4140</td>
<td>Management of Financial Institutions</td>
<td>This course is devoted to in-depth analysis of the operations of selected financial institutions with emphasis on management decision-making processes. Case analysis and analytical problems are included in the course content. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.</td>
<td>FIN 3100</td>
<td>3 hours</td>
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<tr>
<td>FIN 4250</td>
<td>Short Term Financial Management</td>
<td>An analytical approach to the study of short term financial management. In connection with Treasury Management Association this course is approved for the Certified Cash Manager Associate Program (CCMA). An emphasis is placed on the working capital topics specifically addressed in this program. In addition to the practical emphasis of the CCMA approach the course will include the theoretical underpinnings of short term financial management utilizing cases and lectures to fully cover financial decision making in the area of working capital management, financial analysis, and forecasting. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.</td>
<td>FIN 3200</td>
<td>3 hours</td>
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<tr>
<td>FIN 4260</td>
<td>Corporate Finance: Theory and Practice</td>
<td>An analytical approach to the study of the concepts and theories underlying the financial decisions of corporations and business enterprises. In addition to theoretical framework, the course includes cases covering financial decision making processes in the areas of capital budgeting, long-term financing decisions, financial structure, cost of capital, dividend policy, merger, corporate restructuring and valuation. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.</td>
<td>FIN 3200</td>
<td>3 hours</td>
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<tr>
<td>FIN 4320</td>
<td>Real Estate Investments</td>
<td>The effect of various forms of taxation, market conditions and governmental policies as they affect the investor's spendable income are reviewed. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.</td>
<td>FIN 3200</td>
<td>3 hours</td>
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<tr>
<td>FIN 4330</td>
<td>Real Estate Appraisal</td>
<td>A study of the sources of real estate value, the techniques for estimating property value, and the effective use of appraisal information. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.</td>
<td>FIN 3200</td>
<td>3 hours</td>
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<tr>
<td>FIN 4370</td>
<td>Real Estate Management</td>
<td>Management of income producing properties as an agent of the owner. Consideration of professional standards, business promotion, leasing, insurance and maintenance. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.</td>
<td>FIN 3200</td>
<td>3 hours</td>
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<tr>
<td>FIN 4420</td>
<td>International Finance</td>
<td>A study of contemporary problems in international finance. The course examines the international money markets, working capital considerations and capital budgeting problems as faced by the multinational corporation. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.</td>
<td>FIN 3200 or instructor approval.</td>
<td>3 hours</td>
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<tr>
<td>FIN 4480</td>
<td>Internships in Finance</td>
<td>Under the direction of a faculty advisor, students obtain employment experience with industrial, commercial, and financial enterprises (commercial banks, brokerage firms, etc.), with insurance companies or firms with an insurance division or department, or with a real estate firm or enterprises with a real estate department or division. Students are required to file periodic reports to the advisor. In addition, the firm's executives evaluate them. May be repeated for credit. No more than 3 hours can be used as credit toward a major or minor. (May be substituted for BUS 3900 Business Internship.) Restricted to students majoring in finance or minoring in finance, insurance, or real estate.</td>
<td>Written approval of instructor and department chair is required.</td>
<td>1 to 5 hours</td>
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<tr>
<td>FIN 4530</td>
<td>Securities Analysis</td>
<td>An analysis of stocks and bonds as investment vehicles. The course is designed as a sophisticated analysis of valuation techniques with a view towards aiding the student to bridge the gaps</td>
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between techniques used by the academician and the practitioner. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: FIN 3510 3 hours

FIN 4710 Applications in Personal Financial Planning This course examines professional issues in financial planning, including ethical considerations, regulation and certification requirements, written and oral communication skills, and professional responsibility. Successful completion of the course requires the integration of skills learned in other courses, such as insurance, tax planning, investments, retirement planning, and estate planning. Students must successfully solve problems, mini-cases, and a comprehensive personal financial planning case. This is a capstone course for the personal financial planning curriculum. Prerequisites: ACTY 3240, FIN 3510, FIN 3600, FIN 3720 and FIN 3730 (ACTY 3240, FIN 3600, FIN 3720 and FIN 3730 may be taken concurrently). 3 hours

FIN 4980 Readings and Research in Finance Directed individual study of finance topics that are not treated in departmental course offerings. Restricted to majors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: Written approval of instructor and department chair is required. 1 to 3 hours

FIN 5530 Student Managed Investment Fund A course in which students get hands-on experience in investment research and portfolio management. Under the guidance of an instructor, the students have fiduciary responsibility to manage a portfolio of real money on behalf of the WMU Foundation, subject to the WMU Foundation Investment Policy Statement and other guidelines provided by the WMU Foundation Investment Committee. The students, acting as research analysts, utilize quantitative, qualitative and fundamental analysis to determine whether a financial security should be included in the portfolio. The students must present their research findings to the class. Admission to this unique class is by application, and class size is limited to 10 to 15 students. Restricted to majors in Finance and Personal Finance Planning. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: FIN 3510 3 hours

French

FREN 1000 Basic French I Fundamentals of French. A four-skills approach (speaking, listening, reading, writing) with emphasis on communication. Introduction to cultural aspects of France and other Francophone countries. This course satisfies General Education Proficiency 4: Foreign Languages. 4 hours

FREN 1010 Basic French II Continuation of FREN 1000. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 1000 or equivalent. 4 hours

FREN 2000 Intermediate French I The development of French language skills in listening, speaking, reading, and writing, with an emphasis on communication. Increased competence in French and Francophone cultures. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 1010 or two years of high school French, or equivalent. 4 hours

FREN 2010 Intermediate French II The continued development of spoken and written expression in the French language through readings and discussions of civilization and culture materials. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 2000 or equivalent. 4 hours

FREN 2750 Francophone Culture This course, taught in English, is an introduction to various aspects of the culture of non-European countries and regions in which the French language plays a significant role. It will offer a critical and historical perspective on the cultural and social effects of colonialism and decolonialism. This course does not count toward a French major or minor. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

FREN 3150 French for the Professions This course aims to develop profession-specific language skills in order to allow students to communicate in French with other professionals in different fields, such as medical and paramedical, scientific and diplomatic. Vocabulary-building and simulations of practical professional settings will be practiced. The course will also discuss the targeted professions in a global setting and comparative policies in France, Canada, selected African countries, and the United States. May be repeated for credit. Prerequisite: FREN 2010 with a grade of "C" or better, or equivalent. 3 hours
FREN 3160  Introduction to Advanced French Studies  A review of French structure, form and use; focus on the development of communicative competence and on grammatical difficulties encountered by non-native users. Emphasis on the development of academic writing and speaking skills in preparation for content courses. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 2010 with a minimum grade of "C", or equivalent. 4 hours

FREN 3170  French Conversation  Exercises to develop ease and accuracy in the use of everyday French. Emphasis on oral aspects of the language. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 2010 with a minimum grade of "C", or equivalent. 4 hours

FREN 3200  French Phonetics  Study and practice to correct typical difficulties encountered by students of French with Anglo-American patterns of pronunciation; also to study the teaching of French patterns. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 2000 with a minimum grade of "C", or equivalent. 3 hours

FREN 3220  Life and Culture in France  A study of French civilization based on historical, geographical, literary considerations and art and how those factors illustrate the character and traditions of French people from the medieval period through the present day. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 3160 with a minimum grade of "C" or better. 3 hours

FREN 3230  Life and Culture in the Francophone World  An introduction to French-speaking culture outside France, as seen primarily through literary texts. Students will become acquainted with various aspects of life in French-speaking communities both past and present. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 3160 with a minimum grade of "C" or better. 3 hours

FREN 3250  Close Reading in French  Prose and verse readings of intrinsic literary and cultural merit, with emphasis on strategies for literary analysis. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 3160 with a minimum grade of "C" or better. 3 hours

FREN 3260  Introduction to the Study of French Linguistics  A general survey of the different fields of French linguistics, both theoretical (e.g., phonology, syntax) and applied (acquisition, sociolinguistics, dialectology). Prepares student for more specialized studies. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: FREN 3160 with a minimum grade of "C" or better. 3 hours

FREN 4160 - Advanced Communication in French  Intensive development of communicative competence in French, highlighting the four language skills-listening, speaking, reading, and writing-as well as cultural proficiency. Study of the French language will be organized around a theme or themes relevant to French or Francophone societies (e.g., revolution past and present, decolonization, gender issues). Notes: May be repeated for credit with instructor approval. Prerequisites & Corequisites: Prerequisite: FREN 3160 with a grade of "C" or better. 3 hours

FREN 4540  Business French  Course on contemporary French language and society as they relate to business and business practices in France. Intensive practice of written and oral French. This course will prepare the students for the internationally recognized "Diplôme de français professionnel B2" of the Paris Chamber of Commerce. Taught in French. Prerequisites: FREN 3160 with a minimum grade of "C" and one other 3000-level course with a minimum grade of "C" or equivalent. 3 hours

FREN 4760  Foreign Study – non WMU  Student participation in pre-approved program of study abroad that is not through Western Michigan University. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson. 1 to 16 hours

FREN 4770  Foreign Study  Student participation in a departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson. 1 to 16 hours

FREN 5000  Elementary French for Reading Proficiency  Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate who has had little or no study in the language.
However, undergraduates who desire a thorough reading knowledge may also apply. No oral work. This course does not count toward a major or minor in French. Open to upperclass and graduate students. Prerequisite: Undergraduates must secure permission of department.

FREN 5010 Intermediate French for Reading Proficiency
Readings in the language at intermediate and advanced levels for translation and research purposes. Special attention will be given to students' major fields. Completion of FREN 5010 with a minimum of "B" constitutes graduate proficiency in the language. This course does not count toward a major or minor in French. Open to upperclass and graduate students. Prerequisite: Undergraduates must secure permission of department.

FREN 5020 French for Graduate Study
French instruction for graduate students enrolled in a degree program who need knowledge of French for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures. 4 hours

FREN 5030 French – English Translation Practicum
This is a practical course to teach the skills for translating texts from French into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of French texts, such as news, essays, documents, poetry, and short fiction. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: FREN 3160 with a minimum grade of "C", or instructor approval. 3 to 4 hours

FREN 5100 Topics in French and Francophone Studies
An intensive study of selected aspects of French and Francophone culture, literature, and film. Course varies according to topic. Representative topics might include Women in French Society, The French Tradition in Quebec, Francophone Cinema, Love and War in Modern French Fiction, Writing and Revolution in the French Caribbean. Taught in French. May be repeated for credit with a different topic. Open to upperclass and graduate students. Prerequisites: FREN 3160 and either (FREN 3220 or FREN 3230 or FREN 3250 or FREN 3260) with a minimum grade of "C", or approval of instructor. 3 hours

FREN 5200 Topics in French Linguistics and Language Science
The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: FREN 3160 and one other 3000-level course, or equivalent. A minimum grade of "C" is required in all prerequisites. 3 hours

FREN 5280 French Literature from the Middle Ages to the Revolution
The study of selected literary texts from the Middle Ages to the end of the eighteenth century. Open to upperclass and graduate students. Prerequisites: FREN 3160 and FREN 3250. 3 hours

FREN 5290 French Literature from the Revolution to the Present
The study of selected literary texts from the late eighteenth century to the present. Open to upperclass and graduate students. Prerequisites: FREN 3160 and FREN 3250. 3 hours

FREN 5400 Old French Language and Literature
An introduction to Old French, with an emphasis on the development of reading ability. Various literary works will be studied in Old French and in translation. Coursework includes an individualized translation project. Open to upperclass and graduate students. Prerequisite: FREN 3160 with a minimum grade of "C", or instructor approval. Working knowledge of Latin helpful. 3 hours

FREN 5500 Independent Study in French
Directed individual study of a specific topic in a French literary or linguistic area. Repeatable for credit. Open to upperclass and graduate students. Not open to minors. Prerequisites: One 5000-level course in the major; a minimum grade point average of 3.0 in the major; department approval required. 1 to 3 hours

First Year Experience
FYE 2100  First-Year Experience  The First-Year Experience Seminar is designed to help students develop a sense of responsibility for their own education and learning. This seminar will introduce students to University resources and will provide support during the first and second semester of transition to the University. Taught in a small group setting, students will interact with a faculty/staff member and a student leader either once or twice a week. The FYE 2100 Seminar will include weekly class meetings, sharing a common reading and research experience, project-based assignments, written assignments, service-learning and attendance at selected University events. The importance of writing skills, critical thinking skills, communication skills, and study skills will be emphasized, as well as exploration of major and career opportunities. FYE 2100 will be offered during fall and spring semesters and is restricted to freshmen and transfer students. Students will earn a letter grade for this course. 2 hours

Geography
GEOG 1000  World Ecological Problems and Man  (Science credit) Geographers have long been concerned with studying the interactions between human beings and the environment. The major focus of these investigations today is concerned with misuse of the environment, which has led to the present day environmental crisis. The introductory course combines scientific and non-technical appraisals of processes and problems dealing with the question of environmental quality. Therefore, humanity will be studied in the physical as well as the social setting. Though major issues may vary for developing and developed nations, topics concerned with population pressure, pollution, and urbanization will be among those considered. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 4 hours

GEOG 1020  World Geography through Media and Maps  This course presents an introduction to the geography of the earth. This includes the earth as the home of humans, major urban concentrations, descriptive physical characteristics of continents and countries, political subdivision, and general man-land relationships which reflect cultural preferences. Information delivery will be through textual material with a major concentration of carefully selected audiovisual and map study activities to enhance investigating the character of distant places. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

GEOG 1050  Physical Geography  (Science credit) A study of the physical environmental systems of our earth. The course examines the seasonal and latitudinal distribution of solar energy; analyzes the many elements of weather, climate, vegetation, and soils; and finally considers the earth's major landforms and the processes which shape them. Though each topic is treated separately, this course demonstrates the basic relationships among these topics and points out the human implications in all physical earth systems. Map use and laboratory work is an integral part of this course. This course satisfies General Education Area VI: Natural Science with Laboratory. 4 hours (3 – 1)

GEOG 1900  Exploring Earth Science: The Atmosphere  This is a laboratory course designed to develop and build the concepts and principles of the Earth system with an emphasis on the atmosphere. The objectives of the course are to aid students in developing meaningful and functional understanding of key Earth Science Atmospheric concepts and their interrelations; to provide students with open-ended problem solving experiences that facilitate inquiry regarding the nature and content of science as an intellectual activity; explore alternate conceptions of scientific phenomena; help students develop more positive attitudes towards science and increase their confidence to both explain and apply Earth system theories and principles. Does not serve as an alternate to GEOG 2250 in any programs. 3 hours

GEOG 2050  Human Geography  This course is an introduction to the study and analysis of humans in the landscape. We will look at how people perceive space, how they interact in space, and how space really matters to the study of everything. The course will touch on concepts in history, economics, demographics, the environment, culture, politics, agriculture, and planning. We will look at impact of technology on human to human and human to environment interaction and will also examine opportunities for future work in the field of Geography. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

GEOG 2250  Introduction to Meteorology and Climatology  (Science credit) A basic analysis of the origin, composition, and behavior of the atmosphere. The fundamental physical laws affecting the elements of weather - solar radiation, temperature, moisture, pressure, and winds are examined during the first half of the course. Weather systems and forecasting, atmospheric optics, climatic change, and regional climates are examined during the second half of the course. Laboratory meetings dealing with instrumentation and weather map analysis are an integral part of the course. Prerequisite: GEOG 1050 or equivalent. 4 hours (3 – 1)
GEOG 2440 Economic Geography This course reviews the spatial processes and patterns for primary production, transportation, manufacturing and energy, service functions, trade and economic development. 3 hours

GEOG 2650 Introduction to Geospatial Technologies Introduction to technologies used for visualization, measurement, and analysis of features that occur on earth. Students are introduced to fundamentals of cartography, global positioning system (GPS), geographic information science (GIS), and remote sensing of the environment (RS). Topics will include nature and characteristics of geospatial technologies, concepts and characteristics of spatial data, principles and methods of capturing and representing spatial data, and methods of analysis and interpretation of spatial data. Students will have hands-on experience in working with the full range of geospatial technologies and products including maps, air photos, satellite images, GPS, as well as current GIS software. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GEOG 3010 Fundamentals of Geographic Information Systems An introductory course that covers the use and application of geographic information systems (GIS). It combines an overview of general principles of GIS and practical experience in map creation and the use of spatial information, including fundamental aspects of measurement, representation and analysis. Intro GIS focuses on the basics of working with both vector and raster data, as well as the societal aspects of GIS (emerging uses, interaction with new technologies, data standards, public access to information). Students cannot receive credit for both GEOG 3010 and GEOG 5010. 4 hours (3 – 1)

GEOG 3030 Geographic Inquiry Students will be introduced to geography as a field of study, research and professional opportunity. Students will have an opportunity to investigate social and environmental problems through data collection, analysis, interpretation, and graphic and written presentation. The emphasis throughout will be on the application of inquiry models to geographic problems. Restricted to Geography majors and minors and Tourism and Travel majors. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: STAT 1600 or STAT 2160 or STAT 2600 or STAT 3640 or STAT 3660. 4 hours

GEOG 3060 Climate Change: Atmospheric Perspectives (Science credit) The study of the atmospheric environment as it interacts with humans and society. Special emphasis is given to the following: the role of weather and climate in affecting the successful outcome of plans and economic decisions; the dynamics of changing climates and their role in affecting the course of history; human physiological and psychological responses to weather and climate; weather forecasting and its value to society; and the hazards to life, health, and property posed by severe weather. Students should expect to achieve a sufficient understanding of the atmospheric environment so that they may make informed decisions involving weather topics. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GEOG 3070 Extreme Weather Under Changing Climate This course provides a thorough introduction of both physical mechanisms and social impact of extreme weather under climate change. Topics will include introductions of physical properties of different kinds of extreme weather events including hurricanes, tornadoes, thunderstorms, blizzard, freezing rain, and drought, and discussions of their possible relations with climate change. Socio-economic impacts and mitigation of those events will also be introduced with the form of case studies. There will be both class and lab sessions for this course. Prerequisite: GEOG 1050 or instructor approval. 3 hours

GEOG 3100 Introduction to Tourism Overview of the tourism industry and the factors which influence its structure and development. Examination of tourism as a human experience, a social-cultural phenomenon, an industry and a policy and research field. 3 hours

GEOG 3110 Geography of Michigan An introduction to the physical and cultural patterns in Michigan with emphasis on an understanding of the distribution of population, resources, and forms of economic activity. Attention is also focused upon relevant current State problems. 3 hours

GEOG 3200 Culinary Tourism Culinary tourism is defined as the pursuit of unique and memorable culinary experiences of all kinds, often while traveling. These experiences, which include famous restaurants, bed and breakfast inns, local eateries, wineries, cooking schools, and food festivals, provide business opportunities to tourism industry, and learning opportunities to individuals about places and cultures from a culinary perspective. This course explores the geography of the culinary world with particular reference to the origins and diffusion of the world’s major staples and
their relationships with regional cuisines and tourists sites. Topics include the relationship between tourism and food and wine, political, social, and economic contexts of food production and food flow, case studies of regional cuisines in the United States and from around the world, and their implications for the tourism and travel industry. Satisfies General Education Area IV: Other Cultures and Civilizations.

GEOG 3260  Atmospheric Energy and Motion  This course prepares students for advanced coursework in climate science by surveying the application of physical, chemical, and mathematical principles to a broad range of atmospheric phenomena. Students are introduced to fundamental concepts and applications of atmospheric thermodynamics, radiative transfer, atmospheric chemistry, cloud microphysics, atmospheric dynamics, and climate dynamics. These topics are covered broadly but in enough depth to introduce students to the methods atmospheric scientists use to describe and predict atmospheric phenomena and climate impacts. Prerequisites: GEOG 2250 and MATH 1220.

GEOG 3500  Conservation and Environmental Management  (Science credit) A critical evaluation of the management of selected natural resources with primary focus on the United States. Conflicts between environmental and economic interests are examined in both historical and contemporary contexts. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications.

GEOG 3800  United States and Canada  A study of the physical environment north of the Rio Grande followed by an analysis of the spatial structure of the area's population and economy. The basis for the regional differentiation of the USA and Canada is considered, followed by a region-by-region analysis of each of these unique integrations of physical and cultural phenomena.

GEOG 3810  South America  Regional study of the nations of South America with attention to the interrelationships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social, and economic conditions is included. This course satisfies General Education Area IV: Other Cultures and Civilizations.

GEOG 3820  Mexico and the Caribbean  Systematic review of the physical and cultural environments of Mexico, Central America and the West Indies. Economic, social and political issues will be examined from a spatial viewpoint. This course satisfies General Education Area IV: Other Cultures and Civilizations.

GEOG 3830  Geography of Europe  Intensive regional study of the European nations. The physical elements (climate, landforms, resources, etc.) are examined and the derivative cultural elements are identified. Emphasis is placed upon the social and economic activities of contemporary Europe. This course satisfies General Education Area V: Social and Behavioral Sciences.

GEOG 3860  Geography of Africa  Survey of the principle physical, cultural, economic, and political patterns of Africa, followed by the studies of the significant elements of the major realms and states, e.g., population distribution, agriculture, patterns of economic and natural resource development, environmental issues, transportation systems, etc. This course satisfies General Education Area IV: Other Cultures and Civilizations.

GEOG 3890  Monsoon Asia  Systematic survey of the physical and human (socio-economic) environments of the southeastern rim of Asia (Pakistan in the west to Japan in the east). Geographical background necessary to interpret present conditions is included. This course satisfies General Education Area IV: Other Cultures and Civilizations.

GEOG 3900  China, Japan, and Korea: Lands and Cultures  An introduction to the contemporary landscapes, cultures, and economies of the countries of East Asia, specifically China, Japan, and Korea. A basic survey of the interactions over time between the physical environments of East Asia and the cultures, the political conditions, the economies, and societies of these three main nations. This course satisfies General Education Area IV: Other Cultures and Civilizations.

GEOG 4080  Tourism Marketing  Examination of the linkages between geography and tourism, the marketing of travel, and tourism and hospitality products. The course covers tourism and marketing research methods, marketing strategies, marketing planning, and marketing plan implementation with a focus on issues of tourism development. Students apply concepts and materials to a course research project related to tourism providers in west Michigan. This course
satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: GEOG 3100

GEOG 4120 Professional Practice Provision for an advanced student to benefit by supplementary practical experiences in a particular branch of geography, either by assisting faculty engaged in research or by working in a departmentally-approved off-campus agency. Specific assignments are arranged in consultation with departmental advisors during the semester preceding that in which the student expects to enroll in 4120. The student may enroll for one additional semester, but no student will be allowed more than three hours total credit for 4120. Restricted to Geography majors and minors, and Tourism and Travel majors. Prerequisites: Junior standing and approval of Department Chair.

1 to 3 hours

GEOG 4180 Tourism Planning and Development Introduction to concepts, principles, models, and theories of tourism planning and development. Analysis of issues in tourism planning including potential of the tourist sector, tourism image and impacts, positioning of tourism products, destination planning, and tourism development process and strategies at national, regional and local levels. Prerequisite: GEOG 3100

3 hours

GEOG 4240 Biogeography This course will focus on the application of geographic theory, methods and techniques to the spatial distributions of plant and animal species. The course will explore both the physical and human dimensions of patterns and processes associated with species distributions, movement and conservation. Course themes will include such topics as: physical environment impacts on growth, development and distribution; global regions and ecoregions; agricultural production and domesticated species; movement of species (domestic, invasive); and epidemiology. Prerequisites: GEOG 1000 or GEOG 1050.

3 hours

GEOG 4250 Climatology The course provides a detailed examination of the science of climatology and offers hands-on experience utilizing climatological data and methods to address environmental problems. Topics include the physics of climate, global climatic regions, climate feedback processes, paleoclimate and climate change, air pollution climatology, climatological data analysis methods, application of climatic processes and data to a wide variety of environmental problems. Prerequisite: GEOG 2250 or instructor approval.

3 hours

GEOG 4260 Natural Disasters and Risk Management Examination of a broad range of geographic issues and topics relating to natural hazards/disasters, while emphasizing the understanding of physical and social dynamics that must interact to produce hazards/disasters, the spatial and temporal distributions of various hazards, and policy options for disaster preparation and loss reduction. Topics include the physical dimensions of natural hazards/disasters, community attitudes and adjustment, economic and social impacts of natural hazards/disasters, risk assessment and management, and natural hazards/disasters and public policy. Prerequisite: GEOG 1050 or GEOS 1500 or instructor approval.

3 hours

GEOG 4280 Data Analysis in Climate Science This course provides a thorough introduction of characteristics of climate data and quantitative methods that analyze large volume of climatological data. Topics will include properties of climate data, time series analysis and trend test, parametric and non-parametric statistical models for climate, weather/climate forecast models, and graphics for climate data presentation. There will be both class and lab sessions for this course. Prerequisite: GEOG 2250

3 hours

GEOG 4300 Climate Change and Geography This course takes an interdisciplinary approach to analyze paramount climate change issues from geographical perspectives. Topics to be covered include climate change science, geography of climate change, spatial analysis, environmental and human impacts of, response and adaptation to climate change at global, regional, and local scales. Case studies from different countries and disciplines will be used to facilitate active student participation in the course. Prerequisites: GEOG 2250 and senior standing, or instructor approval.

3 hours

GEOG 4600 Geospatial Technology in Teaching Geography and Social Studies This pre-service course is designed for students meeting professional requirements necessary for teaching geography/social studies. The course applies a balance of geospatial technology embedded within teaching methodologies that enhance social science inquiry in the classroom. Instructional approaches to meet content standards in social studies from the Michigan Department of Education are a major focus, along with the application of national content standards in the core content of the social studies. Prerequisite: LS 4050 and ED 4060; (may be taken concurrently).

3 hours
GEOG 4670 GIS Projects and Programming  Principles and applications of GIS project management, including devising an efficient, innovative and practical solution to a real-world problem by acquiring, organizing, and analyzing data using a GIS and advanced techniques in spatial analysis, spatial statistics, and/or cartographic programming. Discussion topics will include professionally relevant issues such as team management, budget and proposal development and customizing GIS with internal and external languages. Prerequisite: GEOG 3010 with a grade of "C" or better. 3 hours

GEOG 4685 Internet GIS  Principles and applications of GIS in the Internet environment. Topics to be covered may include WebGIS application tools, geospatial web services, geospatial mashups, participatory GIS applications, web-based data mining, ArcGIS API for JavaScript, and Mobil GIS. Prerequisite: GEOG 3010 with a grade of "C" or better. 3 hours

GEOG 5000 Advanced Tourism Studies  This course uses a multidisciplinary approach to examine the burgeoning tourism industry and addresses some emerging issues in tourism development. Topics include but not limited to cultural tourism, ecotourism, agritourism, and tourism and sustainability. Case studies from different countries will be used to illustrate the topics under discussion. It is a seminar-style course where student participation is expected. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: GEOG 3100 3 hours

GEOG 5010 Introduction to Geographic Information Systems  Introduction to basic principles of Geographic Information Systems (GIS) with applications to a variety of problems using established data sources and repositories. Includes fundamental principles of cartographic design and communication. A first course in a curricular sequence developing GIS professional expertise. Open to upperclass and graduate students. 4 hours (3 – 1)

GEOG 5440 Studies in Economic Geography  Studies in world and local patterns of agriculture, manufacture, transportation, or retail/service activities. In any term, the course focuses upon one of these four economic sectors.

1. Agriculture. Describes and analyzes agricultural systems throughout the world; focuses on selected crop-livestock systems and the changing character of agricultural land use in the United States.
2. Manufacturing. Examination of theories and strategies of industrial plant location, the relationship of industrialization to regional economic growth and development, and selected industry case studies evaluating the interrelations of locational, economic, technological, and political factors in the respective industry's historic evolution.
3. Transportation. Examination of the historic evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport dilemma, and competitive and complementary characteristics of the different transport modes.
4. Retail and Service. Examination of the evolution of the retail and service sector, the geography of retail and service firms, theories and strategies of retail and service firm location, and the relationship between retail and service sector and local economic development.

May be repeated for credit. Open to upperclass and graduate students. Prerequisites: GEOG 2050 or GEOG 2440 or instructor approval. 2 to 3 hours

GEOG 5450 Studies in Human Geography  Each course listed under this general title is a concentrated study of one of the principal subdivisions of human geography. The scope and principal themes of each specialized field are reviewed, with consideration given to current research on selected problems.

1. Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion, and present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth's surface.
2. Historical Geography. Studies of geographic and related features which have combined to influence the course of historical development. This course will concentrate on a particular region and/or period of time during each semester in which it is offered. Each specialization will be designated in the class schedule.
3. Political Geography. General survey of the principles and the applied aspects of political geography; primary emphasis on the physical and cultural resource bases and conflicts of national states, the assessment of location, boundary delimitation and the territorial sea, politically-organized territories within the administrative hierarchy, and electoral geography.

May be repeated for credit. Open to upperclass and graduate students. 2 to 3 hours
GEOG 5530 Water Resources Management Examination of water resources management with an emphasis on the effects of water uses and runoff on water quality and quantity. Topics include: water resource systems, estimating consumptive and non-consumptive water uses, and runoff with computer models, and multiple socio-economic and hydrological factors in water resources management. Open to upperclass and graduate students. 3 hours

GEOG 5550 Contemporary Issues in Resources Management (Science credit) Examination of selected contemporary natural resource and environmental problems, such as questions of natural resource adequacy, environmental pollution, energy shortages, political and economic problems related to resource management, and individual studies of local environmental problems. Open to upperclass and graduate students. Prerequisite: GEOG 3500 or department approval. 3 hours

GEOG 5570 Environmental Impact Assessment Alteration of the natural and human environment for perceived economic and social benefits often has significant adverse consequences. Recognition of this problem is reflected in federal, state, and local laws and regulations requiring environmental impact statements. The course provides an introduction to the analysis and preparation of environmental impact assessments. Open to upperclass and graduate students. 3 hours

GEOG 5630 Surveying Techniques The theory and application of geographic techniques and instruments of field investigations: collection and analysis of field data, preparation and presentation of materials. The course is based primarily upon field operations. The purpose is to introduce students to the capabilities and limitations of traditional surveying techniques and the Global Positioning System (GPS). Students will gain a basic understanding of how satellite-based navigation systems operate and they will put into practice through a series of field exercises. Open to upperclass and graduate students. Prerequisite: GEOG 3010 or GEOG 5010. 4 hours

GEOG 5670 Spatial Analysis This course provides an introduction to techniques for spatial data analysis in geographical research. Topics include: experimental design and sampling; spatial data visualization and exploration; analysis of clusters and point patterns; global and local indicators of spatial autocorrelation; basic concepts of geostatistics; and an introduction to spatial data analysis. The main focus will be on data description and exploration. Open to upperclass and graduate students. Prerequisites: STAT 3660 or STAT 6020. 3 hours

GEOG 5690 Geodatabase Design and GIS Workflows Principles and applications of geographic information systems (GIS). Designing, creating, populating, and using geodatabases and workflows. Emphasis is placed on developing solutions to problems involving spatial entities and attributes by employing logical conceptual analysis using the tools provided by a typical geographic information system. Open to upperclass and graduate students. Prerequisite: GEOG 3010 or GEOG 5010, with a grade of "C" or better. 4 hours (3 – 1)

GEOG 5710 Introduction to Community Development and Planning An introductory survey of community planning and development practices in America. Topics include concepts of community planning and development, evolution and development of planning thought and practice in America, the background of planning and zoning in American municipalities, traditional and contemporary approaches to planning, planning theory, elements of planning law and administration, and ethical issues in planning. Open to upperclass and graduate students. Prerequisites: GEOG 3560 or Graduate standing or Instructor approval. 3 hours

GEOG 5820 Remote Sensing of the Environment An introduction to the physical concepts and methodological foundations of air photo and satellite image interpretation, photogrammetry, and digital image processing. Students are exposed to the physical principles that underlie electromagnetic radiation and its interactions with the earth-atmosphere system. Students who successfully complete this course will understand the capabilities and limitations of photographic and digital imagery obtained from aircraft and space-borne platforms. Open to upperclass and graduate students. 4 hours (3 – 1)

GEOG 5970 Independent Study Designed for highly qualified majors and graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Department approval. 1 to 3 hours
Geosciences
GEOS 1000 Dynamic Earth Students will be introduced to the workings of our dynamic Earth, with some discussion of other planets. Topics include plate tectonics, evolution, earth materials, volcanoes, earthquakes, earth hazards, rivers and flooding, groundwater and pollution, glaciers and deserts, oceans and coasts, energy resources, and climate change. This course is designed for non-science majors who seek a basic course in geology. Students planning to major in any science or engineering should enroll in GEOS 1300. The course consists of three hours of lecture and a two-hour laboratory period per week. This course satisfies General Education Area VI: Natural Science with Laboratory. 4 hours

GEOS 1020 Planetary Geology An introduction to the origin and geological diversity of the planet, and other bodies that make up our universe. Emphasis is placed in understanding how and why these planetary systems occur and operate, what makes Earth so unique, how these systems affect the lives of citizens in the United States and around the world, and how geoscience and technology can be used to better understand our Universe. This course satisfies General Education Area VI: Natural Science with Laboratory. 4 hours

GEOS 1050 Dinosaurs This course takes a multidisciplinary approach to dinosaurs with emphasis on the interaction between dinosaurs and their environment. The course will define what is a dinosaur using the scientific method. Discussion of the interactions between dinosaurs and their environment will cover topics such as predator-prey interactions, dinosaurian behavior, and mortality. Supporting evidence for dinosaur evolution and extinction will be described. The role of dinosaurs in modern culture will also be explored. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GEOS 1200 Climate Change Geologic Perspective This course will help students develop and calmly share their views on climate change. We will look briefly at how science and Earth's climate system work. We will see how and why climate has changed over geologic time including recently. We will learn how scientists predict climate change. We will consider how climate change may affect people's lives, and how to best reduce the risk that climate change poses. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GEOS 1290 Physical Geology Laboratory A laboratory experience covering minerals and rocks, and the interpretation of topographic and Geologic maps. Prerequisite: Department approval. 1 hour

GEOS 1300 Physical Geology This course introduces students to the principle geologic processes that shape the earth and methods by which these processes are studied with emphasis on the paradigm of plate tectonics. The interior of the earth is examined from the perspective of how we determine, without direct observation, the layering and composition within. Principles and techniques of physics and chemistry are applied to the study of the origin of minerals and rocks, and geologic structures. Geomorphic processes and natural disasters like earthquakes are examined with special consideration of their importance to engineering design and practice. This course is especially designed for students interested in science and engineering and for those who expect to major in geosciences or geosciences education. Students who are interested in a beginning course in geology, but who do not plan to pursue a major in science or engineering are encouraged to enroll in GEOS 1000. Three lectures and a two-hour laboratory period per week. This course satisfies General Education Area VI: Natural Science with Laboratory. 4 hours

GEOS 1310 Historical Geology Geologic time, evolution of prehistoric life, and principles of earth history with case examples from North America. Field excursions, including trips to the MGRRE facility to evaluate subsurface geologic data may be required. Prerequisite: GEOS 1000 or GEOS 1300 or GEOG 1050. 4 hours

GEOS 1440 Environmental Earth Science A study of the earth from an environmental perspective. Origin of the earth and solar system, physical and chemical structure of the earth, chronology, and the use of the scientific method to advance this understanding. Focus on the hydrosphere, atmosphere, biosphere, and lithosphere and their interactions. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GEOS 1500 Earth Hazards and Disasters An introduction to the major geologic hazards affecting the earth. Impacts, earthquakes, volcanoes, tsunami and coastal hazards, mass wasting, and flooding will be discussed. Emphasis is placed on understanding how and why these hazards occur, how these hazards affect the lives of citizens in the United States and around the world, and how geoscience and technology can be used to identify and manage potential hazards. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours
GEOS 1900 Evolution of Life - A Geological Perspective

The geologic attributes of our planet have shaped the course of biological evolution across four billion years of Earth’s history. This course surveys the major events and mechanisms of that history, focusing on the origins of our planet and its life, self-organization and complexity, bacteria in extreme environments, the rise of animals and plants, the colonization of land, mass extinctions, planetary change over time and the possibility of life elsewhere in the cosmos. Three lectures and a two-hour laboratory period per week. This course satisfies General Education Area VI: Natural Science with Laboratory. 4 hours

GEOS 2320 Integrated Earth System Studies

The course will view the whole earth as a single system and focus on the interrelations and interactions among different subsystems and changes that occur in these with time. Topics covered will include basic laws of physics and chemistry that operate on the earth, evolution, biogeochemical cycles, global changes (natural and anthropogenic) and human interactions with the environment. Emphasis will be placed on feedback loops and amplification factors in the earth system. Construction of models of systems will be explored to determine possible impact of a change on the system as a whole. Prerequisites: GEOS 1000 or GEOS 1300 or GEOG 1050. 3 hours

GEOS 2900 Earth Systems: Issues and Applications

This is a laboratory-based course designed to develop and build the concepts and principles of the Earth system with an emphasis on applications of earth science to society. The objectives of the course are to aid students in developing meaningful and functional understanding of key Earth Science concepts and their interrelations; provide students with open-ended problem solving experiences that facilitate inquiry regarding the nature and content of science, technology and society; help students develop more positive attitudes towards science and increase their confidence to both explain and apply Earth system theories and principles. A local field trip may be required. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GEOS 3010 Minerals and Rocks

This course is a one semester introduction to the materials making up the earth, emphasizing hand specimen mineralogy and petrology. Topics will include basic crystallography, physical and chemical properties of minerals, mineral and rock description and identification, chemical and physical properties of rocks, rock genesis, and economic uses of rock and mineral resources. A field trip may be required. Will not count toward a major in Geology. Prerequisites: (CHEM 1100 and CHEM 1110) and (GEOS 1000 or GEOS 1300 or GEOG 1050) and (GEOS 1310 or GEOS 2000). GEOS 1310 or GEOS 2000 may be taken concurrently. 4 hours

GEOS 3120 Geology of the National Parks and Monuments

A study of the origin of Geologic features and the development of landscapes through Geologic time in selected National Parks and Monuments. Students will be expected to read extensively in the available literature. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GEOS 3220 Ocean Systems

The ocean system encompasses over seventy percent of the world's surface, and comprises one of the largest resources that the peoples of the world hold in common. This course will explore our understanding of this complex system, and the evolution of technology on which this understanding is based. The costs and benefits of the past, present, and future use of the world ocean will be considered in the context of competing values and interests. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GEOS 3350 Mineralogy

Introduction to crystallography, crystal chemistry, and determinative mineralogy. Physical and chemical properties, occurrence, uses and determination of about 100 minerals. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisites: GEOS 1300, CHEM 1100 and CHEM 1110; or instructor approval. 4 hours

GEOS 4300 Structural Geology

Development of rock structures and mechanics of rock deformation. Structural interpretation of Geologic maps, cross-sections, and aerial photographs. Prerequisites: (GEOS 3010 or GEOS 3350) and MATH 1180; or instructor approval. 3 hours

GEOS 4320 Geomorphology

Detailed consideration of the earth's surficial processes including transformation of fluvial, glacial, mass-wasting, eolian, and coastal landforms. Laboratory exercises involve interpretation of topographic maps, Geologic maps, and air photographs. Three-day field trip required. This course satisfies General Education
Proficiency 2: Baccalaureate-Level Writing. Prerequisites: GEOS 3010 or GEOS 3350 or instructor approval. 3 hours

GEOS 4340 Problems in Geology Intensive reading and research on a topic in Geology under the direction of a member of the Geology faculty. Prerequisites: 16 hours in Geology and department approval. 1 to 3 hours

GEOS 4350 Sedimentation and Stratigraphy This course is an introduction to sedimentary geology and the interpretation of the stratigraphic record through application of principles of sedimentology, stratigraphy, and sedimentary petrology. Geological hazards in modern earth surface environments are also considered. Laboratory exercises focus on the application of modern concepts and methodology used in the analysis and interpretation of the sedimentary record. The course includes a required three-day field trip. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: GEOS 1310 and either (GEOS 3010 or GEOS 3350). 4 hours

GEOS 4380 Field Studies in Geology Field observations and introduction to geologic mapping. Aspects of landscape evolution, rock-forming processes, and rock deformation will be studied. Emphasis will be on how observations are combined to make geologic interpretations and how the geologic history and evolution of a region can be interpreted from field data. Prerequisite: GEOS 3010 or instructor approval. 3 hours

GEOS 4500 Teaching & Learning Earth Science This course is designed for future grades 6-12 teachers of earth science. Course content includes: inquiry-based laboratory activities, use of models and computer simulations, use of authentic earth science data sets, and outdoor teaching. Students will also improve their understanding of earth science topics relevant to middle and high school settings. Class meets 4.5 hours per week. Weekly observation of local area classroom teachers is required. Prerequisites: GEOS 2320 and GEGO 2250 and [(Phys 1030 and PHYS 1040) OR (PHYS 1050 and PHYS 1060)], all with a grade of "C" or better. Any of these courses may be taken concurrently. 4 hours

GEOS 5010 Geologic Communications and Presentations A seminar designed to introduce students to and improve student skills in the oral presentation of Geologic information. Students will critique talks given in the weekly departmental seminar. Students will make one oral presentation to a group of students and faculty. Course may be repeated for credit but only one credit will be applied towards major requirements. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Departmental approval. 1 hour

GEOS 5020 Problems in Geology and Earth Science Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Open to upperclass and graduate students. 1 to 3 hours

GEOS 5060 Introduction to Soils Properties of natural and engineered soils. Interactions between soils and plants, microorganisms, water, atmosphere, and contaminants. Soil uses, remediation, and conservation. Open to upperclass and graduate students. Prerequisites: GEOS 3010, either (MATH 1220 or MATH 1700), and CHEM 1100/1110. Corequisite is MATH 1230 or MATH 1710. 3 hours

GEOS 5090 Surface Water Hydrology Hydrology describes the waters of the earth, their occurrence, circulation and distribution, and their reaction with the environment. Emphasis is on quantitative aspects of surface water. Topics include, stream flow precipitation, evapotranspiration, hydrographs, runoff, probability analysis and modeling. Open to upperclass and graduate students. Prerequisite: MATH 1230 or MATH 1710. 3 hours

GEOS 5120 Principles of Hydrogeology The study of surface and ground water with special emphasis on its occurrence, movement, and relation to the Geologic environment. Open to upperclass and graduate students. Prerequisites: Either (GEOS 3010 or GEOS 3350) and either (MATH 1220 or MATH 1700). Corequisite: MATH 1230 or MATH 1710. 3 hours

Prerequisite: Instructor approval.  

GEOS 5200 Economic Geology  
Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Lecture three hours a week. Open to upperclass and graduate students.  
Prerequisite: GEOS 3010 or GEOS 3350.  

GEOS 5210 Geological and Environmental Remote Sensing  
The course provides rigorous (70% of student's efforts) hands-on-exercises on the applications of remote sensing techniques in geological and in environmental sciences. The hands-on exercises are primarily based on case studies that were published in peer-reviewed articles, data downloaded from our receiving station, and/or data collected by the students using hand-held VNIR spectro-radiometer. In the process of solving the lab exercise, the students will master image processing techniques. The fundamentals of remote sensing will be covered as well, since the student can not start dealing with applications unless he or she knows the fundamentals. Throughout the course, the students will work with a wide range of space-borne data sets including CORONA, Landsat MSS, Landsat TM, SPOT, ASTER, SIR-C, SRTM, A VIRIS, ASAR, and ERS.  

GEOS 5220 Hazardous Waste Operation and Emergency Response  
Training in safety procedures for working on hazardous sites. Training in the safe handling of hazardous materials which might be encountered during drilling, soil sampling, or water sampling. Review of State and Federal regulations. Use of personal protection equipment. Satisfies OSHA 40 hour training requirements. Open to upperclass and graduate students. Prerequisite: GEOS 4120 or GEOS 5120.  

GEOS 5230 Remediation Design and Implementation  
Introduction to pump and treat systems, bioremediation, soil vapor extraction, air sparging, and others. Choosing the appropriate system and sizing it for economical application to a specific site. Field trips required. Open to upperclass and graduate students.  
Prerequisite: GEOS 5120  

GEOS 5250 Surface Geophysics  
An introduction to the use of those surface geophysical methods used in the investigation of groundwater. Includes shallow seismic, electrical, and magnetic methods; and ground-penetrating radar. Open to upperclass and graduate students.  
Prerequisite: GEOS 5120  

GEOS 5260 Principles and Practices of Aquifer Testing  
Introduction to the methods of aquifer testing with emphasis on step drawdown pump-tests, forty-hour pumping test with recovery, slug tests and bail tests, data processing, using computer software, water level recorders, data loggers, and water level measuring equipment. Open to upperclass and graduate students.  
Prerequisite: GEOS 4120 or GEOS 5120.  

GEOS 5270 Principles of Well Drilling and Installation  
An introduction to hollow-stem auger drilling and well installation, rotary drilling with mud and air, cable tool drilling, monitoring well design, sample collection and description; cuttings, split spoon, and Shelby tube, borehole geophysics, and installation and development of wells. Open to upperclass and graduate students.  
Prerequisite: GEOS 4120 or GEOS 5120.  

GEOS 5280 Principles and Practices of Ground-water Sampling and Monitoring  
Introduction to state-of-the-art techniques for sampling, monitoring, and evaluating ground water systems and surface water interactions. Includes quality control and assurance procedures, ground-water sampling equipment and procedures, field hydrochemical equipment and procedures, and vadose zone sampling of water and gas. Open to upperclass and graduate students.  
Prerequisite: GEOS 4120 or GEOS 5120.  

GEOS 5300 Plate Tectonics and Earth Structure  
Major tectonic features and internal structure of the earth in relation to plate tectonics, critical examination of the tenants of plate tectonics. Open to upperclass and graduate students.  
Prerequisites: (GEOS 3010 or GEOS 3350) and GEOS 4300.  

GEOS 5350 GIS Applications in Geological and Environmental Sciences  
The course provides rigorous hands-on-exercises (based on data from case studies) on the applications of statistical methods, GIS technologies, and other computer-based software to the management, analysis, and display of multidimensional, geological, hydrogeological, and environmental data sets (70% of student effort). The course will cover (30% of student effort) the fundamentals of spatial data analysis and GIS technologies as well, since the students can not start dealing with applications unless they understand the fundamentals. In addition, students will be required to complete a research project using spatial data sets and acquired
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOS 5360</td>
<td>Glacial Geology</td>
<td>A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial Geology of the Great Lakes area. Open to upperclass and graduate students.</td>
<td>GEOS 3010 or GEOS 3350</td>
<td>3 hours</td>
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<tr>
<td>GEOS 5390</td>
<td>Geologic Mapping</td>
<td>Field observations and geologic mapping. Rock-oriented mapping projects will be completed under supervision that requires observations and synthesis of rock descriptions, structural analyses, stratigraphic interpretations, and compilations of the geologic history of assigned study areas. Open to upperclass and graduate students.</td>
<td>GEOS 3010 or GEOS 3350 or GEOS 5430 and GEOS 4300; or instructor approval.</td>
<td>3 hours</td>
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<tr>
<td>GEOS 5400</td>
<td>Igneous and Metamorphic Petrology</td>
<td>Advanced discussion of origins and positions of igneous and metamorphic rocks in light of recent experimental evidence and concepts of global tectonics. Open to upperclass and graduate students.</td>
<td>GEOS 5430</td>
<td>4 hours</td>
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<tr>
<td>GEOS 5430</td>
<td>Petrology and Petrography</td>
<td>The origins of igneous, sedimentary, and metamorphic rocks as interpreted from hand specimens, thin sections, principles of chemistry and physics, and descriptions of examples from around the world. Lecture topics are augmented by weekly laboratory studies and a required field trip. Open to upperclass and graduate students.</td>
<td>(GEOS 3010 or GEOS 3350 or GEOS 5430) and GEOS 4300; or instructor approval.</td>
<td>3 hours</td>
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<tr>
<td>GEOS 5450</td>
<td>Hazardous Waste Remediation</td>
<td>Content includes chemical, physical, and biological processes affecting contaminants in the subsurface. Topics include environmental regulations, remediation, site characterization, contaminant characterization, detailed engineering and management considerations related to the design and operation of hazardous waste remediation systems involving water pollution, air pollution, solid waste, and groundwater pollution. Open to upperclass and graduate students.</td>
<td>CHEM 1120/1130 and either (MATH 1220 or MATH 1700); and two semesters of college physics.</td>
<td>3 hours</td>
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<tr>
<td>GEOS 5500</td>
<td>Environmental Field Geochemistry</td>
<td>Students in this course will be introduced to a variety of environmental field and laboratory analytical techniques, including field sampling protocols, basic aqueous geochemistry techniques, ion chromatography, and UV/Vis spectrophotometry. Using these techniques, students will design and conduct an assessment of water quality in a local environmental system (e.g., eutrophication or salinization of local lakes, or other contamination of local surface or groundwater systems). Students will present their findings to the local community through a written report and an oral/poster presentation. Students may be expected to travel to a local field site and to work outdoors, including in canoes, under a variety of weather conditions. Open to upperclass and graduate students.</td>
<td>Either (GEOS 3350 or GEOS 2320); or ENVS 2150, CHEM 1100 and CHEM 1110.</td>
<td>3 hours</td>
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<tr>
<td>GEOS 5550</td>
<td>Introduction to Geochemistry</td>
<td>An introduction to high and low temperature geochemistry. Topics to be discussed include cosmochemistry, crystal chemistry, thermodynamics and kinetics, aqueous geochemistry, stable and radiogenic isotope geochemistry, organic geochemistry, and biogeochemistry. Three hours lecture per week with weekly problem sets. Open to upperclass and graduate students.</td>
<td>GEOS 3350 and CHEM 1120/1130.</td>
<td>3 hours</td>
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<tr>
<td>GEOS 5600</td>
<td>Introduction to Geophysics</td>
<td>Seismology, gravity, geomagnetism, electrical resistivity, and heat measurements applied to the determination of the internal structure of the earth. Two lectures and three hours of practical laboratory-introduction to geophysical instrumentation. Open to upperclass and graduate students.</td>
<td>Either (GEOS 3010 or GEOS 3350); GEOS 4300; and two semesters of college physics.</td>
<td>3 hours</td>
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<tr>
<td>GEOS 5610</td>
<td>Reflection Seismology</td>
<td>Reflection seismology and related techniques as applied to petroleum exploration and deep crustal exploration. Theoretical background, data collection, data processing and interpretation will be discussed. Open to upperclass and graduate students.</td>
<td>GEOS 5600 and either (MATH 1230 or MATH 1710).</td>
<td>3 hours</td>
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GEOS 5620  Gravity and Magnetic Exploration  Gravity and Magnetic methods applied to tectonic, mineral exploration, hydrogeologic and crustal studies. Theoretical background, instrumentation, surveying techniques, data reduction, processing, and computer modeling and interpretation will be discussed. Two lectures and three hours of laboratory, problem solving, and field exercises. Open to upperclass and graduate students. Prerequisites: GEOS 5600, and either (MATH 1230 or MATH 1710).  3 hours

GEOS 5630  Electrical Methods  Resistivity sounding and profiling, induced polarization, spontaneous potential, electromagnetic methods using natural and artificial fields. Two lectures and 3 hr. laboratory with field studies and laboratory modeling. Open to upperclass and graduate students. Prerequisites: GEOS 5600, either (MATH 1230 or MATH 1710), and PHYS 4400 recommended.  3 hours

German
GER 1000  Basic German I  Fundamentals of German. A four-skills approach (speaking, listening, reading, writing) with emphasis on communication. Introduction to cultural aspects of Germany and other German-speaking countries. Does not count toward a major or a minor. This course satisfies General Education Proficiency 4: Foreign Languages.  4 hours

GER 1010  Basic German II  Continuation of GER 1000. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: GER 1000 or equivalent. Does not count toward a major or a minor.  4 hours

GER 2000  Intermediate German I  The development of German language skills in listening, speaking, reading, and writing, with an emphasis on communication. Increased competence in cultural aspects of Germany and other German-speaking countries. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: GER 1010 or two years of high school German, or equivalent.  4 hours

GER 2010  Intermediate German II  The continued development of spoken and written expression in the German language through readings and discussions of civilization and culture materials. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: GER 2000 or equivalent.  4 hours

GER 2750  Topics in German Studies  This course introduces selected aspects of life and culture of the German-speaking world, past and present. Aspects may include events and currents of thought drawn from history, religion, arts, politics, and literature, seen in an international context. It is offered in English with no prerequisites and is open to all students. The aim is for students to gain an understanding of some of the critical issues and experiences that have shaped German identity and perspective, and for them to apply that understanding to a wider international context and universal human situations. Topics will vary from semester to semester. May be repeated with instructor approval.  3 hours

GER 3160  German Composition and Conversation  A review of German structure, form and use; focus on the development of communicative competence and on grammatical difficulties encountered by non-native users. Emphasis on the development of academic writing and speaking skills in preparation for content courses. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: GER 2010 with a minimum grade of "C", or equivalent.  4 hours

GER 3170  German Conversation  Emphasis upon increasing the student's command of spoken German. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: GER 2010 or equivalent.  3 hours

GER 3220  German Life and Culture  Investigates cultural aspects necessary for an understanding of Germany. Historic, geographic, social and religious factors are treated. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: GER 2010 or equivalent.  3 hours

GER 3250  Introduction to the Study of German Literature  An appreciation of German literature through reading and critical interpretation of selected works of various literary types. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: GER 2010 or equivalent.  3 hours
GER 4520 Advanced German Composition  Intensive practice in composition and stylistics directed towards appreciation of literary and other written expression in German with work in free composition at an advanced level. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisites: GER 3160 and GER 3170.  

3 hours

GER 4530 Advanced German Conversation  Intensive training in conversational German with emphasis on colloquial language and idiom. This course satisfies General Education Proficiency 4: Foreign Languages.  Prerequisites: GER 3160 and GER 3170.  

3 hours

GER 4760 Foreign Study – non WMU  Student participation in pre-approved program of study abroad that is not through Western Michigan University. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson.  

1 to 16 hours

GER 4770 Foreign Study  Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson.  

1 to 16 hours

GER 5000 Elementary German for Reading Proficiency  Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate student who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. No oral work. This course does not count toward a major or minor in German. Open to upperclass and graduate students. Prerequisite: Undergraduates must secure permission of department.  

4 hours

GER 5010 Intermediate German for Reading Proficiency  Readings in the language at intermediate and advanced levels for translation and research purposes. Special attention will be given to students' major fields. Completion of GER 5010 with a minimum of "B" constitutes graduate proficiency in the language. This course does not count toward a major or minor in German. Open to upperclass and graduate students. Prerequisite: Undergraduates must secure permission of department.  

4 hours

GER 5020 German for Graduate Study  German instruction for graduate students enrolled in a degree program who need knowledge of German for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.  

3 to 4 hours

GER 5200 Topics in German Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/ GREK/ITAL/JPNS/LAT/RUSS 52000. May be repeated for credit. Open to upper-class and graduate students.  

3 hours

GER 5280 Survey of German Literature  A comprehensive study of German literature from its beginning through Romanticism. Open to upperclass and graduate students. Prerequisites: GER 3160, GER 3170, GER 3220 and GER 3250 or instructor approval.  

3 hours

GER 5290 Survey of German Literature  A comprehensive study of German literature from German Realism to the present. Open to upperclass and graduate students. Prerequisites: GER 3160, GER 3170, GER 3220 and GER 3250; or instructor approval.  

3 hours

GER 5500 Independent Study in German  Directed individual study of a specific topic in German literary or linguistic area. May be repeated for credit. Open to upperclass and graduate students. Not open to minors. Prerequisites: One 5000-level course in the major; a minimum grade point average of 3.0 in the major; department approval required.  

1 to 3 hours

GER 5590 History of the German Language  Survey of the development of the German language. Prerequisites: Six hours of 3000-level German or above.  

3 hours
GER 5600 Studies in German Literature  Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 5600. Thus, a student may take any or all of the offerings at various times. Representative topics which may be treated in this area include: The Novelle - Survey of the development with representative selections; Lyric Poetry - Survey of the development with significant selections; 19th Century Drama to -Primarily Kleist, Grillparzer, Hebbel, and Hauptmann; 20th Century Drama - Representative selections. May be repeated for credit. Open to upperclass and graduate students.  Prerequisites: GER 3160, GER 3170, GER 3220 and GER 3250; or instructor approval.  3 hours

Global and International Studies
GIST 2000 Introduction To Global and International Studies  Interdisciplinary introduction to global and international studies as an academic field of inquiry, with emphasis on historical development of the global system, global economy and society, environmental conditions and awareness, mass communications, technology and enterprise, response formats for global issues and intellectual and creative life. Explores the relationships between globalizing forces and the countervailing influences of regional and cultural identity. This course satisfies General Education Area IV: Other Cultures and Civilizations.  3 hours

GIST 3500 Topics in Global Studies  This is a variable topics course focusing on global and international studies from a variety of perspectives. May be repeated for credit under different topics.  3 hours

GIST 4900 Senior Capstone Seminar in Global and International Studies  Interdisciplinary exploration of one global topic chosen from one of six Focus Fields. Research, preparation and submission of several different writing tasks, including grant proposal, news article, annotated bibliography, research paper and creative writing exercise. Classroom work helps students to establish connections with the larger community, develop strategies to analyze and address problems, and work with professionals trained in a diverse set of fields. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. May be repeated for credit.  Prerequisites: GIST 2000, senior standing and 18 hours of course work toward major in global and international studies, exclusive of foreign language requirements; approval from the global and international studies advisor.  3 hours

GIST 4980 Directed Research and Field Projects  Individual reading, research, and international field projects. Topics may be listed in Schedule of Course Offerings. May be repeated for up to 6 hours.  Prerequisite: Approval from the global and international studies advisor.  1 to 6 hours

GIST 5000 Topics in Global and International Studies  Topics may be listed in Schedule of Course Offerings. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Approval from the global and international studies advisor.  1 to 3 hours

Graphic and Printing Science
GPS 1500 Introduction to Graphic and Printing Science  An introductory course describing the printing/imaging industry. Image Design, preparation, generation, photo imaging by photomechanical and desktop systems, proofing, presswork, and bindery. A comparison of all printing methods will be included. Learning environment enhance by hands-on experience. This course satisfies General Education Area VI: Natural Science with Laboratory.  4 hours (3 - 3)

GPS 1570 Imaging Systems  Conversion of line and halftone image sources to digital data for output as reflection copy proofs, film or direct to plate. Photosensitive materials, electronic imaging systems, lenses and light, copy and data requirements, chemical and dry processing methods, densitometric and sensitometric instrumentation and image analysis.  Prerequisite: GPS 1500 (may be taken concurrently). A minimum grade of "C" is required in GPS prefixed prerequisites.  3 hours (2 - 3)

GPS 2150 Introduction to Ink  Ink main components and ink additives. Formulation, manufacturing, quality control, and waste disposal of liquid and paste inks. Ink and color. Relationship between the chemical and physical properties of inks and their printing quality. Working properties of ink. Optical properties of ink. End-use properties of ink. Concepts of rheology and surface energy. Environmental concerns. Water-based, solvent based, UV and EB curable ink chemistries. Inks for impact printing processes. Digital inks.  Prerequisites: GPS 1500, CHEM 1100, CHEM 1110,
PAPR 1000 and MATH 1180. A minimum grade of "C" is required in all prerequisites.

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<th>Prerequisites</th>
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<tr>
<td>GPS 2510</td>
<td>Multimedia Publication and Design</td>
<td>Design and composition of multimedia publications, including publications for print (prepress), web (design) and optical media. Animation and video editing discussed. Different types of graphic objects and color representations extensively covered. Page layout and web authoring in extensive laboratory exercises. This course satisfies General Education Proficiency 4: Computer Programming and Applications.</td>
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<td>4 hours (3 - 3)</td>
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<tr>
<td>GPS 2550</td>
<td>Fundamentals of Packaging</td>
<td>Covers all aspects of packaging and relationships to the needs and desires of society. Fundamentals of packaging dealing with physical and chemical properties of materials and their use in packaging. The laboratory is used for presentations by students, industry representatives and field trips to the local food, pharmaceutical, corrugated containers, and other packaging facilities. Prerequisite: PAPR 1000 with a grade of &quot;C&quot; or better.</td>
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<td>3 hours (2 - 3)</td>
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<tr>
<td>GPS 2570</td>
<td>Computer Graphics and Prepress</td>
<td>Computer graphics from the point of view of both hardware and software. The representation, display and manipulation of graphical objects, including both vector and raster graphics with applications to prepress. The relationships of displayed graphics to printed graphics, including both direct digital and conventional presses. Prerequisites: GPS 1570 and GPS 2510. A minimum grade of &quot;C&quot; is required in GPS prefixed prerequisites.</td>
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<td>4 hours (2 – 3)</td>
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<tr>
<td>GPS 3100</td>
<td>Work Experience/Internship</td>
<td>Work experience in conjunction with bi-weekly reports leading to full report of the experience working in a printing related industry. Production work is allowed at discretion of department. Work experience is a minimum of 364 hours (12 - 14 weeks of 32 - 40 hours per week.) Must be related to the graphic or print industry. Students who will work full time (30 hours or more per week) may register for GPS 3100 and will be granted full-time student status. May be repeated for credit. Restricted to GPS department majors. Prerequisites: GPS 3500 or GPS 3580 or GPS 3590; Junior standing and department approval. A minimum grade of &quot;C&quot; is required in GPS prefixed prerequisites.</td>
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<td>3 hours (2 - 3)</td>
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<tr>
<td>GPS 3500</td>
<td>Offset Lithography</td>
<td>Substrate selection for web and sheetfed offset printing, offset printability, and printing defects. Prepress operations, platemaking, proofing. Offset press components, register controls, printing units, principles of drying, impression rollers and blankets. Ink variables, and differences between inks for publication, packaging and product printing. Prerequisites: GPS 2150 (may be taken concurrently) and (STAT 2160 or IEE 2610). A minimum grade of &quot;C&quot; is required in GPS prefixed prerequisites.</td>
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<td>4 hours (3 - 3)</td>
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<tr>
<td>GPS 3570</td>
<td>Color Management</td>
<td>Introduction to color management, color science and color imaging technologies. The course covers the basics of color reproduction for printing. It deals with RGB, CMYK and CIE color models. A large focus of the course is practical color management as practiced in the industry today. An ICC workflow and ICC profiles will be constructed and analysed. Profiles for scanners, monitors and printers will be made. Prerequisites: GPS 1570 and GPS 2510. A minimum grade of &quot;C&quot; is required in GPS prefixed prerequisites.</td>
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<td>3 hours (2 - 3)</td>
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<tr>
<td>GPS 3580</td>
<td>Flexography</td>
<td>The study of all segments of the flexographic printing process, including current and future technology. Study of market segments and uses of flexography as a label and package printing process. Prerequisites: GPS 2150 (may be taken concurrently) and (STAT 2160 or IEE 2610). A minimum grade of &quot;C&quot; is required in GPS prefixed prerequisites.</td>
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<td>4 hours (3 - 3)</td>
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<tr>
<td>GPS 3590</td>
<td>Rotogravure</td>
<td>Prepress operations, cylinder plating, engraving, proofing. Gravure press components, register controls, printing units, doctor blades, principles of drying and solvent regeneration, doctor blades, impression rollers and electrostatic assist. Ink variables, and differences between inks for publication, packaging and product printing. Substrate selection for rotogravure, gravure printability, and printing defects. Prerequisites: GPS 2150 (may be taken concurrently) and (STAT 2160 or IEE 2610). A minimum grade of &quot;C&quot; is required in GPS prefixed prerequisites.</td>
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<td>4 hours (3 - 3)</td>
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<tr>
<td>GPS 4400</td>
<td>Seminar</td>
<td>A seminar course using guest speakers, University staff and field trips to add depth and breadth to the students' education. Prerequisite: Junior standing.</td>
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<td>1 hour</td>
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GPS 4570 Advanced Multimedia  Advanced methods in digital multimedia creation and manipulation. Digital video and computer animation will be combined and edited using professional techniques. Multimedia video productions will be produced using CD/DVD recording devices and analog display and recording devices. A minimum grade of "C" is required in GPS prefixed prerequisites. 3 hours (2 – 3)

GPS 4580 Digital Printing and Workflow  Digital printing mechanisms, including electrophotography (e.g. laser printers), ionography, magnetography, inkjet, thermal transfer and solid ink, dye sublimation, imagesetters/platesetters and hybrid systems. Workflow standards including CIP4, JDF, PDF/X, etc. A minimum grade of "C" is required in GPS prefixed prerequisites. 3 hours (2 – 3)

GPS 4620 Print Estimating  Learn the basics of estimating the printed piece including Basic Hourly Rate development, pricing structures of substrates, supplies and various machine costs. Develop methods of comparing estimated costs to final cost/profits. Learn the methods of computing substrate amounts based on materials available. Includes cost of cutting and related finishing operations. A minimum grade of "C" is required in GPS prefixed prerequisites. 4 hours (3 – 3)

GPS 4630 Finishing and Converting  Analyze post-press equipment and operations to complete the printed piece. Field trips will demonstrate the scope of operations involved. Study of equipment costs and development of Basic Hourly Costs. Develop skills in various specialty finishing and converting operations; pop-up visuals, point of purchase displays, packaging, specialty folding. A minimum grade of "C" is required in GPS prefixed prerequisites. 3 hours (2 – 3)

GPS 4660 Systems in Printing Management  Study the organization and management of printing companies in regards to personnel selection and training, quality assurance standards and development, safety and environmental concerns, social responsibilities, morals and ethics, scheduling procedures and work flow and ISO certification. A minimum grade of "C" is required in GPS prefixed prerequisites. 3 hours (2 – 3)

GPS 4850 Research Design  Research selection, planning, design, and writing. A research problem selected in consultation with faculty. Student will define and analyze the problem; do a critical review of the literature; and propose a documented research program to increase understanding and knowledge about the problem. Restricted to GPS department majors. This course satisfies General Education Proficiency 2: Baccalaureate-Level writing. A minimum grade of "C" is required in GPS prefixed prerequisites. 3 hours (1 – 2)

GPS 5100 Printability Analysis  Relationships between printed substrate, ink, printing process and resulting print quality from both the theoretical and measurement standpoints. Print recognition and printing problems from the point of view of substrate formation and its physicochemical properties, ink characteristics, and the printing process parameters. Main techniques of printability evaluation will include modern optical methods of light interaction with both printed and unprinted substrate, spectrophotometry, and image analysis. Open to upperclass and graduate students. A minimum grade of "C" is required in GPS prefixed prerequisites. 3 hours (2 – 3)

GPS 5201 Color Printing and Substrates  The interactions between ink and substrates are discussed for different printing processes. Digital prepress methods will be introduced with the purpose of preparing jobs for display, web or printing by different processes. Printing processes covered will be Offset Lithography, Rotogravure, Flexography, Letterpress, Screen and Digital. The colorant and substrate requirements (ink and paper, film etc.) for each process are discussed. Restricted to Graduate standing or Accelerated Masters only. A minimum grade of "C" is required in GPS prefixed prerequisites. 3 hours (2 – 3)

Graduate College
GRAD 5010 Special Topics  This is a variable topics, variable credit graduate level course for consideration of current and special interest to graduate students. Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Instructor approval. 1 to 4 hours
### Greek

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<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>GREK 1000</td>
<td>Basic Greek I</td>
<td>Fundamentals of classical Greek; readings emphasize Greek thought, culture, and civilization. This course satisfies General Education Proficiency 4: Foreign Languages.</td>
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</tr>
<tr>
<td>GREK 1010</td>
<td>Basic Greek II</td>
<td>Continuation of GREK 1000. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: GREK 1000 or equivalent.</td>
<td>4</td>
</tr>
<tr>
<td>GREK 5020</td>
<td>Greek for Graduate Study</td>
<td>Greek instruction for graduate students enrolled in a degree program who need knowledge of Greek for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.</td>
<td>3-4</td>
</tr>
<tr>
<td>GREK 5030</td>
<td>Greek – English Translation Practicum</td>
<td>This is a practical course to teach the skills for translating texts from classical Greek into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of classical Greek texts, such as essays, poetry, documents, and short fiction. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: GREK 1010 or instructor approval.</td>
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<tr>
<td>GREK 5200</td>
<td>Topics in Greek Linguistics and Language Science</td>
<td>The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/GREK/ITAL/JPNS/LAT/RUSS 5200. May be repeated for credit. Open to upper-class and graduate students.</td>
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<tr>
<td>GREK 5500</td>
<td>Independent Study in Greek</td>
<td>Directed, individual study of a specific topic in ancient Greek literature. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: GREK 1010 and departmental approval.</td>
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### Gerontology

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<th>Course Code</th>
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<tr>
<td>GRN 1000</td>
<td>Introduction to Aging Studies</td>
<td>Introduction to the content associated with aging studies. Course elements include historical milestones in the development of aging as a subject of study; the aged as a special population; heterogeneity among older persons; the aging network; health systems; and health and allied health professions. This course satisfies General Education Area III: The United States Cultures and Issues.</td>
<td>3</td>
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<tr>
<td>GRN 2000</td>
<td>Health and Aging</td>
<td>Focus on the biopsychosocial aspects of health and aging, employing a holistic perspective regarding health promotion and treatment approaches. Discuss age related changes and health conditions that are common in older adults. Explore developmental milestones, life transitions and their effects in later life. Prerequisite: GRN 1000 or instructor approval.</td>
<td>3</td>
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<tr>
<td>GRN 3000</td>
<td>Aging in all Environments</td>
<td>Explore the various definitions of environment as well as its impact on the lives of older adults. Opportunities provided to develop basic skills necessary to evaluate the connections between an older adult, his or her goals and various settings. Interventions to bridge the barriers to participation will be introduced. Roles of professionals and paraprofessionals will be identified. Prerequisite: GRN 1000</td>
<td>3</td>
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<tr>
<td>GRN 3500</td>
<td>Issues in Aging: Service Learning in Gerontology</td>
<td>Service learning course; forum for discussion of revolving topics of aging relevant to current issues. Examine attitudes and aspects of aging among diverse populations, special problems of aging in individuals and groups with increased risk for age-related biopsychosocial problems. Impairment, activity, and life-participation problems facing older individuals within their various contexts is discussed. Prerequisite: GRN 1000</td>
<td>3</td>
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<tr>
<td>GRN 4000</td>
<td>Public Policy and Aging</td>
<td>Explore the broad range of policies relating to older adults in the U.S. and the various demographic, economic and health determinants that shape these policies. Policy and its link to well-being of</td>
<td>3</td>
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</table>
older adults and their families is discussed. A special focus will be given to Social Security, Medicare, Medicaid and the Older Americans Act. Prerequisite: GRN 1000 3 hours

GRN 4900 Field Education in Gerontology This course is designed to give the student hands-on experience. The student will apply knowledge and information acquired in the gerontology academic setting within a service-learning model. The student will hone his/her professional skills with the guidance and assistance of professionals currently working in the field and his/her gerontology advisor. May be repeated for credit. Prerequisite: Instructor approval. 1 to 4 hours

Gender and Women’s Studies
GWS 1000 Media and the Sexes The course investigates how films, television, music videos and advertising present images of women and men to different audiences. This course satisfies General Education Area II: Humanities. 3 hours

GWS 2000 Introduction to Gender and Women's Studies This interdisciplinary core course provides analytical frameworks for the study of gender and gender-defining institutions, exploring the social conditions associated with gender in U.S. society in a global context. Course emphasizes approaches that study the diversity and similarity of gendered experience across class, racial and ethnic groups. This course satisfies General Education Area III: The United States: Cultures and Issues. 4 hours

GWS 2010 LGBT Studies This course provides an overview of lesbian, gay, bisexual, and transgender (LGBT) communities and identities, with an emphasis on history and social justice struggles. We will consider LGBT concerns related to a variety of institutions and structures, such as politics, schools, families, religion, and the workplace. This course satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

GWS 2020 Women, Globalization and Social Change This course pursues an interdisciplinary analysis of the status of women worldwide and their efforts to create social change in a global context. We explore similarities and differences among women, recognizing the possibilities of transnational cooperation and the limitations of the idea of a "global sisterhood." This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

GWS 2030 Race, Gender and Science Using race and gender as analytical concepts, this course explores social dimensions of the natural sciences. Students examine how cultural values and biases inform scientific inquiry while gaining knowledge about the nature of science, the history of science, scientific policies, and media depiction of the sciences. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

GWS 3200 Psychological Perspectives on Gender The course investigates the meanings of gender in diverse segments of American society. Study will focus on psychological and sociological perspectives on the formation of gender roles and characteristics. The course provides a theoretical and practical analysis of the behavior, thoughts, and feelings of men and women and examines the ways gender is structured through parental and institutional socialization. This course satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

GWS 3400 Special Topics in Gender and Women’s Studies Variable topics in Gender and Women’s Studies. May be repeated when topic varies. 1 to 4 hours

GWS 4010 Foundations of Feminist Theory An investigation of various texts historically significant in the development of feminist concepts and theories. Includes texts from the past as well as the present. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: GWS 2000 with a grade of “C” or better. 3 hours

GWS 4100 Special Topics in Gender and Women's Studies Variable topics in Gender and Women's Studies. May be repeated for credit when topic varies. 1 to 4 hours

GWS 4400 Internship Seminar Course offers an opportunity for the advanced student to apply theory and knowledge in Gender and Women's Studies to a professional or community project. Student will work under the
supervision of a faculty advisor or a community sponsor. Opportunities available in areas such as television production, K-12 classroom presentations, and a variety of community organizations and agencies serving women and children.

GWS 4980 Independent Study Individual study available to the advanced student by permission of faculty advisor with department approval of project application. May be repeated for credit. 3 hours

GWS 5500 Contemporary Feminist Theory An advanced course focusing on the analysis of American and European texts in feminist theory. The course will also consider the relation of these texts to other contemporary theoretical approaches. Open to upperclass and graduate students. Prerequisite: GWS 4010; twelve hours of course work from the Gender and Women’s Studies approved list (including GWS 2000) and at least junior level status, or departmental approval. 3 hours

GWS 5970 Issues in Gender and Women's Studies: Variable Topics Group study of special issues in Gender and Women's Studies. Variable topics may address theoretical, critical, or practical issues in the historical or contemporary context. The courses will be offered in response to the special needs and interests of students and may be organized around special events or available guest speakers. May be repeated for credit when topics vary. Open to Upperclass and Graduate students. Prerequisite: Twelve hours of course work from the Gender and Women’s Studies approved list (including GWS 2000) and at least junior level status, or departmental approval. 1 to 3 hours

GWS 5980 Readings in Gender and Women's Studies Individual study project available to the advanced student by permission of faculty advisor with departmental approval of project application. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Twelve hours of course work from the Gender and Women's Studies approved list (including GWS 2000) and at least junior level status, or departmental approval. 1 to 4 hours

History

HIST 1000 Early Western World Survey of the major political and cultural developments in the ancient near east, Greece, Rome, and medieval Europe to approximately 1500. This course satisfies General Education Area II: Humanities. 3 hours

HIST 1010 Modern Western World Survey of major developments in Western civilization from the Renaissance to the present. This course satisfies General Education Area II: Humanities. 3 hours

HIST 1450 Heroes and Villains in the Middle Ages An introduction to medieval history and culture that focuses on the people of the Middle Ages, especially those who were particularly admired or vilified. The course explores how their lives were shaped by the society in which they lived, and how legends about them have influenced values and ideals down to the present. Students may not receive credit for both HIST 1450 and MDVL 1450. This course satisfies General Education Area II: Humanities. 3 hours

HIST 2000 Introductory Topics in History May be repeated for credit under different topics. 1 to 3 hours

HIST 2100 American History to 1877 General survey of United States history from the colonial period to the late nineteenth century. This course satisfies General Education Area III: United States: Cultures and Issues. 3 hours

HIST 2110 American History since 1877 General survey of United States history with emphasis on the 20th-century American experience. This course satisfies General Education Area III: United States: Cultures and Issues. 3 hours

HIST 2120 American Culture Major concepts in American life as seen from the perspective of literature, the arts, and mass media, and the role of these forms of communication on the development of public historical consciousness. This course satisfies General Education Area III: United States: Cultures and Issues. 3 hours

HIST 2125 This course examines the political, social, and economic history of sport and evaluates its changing impact on American culture from the 15th century to the present. Placing special emphasis on the intersection of sport with gender, race, ethnicity, and class, the course underscores the ways that diverse groups have shaped the
development of sport in the United States. The course also considers the material aspects of sport including clothing, equipment, and facilities. This course satisfies General Education Area III: The United States: Cultures and Issues.  

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<tr>
<th>Course Code</th>
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<tr>
<td>HIST 2900</td>
<td>The Historian’s Craft: An Introduction to the Study of History</td>
<td>This course examines the scope and methods of history and introduces basic research, analytical, communication, and study skills required of all historians. In addition, the class emphasizes awareness of history as a profession, and introduces a range of resources that may enhance students’ skills and knowledge as professional historians.</td>
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<tr>
<td>HIST 3000</td>
<td>Arts and Ideas: Ancient/Medieval</td>
<td>Survey of the history and interplay of intellectual and artistic developments in the West from ancient through medieval times. This course satisfies General Education Area II: Humanities.</td>
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<tr>
<td>HIST 3010</td>
<td>Modern Arts and Ideas</td>
<td>Survey of the history and interplay of intellectual and artistic creativity from the Renaissance to the present. Covers all major areas of material culture. This course satisfies General Education Area II: Humanities.</td>
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<tr>
<td>HIST 3015</td>
<td>History and Film</td>
<td>This course examines the cultural, social, and economic history of the film industry, and considers film as a global commodity with worldwide implications. In addition, the course will help students develop the critical skills necessary for film analysis, and for understanding film as a medium for artistic expression. This course satisfies General Education Area I: Fine Arts</td>
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<tr>
<td>HIST 3020</td>
<td>World History to 1500</td>
<td>Introduction to World History to 1500, intended for students of all majors. By &quot;world history&quot; is meant not the sum history of the world's separate societies and culture, but major chapters in the history of the interaction between them. We will examine the ways in which societies contacted one another, the ways they influenced one another, and the ways new societies emerged, including the roles played by migration, trade, war, empire, technology, epidemic, and religious and cultural diffusion. This course satisfies General Education Area IV: Other Cultures and Civilizations.</td>
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<td>3 hours</td>
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<tr>
<td>HIST 3030</td>
<td>World History since 1500</td>
<td>Introduction to World History since 1500, intended for students of all majors. By &quot;world history&quot; is meant not the sum history of the world's separate societies and culture, but major chapters in the history of the interaction between them. We will examine the ways in which societies contacted one another, the ways they influenced one another, and the ways new societies emerged, including the roles played by migration, trade, war, empire, technology, epidemic, and religious and cultural diffusion. This course satisfies General Education Area IV: Other Cultures and Civilizations.</td>
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<tr>
<td>HIST 3060</td>
<td>Technology and Culture</td>
<td>Major technological developments throughout history, and interaction between technological change and culture. Survey of ancient and medieval technology, the industrial revolution, and the twentieth century, including aspects of technology and culture outside the Western tradition. This course satisfies General Education Area V: Social and Behavioral Sciences.</td>
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<tr>
<td>HIST 3100</td>
<td>Topics in History</td>
<td>May be repeated for credit under different topics.</td>
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<tr>
<td>HIST 3101</td>
<td>Colonial America (WI)</td>
<td>This course explores themes and ideas unique to Colonial America. Topics that may be considered include, but are not limited to, European motivations for colonization, the political and economic cultures of the colonies, religion in the New World, race and slavery, and conflicts like the French and Indian War. This course requires multiple writing assignments and is designated a 3000-level writing course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.</td>
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<td>HIST 3102</td>
<td>Era of the American Revolution (WI)</td>
<td>This course explores the central themes and key events in the era of the American Revolution. Topics that may be considered include, but are not limited to, the Revolution and its outcomes, race and slavery, and the political, social, and economic circumstances of the Early Republic. The course requires multiple writing assignments and is designated a 3000-level writing course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.</td>
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<td>HIST 3103</td>
<td>The United States in the Nineteenth Century to the Gilded Age (WI)</td>
<td>This course explores the central themes and key events in 19th-century United States history. Topics that may be considered include, but are not limited to, the displacement of Native Americans, religious revivals, race and slavery, varied reform movements, the escalation of sectional tensions, political upheaval of the Civil War and Reconstruction, and America's emergence as a global power. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.</td>
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<tr>
<td>HIST 3104</td>
<td>The Gilded Age through the World Wars (WI)</td>
<td>This course explores the central trends, events, and personalities in United States history from the Gilded Age through the World Wars, roughly 1878 to 1945. Topics that may be considered include, but are not limited to, America's emergence as a global power, participation in two world wars, the Depression and New Deal, and many other themes critical to an understanding of the 20th century. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.</td>
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<tr>
<td>HIST 3105</td>
<td>The United States in the Global Era 1945-Present (WI)</td>
<td>This course will explore the major political, economic, social, and cultural transformations in the United States from the end of World War II through the end of the 20th century. Topics that may be considered, but are not limited to, the Cold War, the civil rights movement, the American War in Vietnam, culture of the nineteen-sixties, and the rise of conservatism. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.</td>
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<tr>
<td>HIST 3130</td>
<td>The US and the World</td>
<td>This course covers a range of topics related to US political, military, cultural interventions in the world, and also explores the relationship between those policies and the social, psychological, and cultural components of life within the United States. Based on a series of case studies, the course will examine the links between domestic and international events, and consider the consequences for diverse groups in the US and abroad. This course satisfies General Education Area V: Social and Behavioral Sciences</td>
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<tr>
<td>HIST 3135</td>
<td>American Legal History</td>
<td>Survey of major events and developments in United States legal history from 1790-1900, including but not limited to Supreme Court activities. Topics include the legal definitions of slavery, Abraham Lincoln's effects on civil rights and civil liberties, legal standards affecting the family, the rise of the modern business corporation, and other developments in nineteenth-century American law.</td>
</tr>
<tr>
<td>HIST 3150</td>
<td>Popular Art and Architecture in America</td>
<td>Popular themes in American history as shown in paintings, buildings, cartoons, and commercial art. Extensive use of local illustrations adaptable to elementary and secondary teaching. This course satisfies General Education Area I: Fine Arts.</td>
</tr>
<tr>
<td>HIST 3160</td>
<td>Women in United States History</td>
<td>Women's legal and social status, work, daily life, and participation in major events and processes in United States history; variety of women's experience due to class, race, region, ethnicity, and religion. Survey of the women's movement and emergence of feminist perspectives. This course satisfies General Education Area III: United States: Cultures and Issues.</td>
</tr>
<tr>
<td>HIST 3180</td>
<td>American Environmental History</td>
<td>This course explores the impact of environmental conditions on American historical and cultural development and examines changing attitudes toward environmental issues. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications.</td>
</tr>
<tr>
<td>HIST 3191</td>
<td>American Sport History (WI)</td>
<td>This course will consider the development of sport in American history from the mid-16th and 17th centuries through the 20th century, and will explore how social class, race, gender, ethnicity, religion, and region have influenced American sporting experiences. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.</td>
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<tr>
<td>HIST 3200</td>
<td>American Military History</td>
<td>Survey of major events and developments in North American and United States military history from the eighteenth century to the present. This course satisfies General Education Area III: The United States: Cultures and Issues.</td>
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</table>
HIST 3230 History of Healthcare in the United States  This course will explore changes in medical practice and healthcare in the United States from the 17th century to the present day. While focusing on the techniques of medical practice, the course will also consider the rights, laws, ethics, and politics relating to medicine in the United States. This course satisfies General Education Area III: The United States: Cultures and Issues.  
3 hours

HIST 3240 Everyday Life in America  Introduction to the study of artifacts and the built environment in understanding everyday life in America. Artifacts as social and cultural documents in the American experience and sources for examining culture.  
3 hours

HIST 3251 American Work and Workers (WI)  This course will investigate the history of the American work and workers from the colonial era through the present, focusing particular attention on the ways that the industrial revolutions, scientific management, labor unions, and deindustrialization have impacted working people and their communities. This course devotes special attention to the history of workers in Michigan and the upper Midwest. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3260 Native American History and Culture  Survey of the history and culture of American Indians from earliest times to the present; emphasis on cultural achievements and diversity, myths and prejudices of non-Indian Americans, and Indian-government interaction. This course satisfies General Education Area III: United States: Cultures and Issues.  
3 hours

HIST 3265 Readings in Native American History (WI)  This course will examine important events and themes in the histories of native groups and in that of Indian-European relations from earliest contact up to 1783, and will emphasize how native societies developed culturally, politically, and economically in the face of challenges brought about by contact with Europeans. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3280 African-American History and Culture  Survey of history and culture of African-Americans from colonial times to the present; emphasis on cultural achievements and diversity, myths and prejudices of non-African-Americans, struggle for civil and human rights, and the dilemmas of integration versus separate identity. Brief survey of United States in a pan-Diaspora context. This course satisfies General Education Area III: United States: Cultures and Issues.  
3 hours

HIST 3285 African Americans in Michigan (WI)  This course will consider the African American experience and actions with regard to key developments in Michigan’s history during the 19th and 20th centuries, and place both the African American experience and Michigan history in a broader historical context. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3290 Michigan History  A survey of the political, economic and social development of Michigan with emphasis on its relation to the history of the United States.  
3 hours

HIST 3300 Canadian History and Culture  A survey of Canada from the sixteenth century to the present. Special attention to the sources of Anglo-French discord and Canada's changing relationship with the United States. This course satisfies General Education Area II: Humanities.  
3 hours

HIST 3325 History of Healthcare in the World  This course will have a special emphasis on the ways scientific knowledge of the human body, illness and wellness have changed over broad spans of time and in both Western and Non-Western cultures. Students will examine medical practices and ideas in cultures ranging from ancient Mesopotamia to colonial America. This course satisfies General Education Area V: Social and Behavioral Sciences  
3 hours

HIST 3330 The World since 1945  This course covers history of the world since 1945 with emphasis on the legacies of World War II, the Cold War, nation-state building in the Third World, the collapse of Communism, and the making of world economy. This course satisfies General Education Area V: Social and Behavioral Sciences.  
3 hours
HIST 3360 Women in European History Examination of the condition of women in various periods of European history, with particular attention to women's changing status and experiences in the family and workplace. Study of various institutions, associations, and activities in which women expressed themselves becomes the basis for conclusions about women's contributions to European history and culture. This course satisfies General Education Area II: Humanities. 3 hours

HIST 3404 Introduction to Public History Origins and objectives of public history as a philosophy of history and as a discrete field of study and research. Examination of social, economic, political and cultural changes pertinent to the field. Characteristics and interrelationships of the major components of public history, including historic preservation, museology, education, environmental concerns, public policies and information sciences. 3 hours

HIST 3490 Ancient Near East Ancient history of Near Eastern lands which also figure prominently in biblical accounts. Archaeology, prehistory, and the cradles of civilization in Mesopotamia and the Nile Valley. Survey of ancient Sumerian, Babylonian, Egyptian, Hittite, Phoenician, and Hebrew cultures, as well as the emergence of the Assyrian, Neo-Babylonian, and Persian empires. 3 hours

HIST 3500 Ancient Greece and the Hellenistic World (WI) The Greeks. Why and how did the ancient Greeks invent democracy, citizenship, freedom of speech, history, philosophy, theater, and naturalistic sculpture? In this course we will follow the Greeks' story across the first millennium BCE, focusing on the interplay between Greek political and cultural innovation and the hard realities of economics, politics, and war. We will pass from the Greeks' early struggles against giant, threatening empires to their own imperial triumphs and efforts to live in the multicultural world they made. This course will use a wide variety of primary source materials ranging from pottery to ancient law cases. We will also practice a variety of innovative learning approaches, including the adoption of a particular Greek character as your perspective on writing exercises and exams throughout the course. The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3510 Ancient Rome (WI) How did Rome grow from a loose gang of shepherds, exiles, and criminals to an empire of 65 million people stretching from Britain to Egypt? How and why did it then fall into ruins? Topics include Roman history, society, culture, economics, religions, and impact on Western civilization. We also discuss the origins of the republic form of government, explorations of military strategy, imperialism, slavery, and public entertainment. The focus is on original primary sources, including visual and archaeological evidence. This course also teaches general historical methodologies and techniques. The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3531 Early Christianity (WI) This course explores the emergence of Christianity in the Roman world, and traces its spread and influence in medieval Europe. Students will consider the world of early Christianity, the development of the Church as an institution and community, and issues of church doctrine and discipline. The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3600 The Medieval World: Society and Culture Society and culture of medieval Europe with emphasis on everyday life, material culture, and ways of knowing. Impact of medieval Europe on the formation of modern European states and systems; brief survey of comparative medieval conditions in other regions, and the impact of "medievalism" on popular culture. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

HIST 3604 Europe After Rome, 400-1000 (WI) This course examines European society, economy, politics, and culture from late Roman times through the creation and collapse of the Carolingian empire, including its various successor states and neighbors from the Mediterranean to the North Sea. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3606 Transformation of Medieval Europe, 1000-1500 (WI) This course examines the rise of Europe as a region after the Carolingians and the transformative events of the high middle ages, which produced a distinctively European
culture that flourished until the crisis of the fourteenth century. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3611 The Crusades: West Meets East (WI) This course seeks to give students a historical understanding of the three main cultures of the medieval Mediterranean including western European Christendom, Orthodox Byzantium, and the Islamic Near East, and will consider the influence of the Crusades on these cultures. Students will also examine ways in which the Crusades were justified, organized, and financed, and will consider the impact of this on European institutions, thought, and identity. The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3612 Era of the Thirty Years War: Europe 1500 – 1650 (WI) This course will investigate the background and origins of the Thirty Years War, the major developments and battles of the war, and the significance of the war for later periods in European history. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3614 Revolutions, Industry, and Nation States Europe, 1815-1914 (WI) This course examines the history of Europe between the end of the Napoleonic Wars in 1815 and the beginning of the First World War in 1914 with emphasis on the growth of modern nationalism, the economic and social impact of industrialization, European imperialism, and alliance patterns leading to World War I. The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3615 The European Witch-Hunt (WI) This course will examine the intellectual and legal foundations, and demographic and religious factors that created an environment conducive for the Witch-Hunt; the targets, the nature, geographic scope, and chronology of the accusations and the trials; some theories explaining the rise and decline of the Witch-Hunt; and its legacy in modern popular culture. This course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval. 3 hours

HIST 3616 War, Fascism, and Communism Europe, 1914-1945 (WI) This course explores the history of Europe between 1914 and 1945, a period marked by two world wars, the rise of fascism, the impact of communism, and the collapse of world empires. Students will also explore the collapse of European democracies, economic turmoil, and the assault on ethnic and religious minorities. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval. 3 hours

HIST 3618 The Cold War to Unification Europe 1945-Present (WI) This course examines the history of Europe since 1945 with particular attention to recovery and reconstruction following World War II, the Cold War, and the emergence and expansion of the European Union. The course requires multiple writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of "C" or better, or instructor approval. 3 hours

HIST 3620 History of Modern Britain The course surveys modern British history from the early eighteenth century to the late twentieth century. It traces the transformation of British economic, political, and social life, and the gradual expansion of the formal political sphere. The course addresses the influence of the British Empire on this process. Students will be introduced to key primary and secondary sources. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

HIST 3640 Modern Europe: Culture and Society Social and cultural history of Europe in the late nineteenth and twentieth centuries with emphasis on the post-World War II period: reconstruction; era of the Cold War; the dilemma of economic integration and cultural fragmentation; Europe in the wider world; modern European cultural life. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours
HIST 3660 Russia Yesterday and Tomorrow  
Historical survey of Russia and the regions included in the former Soviet Union. Emphasis on the Russian cultural core and its potential for the reformulation of the Russian republic. Consideration of the ideals and realities of the Soviet Union, and the triumph of culture over ideology in its collapse. This course satisfies General Education Area V: Social and Behavioral Sciences.  
3 hours

HIST 3662 Russia to 1855 (WI)  
This course examines the history of Russia from medieval times to the reign of Tsar Alexander II and the close of the Crimean War. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. 
Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3664 Rusia from 1855 (WI)  
This lecture-discussion course surveys Russian history from the death of Nicholas I in 1855 to the post-Cold War era, and explores elements of historical and cultural continuity and change in order to facilitate an understanding of Russian, Soviet, and post-Soviet history in this period. This course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. 
Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3702 Colonial Latin America (WI)  
Examines the history of Latin America from 1492 to 1810 with a focus on regions where Spain established exclusive colonial dominion. The course will explore the arts and cultural expressions in the vibrant new societies that emerged from the biological and cultural mixing of colonial and native peoples. This course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. 
Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3760 Modern East Asia  
The recent history of China, Japan, and Korea: tradition, reform, and revolutionary movements; ideologies and techniques of modernization; national ambitions and international relations. This course satisfies General Education Area IV: Other Cultures and Civilizations.  
3 hours

HIST 3762 Traditional Japan The Age of the Samurai (WI)  
This course traces the history of Japanese civilization from its origins to the beginning of the 19th century. Students will explore both the political and social history of Japan, and examine the evolving definition of “Japan” and “Japanese”. The course requires varied writing assignments and is designated a 3000-level intensive course in the Department of History. 
Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3764 Modern Japan (WI)  
This course is a survey of Japanese history and traditional society, and examines Japanese response to outside forces in the 19th century, development of the Japanese empire and its destruction in World War II, and the emergence of Japan as an economic world power. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. 
Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3766 Traditional China (WI)  
This course explores the history of China from Neolithic times to the rise of the Qing Dynasty in the 17th century. Students will examine politics, religion, international relations, and Chinese literature and arts. The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. 
Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3768 Modern China (WI)  
This course explores Chinese history from 1644 to the present, with particular emphasis on 19th- and 20th-century political history, international relations, the republican revolution, the Sino-Japanese War, and the triumphs of Communism. The course requires varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. 
Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval.  
3 hours

HIST 3790 World War II in American and Japanese History  
This course presents parallel versions of the issues and events of World War II in Japan and the United States. The two nations are treated separately within their own domestic and international contexts. The war is placed in the broadest possible perspective to include not only the road to and from Pearl Harbor, but also the meaning and impact of the war on the social, political, and intellectual life in the two countries through the 20th century. This course satisfies General Education Area II: Humanities.  
3 hours
HIST 3850 Modern Middle East  The Middle East since the collapse of the Ottoman Empire at the close of World War I. Emphasis is upon the history of the Arab-Israeli conflict, which may be seen as thematic of the clash of the major forces shaping the modern Middle East, including Arab nationalism, Zionism, and colonialism. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

HIST 3880 Introduction to African Civilization Overview of major aspects of African history and civilization from earliest times to the present. Emphasis upon elements which contribute to the uniqueness of the African experience. The course is cross-listed with AFS 3880. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

HIST 3882 History of Africa and the Atlantic Slave Trade (WI) This course will examine Africa and the Atlantic slave trade from the 15th to the 19th centuries. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3884 History of West Africa (WI) This course explores major themes of West African history from medieval times to the present, including development of states and empires; regional Saharan and trans-Atlantic trade; economic transformation; the influences of Islam and other religious institutions; and the dynamics of traditional West African civilization. The course includes varied writing assignments and is designated a 3000-level writing intensive course in the Department of History. Prerequisite: HIST 2900 with a grade of “C” or better, or instructor approval. 3 hours

HIST 3981 Directed Reading in History May be repeated for credit to a maximum of three semester hours. Prerequisite: Department approval. 1 to 3 hours

HIST 4006 Topics in Race and Ethnicity (BW) Courses in this topical area will consider race or ethnicity as a lens for interpreting and understanding the history of the United States or the broader world. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval. 3 hours

HIST 4008 Topics in Ethnohistory (BW) Courses in this topical area will provide a forum for students to explore the interface between history and anthropology, and will draw on methodologies from both disciplines to understand cultural change over time. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval. 3 hours

HIST 4010 Environment and History (BW) Courses in this topical area examine environmental, cultural, and geographic interactions and their role in shaping the history of the United States and the World. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval. 3 hours

HIST 4016 History of Material Life (BW) Courses in this topical area will enable students to explore material artifacts and built environments as keys to cultural and social history at varying times and regions of the world. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval. 3 hours

HIST 4060 Archives Administration Theory, techniques, and practice in the development and administration of archives and archival materials. 3 hours
HIST 4080 Museum Studies  History, philosophy, organization and administration of general history, science, technology and art museums. Discussion of collecting theory, conservation and security, display and interpretation, and the role of museums in culture and education.  3 hours

HIST 4100 Historic Preservation  Development, conservation, and interpretation of historic sites and districts; documenting historic sites; registration procedures; preservation law; funding sources; history of the preservation movement; social and political issues in urban rehabilitation.  3 hours

HIST 4245 Topics in U.S. History and Culture (BW) Courses in this topical area will explore important events, themes, circumstances, or ideas in American history from first European contact to the present. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval.  3 hours

HIST 4490 Topics in Early European History and Culture (BW) Courses in this topical area explore political, cultural, economic and social themes in European history from the ancient world to the early modern period. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval.  3 hours

HIST 4491 Topics in Modern European History and Culture (BW) Courses in this topical area explore political, cultural, economic and social themes in European history from the early modern period to the present day. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval.  3 hours

HIST 4495 Topics in European History and Culture (BW) Courses in this topical area explore political, cultural, economic and social themes in European history from the ancient world to the present day. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval.  3 hours

HIST 4825 Topics in Asian History (BW) Courses in this topical area examine the geographic, political, economic, and cultural circumstances that have shaped Asian societies over time. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval.  3 hours

HIST 4845 Topics in Latin American History (BW) Courses in this topical area will examine varied regional, political, social and cultural themes central to the history of Latin America from the colonial era to the present day. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. All courses in this topical area satisfy General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: One 3000-level designated writing intensive course with a grade of “C” or better, or instructor approval.  3 hours

HIST 4940 Teaching Methods for Secondary Schools Theories and techniques for the effective teaching of history at the secondary level. Evaluation and selection of reading assignments and instructional materials; methods of measuring cognition of historical concepts; course organization and learning activities for students of varying backgrounds and abilities; use of interactive media; the role of history in social science and humanities education, and of historians as curriculum leaders. Prerequisites: Senior standing; LS 4050 and ED 4060 with "C" or better, may be taken concurrently.  3 hours

HIST 4950 Internship Professional internship experience in museums, historical administration, historic preservation, editing, applied research, etc. May be repeated for credit. Graded on a Credit/No Credit basis. Prerequisite: Department approval.  3 to 9 hours
HIST 4980 Directed Research  Individualized research and production of a written project supervised by a faculty member. Registration requires a research proposal approved by a faculty member and the Department Chair. This course is restricted to majors in History. Prerequisites: Senior standing and department approval. 3 hours

HIST 4990 Senior Thesis  Research, preparation and defense of a supervised research project. Registration requires approval by two faculty supervising project and the Department Chair. Honors students may substitute HNRS 499 (Honors College Thesis) with appropriate approval. This course is restricted to majors in History. Prerequisites: HIST 4006 or HIST 4008 or HIST 4010 or HIST 4016 or HIST 4245 or HIST 4495 or HIST 4825 or HIST 4845; with a “C” or better (students must have at least one baccalaureate writing course in one of these topical areas); senior standing, and department approval. 3 hours

HIST 5000 Topics in History  Courses in this topical area explore regional, political, cultural, economic and social issues in various geographical, chronological, or thematic fields of history. Specific topics will be listed in the Schedule of Course Offerings. May be repeated for credit under different topics. Open to upperclass and graduate students. Prerequisite: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

HIST 5150 Topics in Public History  Selected topics in aspects of public history including museology, historic preservation and cultural resource management, historical administration, information science, and applied research. Specific topics will be listed in Schedule of Course Offerings. May be repeated for credit under different topics. Open to upperclass and graduate students. Prerequisite: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

HIST 5245 Topics in American History  Courses in this topical area explore regional, political, cultural, economic, and social themes in the history of North America or the United States from the colonial era to the present. Specific topics will be listed in the Schedule of Course Offerings. May be repeated for credit under different topics. Open to upperclass and graduate students. Prerequisites: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

HIST 5405 Topics in Ancient History  Courses in this topical area explore regional, political, cultural, economic, and social themes in the history of the ancient world. Specific topics will be listed in the Schedule of Course Offerings. May be repeated for credit under different topics. Open to upperclass and graduate students. Prerequisite: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

HIST 5495 Topics in European History  Courses in this topical area explore regional, political, cultural, economic, and social themes in European history from the ancient world to the present. Specific topics will be listed in the Schedule of Course Offerings. May be repeated for credit under different topics. Open to upperclass and graduate students. Prerequisite: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

HIST 5500 Topics in Medieval History  Courses in this topical area explore regional, political, cultural, economic, and social themes in the history of the medieval world. Specific topics will be listed in the Schedule of Course Offerings. May be repeated for credit under different topics. Open to upperclass and graduate students. Prerequisite: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

HIST 5501 Medieval History Proseminar  An overview of major themes and scholarly debates in medieval history (ca. 500-1500) covering regions including the Mediterranean basin, northern Europe, and adjacent regions. The course provides a capstone for advanced undergraduates and a foundation for advanced study for graduate students. Open to upperclass and graduate students. Prerequisite: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

HIST 5850 Studies in Asian, African, and Latin American History  Courses in this topical area explore regional, political, cultural, economic, and social themes in the history of Asia, Africa, South America, Central America, Mexico, or the Caribbean from ancient times to the present. Specific topics will be listed in the Schedule of Course Offerings. May be
repeated for credit under different topics. Open to upperclass and graduate students. Prerequisite: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

HIST 5910 Topics in Historical Theory and Method Selected theoretical, methodological, and interpretive issues in the field of history, possibly including methodologies from related social science and humanities disciplines. Topics will be listed in Schedule of Course Offerings. May be repeated for credit under different topics. Open to upperclass and graduate students. Prerequisite: Grade of “B” or better in a 4000-level history baccalaureate writing course; or graduate standing; or instructor approval. 3 hours

Honors College

HNRS 1015 Introductory Honors Seminar This is the first-year experience seminar for Lee Honors College students. This seminar will introduce students to the Lee Honors College, University resources and will provide support during the first semester transition to the University. Taught in a small group setting, students will interact with a faculty member and a student leader either once or twice a week. HNRS 1015 seminar will include weekly class meetings, sharing a common reading and research experience, project-based assignments, written assignments, and attendance at selected University events. The importance of writing skills, critical thinking skills, communication skills, and study skills will be emphasized, as well as exploration of major and career opportunities. Restricted to freshman honors college students. This course may not be repeated and students will receive a letter grade for this course. 2 hours

HNRS 2500 Social and Behavioral Sciences An undergraduate course for first and second year Honors students. The content corresponds to that in a lower-level general education course in Area IV, social and Behavioral Sciences. The course is cross-listed, where applicable, with a specific departmental lower-level course approved for Area V. 3 to 4 hours

HNRS 2900 Honors Seminar An undergraduate seminar for first and second year Honors students. The content of the seminar varies and will be announced in advance. 1 to 6 hours

HNRS 3201 Art of the Book This course will cover the development of Western book production—the design, illustration, printing, and binding of manuscripts and printed texts from the early medieval period to the present. In addition, the course will include visits to the Kalamazoo Book Arts Center where students will participate in some basic bookmaking activities—papermaking, bookbinding, hand typesetting using movable type, and printing. This course satisfies General Education Area II: Humanities. Restricted to Lee Honors College students only. 3 hours

HNRS 3202 Modernism in Art and Literature The early 20th century was a rich period of innovation in art and literature. Thanks to the efforts of artists and writers including Pablo Picasso, Marcel Duchamp, Ernest Hemingway, and D.H. Lawrence, our conception of art and culture was transformed. In this class we will read novels and short stories, and study paintings and sculptures, by these and other important figures of this revolutionary period. We will examine artistic movements including Cubism, Futurism, and Surrealism and discuss the ways in which the artists and writers interacted with one another and were affected by historical events. This is a class for students interested in art, who like to read, and want to discover more about the artistic developments of Modernism. This course satisfies General Education Area II: Humanities. Restricted to Lee Honors College students only. 3 hours

HNRS 3203 Utopian and Dystopian Fiction At least since Thomas More's celebrated work the idea of a utopia simultaneously conjures up two distinct meanings: first, as an imaginative idea of an idealized community in which humankind, having seemingly attained sufficient mastery or even perfection, seeks to create a rational, equitable, and just society offering genuine human fellowship and solidarity; and second, as an utter impossibility, as "no place," for as the "good place," the imaginative ideal seeking the common good, is yet to be realized, and perhaps is inherently unattainable, utopia is simultaneously "nowhere." Over time, these twin meanings of utopia, meanings purposefully, ironically, and artistically joined in More's book, separate into two distinct and immensely popular traditions: the utopian novel, culminating in 19th century works such as Edward Bellamy's Looking Backward and carried forward into the next century by Charlotte Perkins Gilman's Herland, and the dystopian novel, prefigured by Dostoevsky's Notes from Underground and The Legend of the Grand Inquisitor (found in The Brothers Karamazov) and most famously expressed in novels by Zamyatin, Huxley, and Orwell. Whatever qualities of scientific invention, fantasy, and imagination are present in our readings, we find that the utopian imagination expresses very real and human desires that arise from a given author's discontents with his or her historical circumstances. We will trace the development of utopian desire giving way to dystopian discontent through a...
chronological reading of our novels and selected films, taking pains to grasp each work within both its historical and literary context as well as its ongoing relevance to our contemporary lives. The course seeks to foster enhanced critical thinking, reading, and interpretive skills as well as to provide students with the opportunity to improve in the conception, writing, and revision of their critical essays. This course satisfies General Education Area II: Humanities. Restricted to Lee Honors College students only.

HNRS 3204 Postmodern Dystopias: Fiction and Film from 1970 to the Present Although no one questions that our contemporary world should be termed "postmodern," there is no consensus on the precise meaning of the term. Two crucial and precipitous historical events arising from World War II, the birth of computers and the atom bomb, signal a precipitous break from the modern, and have radically transformed all facets of contemporary political, social, and personal life. Yet if our global world and engagement has been fully embraced and integrated within contemporary life, often celebrating the "singularity" of technology and everyday life in an age of "spiritual machines" when "computers exceed human intelligence" (Ray Kurzweil), a decidedly dystopic imagination dominates the arts of films and literature. This course, through the exploration of fiction and film from the past half a century, aims to explore the meaning, significance and implications of postmodern life and culture. The course seeks to foster a critical analysis of postmodernity through class discussions, student presentations, short response essays, and the completion of three substantial essays, including a research paper. This course satisfies General Education Area II: Humanities. Restricted to Lee Honors College students only. 4 hours

HNRS 3301 Jazz, Blues, and the Harlem Renaissance This course will place special emphasis on American jazz and blues forms as an expression and influence on American culture in the work of artists such as Bessie Smith and Billie Holiday as well as Langston Hughes, Sterling Brown, Zora Neale Hurston, Jean Toomer and a host of others. This course satisfies General Education Area III: United States: Culture and Issues. 4 hours

HNRS 3302 Civil Rights & Jazz, 1950-75 This course places special emphasis on American jazz form as a crucial influence and metaphor for the very rhythm and experience of modernity as it explores the interrelations between literature, music, and American culture through the music of Louis Armstrong, Fats Waller, and Duke Ellington among others. This course satisfies General Education Area III: United States: Culture and Issues. 4 hours

HNRS 3303 Vietnam and Rock This course explores the history, meaning, and impact of the 1960s through two crucial cultural events: the Vietnam War and Rock music. The course aims to explore both the history of the war as well as the cultural debates and changes that continue to resonate today. This course satisfies General Education Area III: United States: culture and Issues. 4 hours

HNRS 3304 The Texas Tour This Study in the States course is an excellent opportunity to study business and culture in one of the most interesting, fastest growing and important urban triangles in the United States. The trip includes visits to San Antonio, Austin and Houston. Students will have the opportunity to develop an understanding of Texas Culture as they explore Texas communities as well as visit different organizations and groups working to foster economic development including organizations in the energy and technology industries. The course will also include service learning and personal development components as students will have the chance to participate in several projects for the benefit of different community organizations in Texas which will help them understand themselves, teams and teamwork while being exposed to many of the challenges in urban areas in Texas. This course provides students the opportunity to think critically regarding economic development, business issues, history and social life in Texas. Restricted to Lee Honors College students only. 3 hours

HNRS 3401 Vues d’Afrique In this course offered in Summer I, students will travel to Montreal to participate in the film festival "Vues d'Afrique," the largest African film festival in North America. Students will screen several movies each day and participate in discussions with the filmmakers and in forums on the issues presented. Group discussion will be held every day to future explain the cultural, historical and political context of the films. During the remainder of the week after the festival, students will meet Montreal immigrant community leaders and artists to explore the challenges they face. Participants travel via university van and stay in a youth hostel in Montreal. This course satisfies General Education Area IV: Other Cultures and Civilizations. Restricted to Lee Honors College students only. 3 hours

HNRS 3701 Technology in the Arts This course will explore the relationship between the fine arts and technology, with an emphasis on recent practices and emerging technologies. Students will learn how musicians, theatre artists, choreographers and visual artists take advantage of technology to meet their needs, and how technology has
influenced and inspired them to explore new creative territory. Students will see how media technology has empowered artists to create entirely new experiences for audiences, and how living in a technology-infused culture has influenced art and artists in all disciplines. Students will learn about the technologies which have most substantially impacted the fine arts in recent years, including video projections and mapping, digital video and photography, 3D scanners, motion capture and digital processing. Students will explore the creative process and make works of their own using digital hardware and software. This course satisfies General Education Area VII: Natural Sciences and Technology: Applications and Implications.

HNRS 3990 Field Experience (Community Participation) An organized association with a person or institution involving work and learning activities related to a significant academic interest of the student. 3 hours

HNRS 4100 Fine Arts An undergraduate course for upper-level Honors students. The content corresponds to that in an upper-level general education course in Area I, Fine Arts. The course is cross-listed, where applicable, with a specific departmental lower-level course approved for Area I. 3 to 4 hours

HNRS 4101 Introduction to World Cinema The course objective is to provide an overview of World Cinema and the interrelationships between National Cinemas. Though particular attention will be given to the Cinemas of Europe, students will also be introduced to Cinemas of Japan, China, India, Africa, Middle East, South America, and others. Each session will include a short introduction to the material and a screening of a film. General areas covered include the history of individual National Cinemas, the variety of different film movements, and the influence of these movements on American films. Coursework includes several small projects involving viewing films outside of class, a major final paper/presentations, and two exams. This course satisfies General Education Area I: Fine Arts. Restricted to Lee Honors College students only. 3 hours

HNRS 4102 Studies in Film The majority of films made in Hollywood are adaptations of other material. This course will study film adaptations in many forms: remakes, novels, short stories, theatrical plays, graphic novels, etc. Class will study the source material and then the adapted film paying special attention to the artistic form of each distinct medium and the choices artists make in adapting a work to the cinematic medium. Class work will include reading journals, tests, and a major paper. This course satisfies General Education Area I: Fine Arts. May be repeated for credit. Restricted to Lee Honors College students only. 3 hours

HNRS 4200 Humanities An undergraduate course for upper-level Honors students. The content corresponds to that in an upper-level general education course in Area II, Humanities. The course is cross-listed, where applicable, with a specific departmental upper-level course approved for Area II. 3 to 4 hours

HNRS 4300 United States: Culture and Issues An undergraduate course for upper-level Honors students. The content corresponds to that in an upper-level general education course in Area III, United States: Culture and Issues. The course is cross-listed, where applicable, with a specific departmental upper-level course approved for Area III. 3 to 4 hours

HNRS 4400 Other Cultures and Civilizations An undergraduate course for upper-level Honors students. The content corresponds to that in an upper-level general education course in Area IV, Other Cultures and Civilizations. The course is cross-listed, where applicable, with a specific departmental upper-level course approved for Area IV. 3 to 4 hours

HNRS 4500 Social and Behavioral Sciences An undergraduate course for upper-level Honors students. The content corresponds to that in an upper-level general education course in Area IV, social and Behavioral Sciences. The course is cross-listed, where applicable, with a specific departmental upper-level course approved for Area V. 3 to 4 hours

HNRS 4700 Natural Science and Technology: Application and Implications An undergraduate course for upper-level Honors students. The content corresponds to that in an upper-level general education course in Area VII, Natural Science and Technology: Application and Implications. The course is cross-listed, where applicable, with a specific departmental upper-level course approved for Area VII. 3 to 4 hours
HNRS 4900 Honors Seminar  An undergraduate seminar for upper-level Honors students. The content of these seminars varies and will be announced in advance.  1 to 6 hours

HNRS 4950 Individual Studies  Students in the Lee Honors College may enroll in this course for one or several semesters upon approval of the Dean of the Lee Honors College. The course is an administrative facility for individual study outside the usual course structure.  1 to 6 hours

HNRS 4980 How and Why to Write an Undergraduate Thesis  This online course covers all aspects of preparing and completing an honors thesis. Included are modules on identifying a thesis topic, conducting a literature review, citing sources, finding a thesis committee, structuring the thesis, and defending the thesis. Restricted to Lee Honors College students only.  1 hour

HNRS 4990 Honors College Thesis  The design, writing, and defense of a directed research project appropriate to the major disciplinary area of the student. The thesis must be directed by a faculty sponsor and approved by one additional faculty member knowledgeable in the discipline or an allied discipline. A copy of the final project must be filed with the Lee Honors College. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum. May be repeated for credit. Restricted to Lee Honors College students only. Prerequisite: HNRS 4980 with a grade of "C" or better and approval of the thesis project by the dean.  1 to 6 hours

Integrative Holistic Health and Wellness

HOL 1000 Choices in Living  The course will focus on the relationship between individual choices, social responsibilities and optimal human functioning. Students will be educated in current theories and techniques of values clarification, motivation, and behavior change. Health and social issues relevant to young adults and throughout the life cycle will be examined. This course is designed for undergraduate students in all majors and is especially valuable for students interested in health and human services professions. This course satisfies General Education Area VIII: Health and Well-Being.  3 hours

HOL 2000 Choices in Global Living  This course considers the concept of "health" at both the individual and global level by exploring the connection between an individual's lifestyle choices and their impact on the larger world of work and service. The theory of holism, along with related theories (multiculturalism, sustainability, and ecological systems) are considered across a variety of disciplines in order to examine current initiatives that are occurring in order to improve the human condition.  3 hours

HOL 2200 Aligned Learning  This course provides students with an opportunity to better understand academic and life-long learning, by focusing on a holistic approach to learning and self-knowing. Students will focus on concepts, skills and practices that increase their capacity to learn by addressing cognitive, physical intrapersonal and interpersonal effectiveness. This course is restricted to students in the Seita Scholar Program. This is a highly experiential and interactive class.  3 hours

HOL 2500 Holism and the Brain  In this class students will be exposed to the role that the brain/mind plays in Holistic Healing modalities. Students will receive an introduction to the basic workings of the brain and nervous system, and a basic understanding in how the various brain/mind processes are involved in the healing methods utilized in holistic and wellness interventions. Special attention will be given to the brain's role in meditation, mindfulness, and guided imagery, as well as the impact of diet and environment on brain functioning. Prerequisite: HOL 1000  3 hours

HOL 2701 Resiliency Training for Life  Resiliency Training for Life will provide you the skills, knowledge and techniques and the practice necessary to apply what you learn to your daily life to make healthy life decisions. This entails a holistic approach where mind, body, spirit are integrated in order to function to your fullest. In these times of increasing stress and rapid and unsettling change, people will do much better who are able to see clearly, adjust appropriately, listen openly to others, be creative, decide with confidence and act with conviction. In Resiliency Training for Life, you focus on training the mind as the mind is central to your perceptions of life, your beliefs and the decisions that you make. You will be introduced, through direct experience, to the practical application of clearing, calming, centering, and focusing your mind in your daily life. The physical movement component of the class allows you to develop flexibility, grace, strength, endurance and focus. Direct application of these practices in daily life will give you glimpses of its potential value for you in

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your future careers. Wise and compassionate individuals who embody honor, vitality, dedication, values and integrity are needed in every arena of life from government, business, religion and the military to education, energy and the environment. Resiliency Training for Life will give you practice in refining your ability to act from your 'center', the place from which you maintain integrity and maximize effectiveness. This course satisfies General Education Area VIII: Health and Well-Being.

2 hours

HOL 2801 Health and Well Being  This course is designed to promote greater awareness, understanding and ownership of the multiple dimensions of health and well-being. This course provides students with a holistic approach to understanding self and community through a health focus. Through dialog, experiential activities, service-learning and reflection, students explore theory and practice in the following areas: culture, research, and self-care; and well-being encompassing mental, emotional, physical, spiritual, environmental, social, and vocational health. As a Service Learning course it requires a minimum of 15 hours of service with a course-relevant community partner, which will count toward the Lee Honors College service requirement. This course satisfies General Education Area VIII: Health and Well-Being. Restricted to Honors students only.  3 hours

HOL 2811 Resiliency Training for Leaders  Will provide you the skills, knowledge and techniques and the practice necessary to apply what you learn to be a more successful leader; a leader who can influence others to make healthy life decisions. This entails a holistic approach where mind, body, spirit are integrated in order to function to your fullest. In these times of increasing stress and rapid and unsettling change, successful leaders are those who are able to see clearly, adjust appropriately, listen openly to others, be creative, decide with confidence and act with conviction. In the classroom component, we focus on training the mind as the mind is central to your perceptions of life, your beliefs and the decisions that you make. You will be introduced, through direct experience to the practical application of clearing, calming, centering, and focusing your mind in your daily life. This direct application in daily life will give you glimpses of its potential value for you in your future careers as leaders. Wise and compassionate leaders who embody honor, energy, dedication, values and integrity are needed in every arena of life from government, business, religion and the military to education, energy and the environment. Resiliency Training for Leaders will give you practice in refining your ability to act from your ‘center’, the place a leader acts from to maintain integrity and maximize effectiveness. The field component, will help you realize the benefits of vigorous physical condition and its relationship to the centered mind. This course satisfies General Education Area VIII: Health and Well-Being.      2 hours

HOL 3000 Exploring Practices in Integrative Health Care  This course is a general survey of holistic health practices and issues, with a focus on the variety of alternative and complementary modalities that are present in integrative health care settings. Students will complete an assessment of the values and attitudes which underpin their current health practices, as well as examining the values and issues that shape our current health care models. They will explore and critically evaluate a variety of holistic health services and their application. The format for the course will be a combination of lectures, experiential activities, and student presentations.  3 hours

HOL 3301 Introduction to Meditation  This class will introduce students to the practice of meditation and the benefits that can be realized from a regular meditation practice on their physical, emotional, and spiritual well-being. They will also learn how they can benefit academically from realizing the acquisition of a calm and open mind. Although some of its tenets are grounded in Eastern philosophies, this meditation class is taught with a secular perspective. The main format of the class is experiential and reflective.  1 hour

HOL 3303 Introduction to Tai Chi  This course will provide students with an understanding of the body and mind health benefits of Tai Chi through learning about and practicing a sequence of movements and other fundamental exercises.  1 hour

HOL 3305 Intro to Mindfulness Skills  This course will focus on the philosophy behind and experiential foundations of mindfulness. Students will be exposed to the benefits of mindfulness for physical and mental health. Issues will be explored from the literature supporting the use of mindfulness in personal and professional relationships. Both formal mindfulness practices as well as informal strategies for everyday mindfulness will be offered and practiced in the class and individually. This class utilizes experiential activities, guided readings and reflective learning. Although there will be some overlap in the course content for HOL 5305 and HOL 3305, requirements will differ in specific content areas, and assessment measures will not be completely the same. Students will not be able to enroll in both classes either concurrently or sequentially.  3 hours

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HOL 3350 Introduction to Stress Management  Students will be introduced to theories regarding stress acquisition and management coming from the disciplines of physiology, sociology, psychology, and spirituality. They will explore their own views of and experiences with stress as well as the techniques that have been used to manage it. They will learn what contributes to the development and maintenance of stress and what gets in the way of being able to prevent or reduce it. Finally, they will learn about and practice various stress prevention and reduction methods and be able to apply these to the stress in their own lives. 3 hours

HOL 3500 Holistic Approaches to Food  This course is designed to provide a holistic overview of the role of food as it relates to our body, mind and spirit within this culture; how food choices influence health and well-being; and how choices we make about securing food impacts our values and connection to the greater whole. 3 hours

HOL 3900 Special Topics in Holistic Health  This is a variable topics, variable credit undergraduate level course for the examination of integrative and holistic health care issues. Special topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit. 1 to 4 hours

HOL 3910 Introduction to Spirituality  This course is designed to provide introductory information on spirituality and provides students with a holistic approach to understanding self and community through a spiritual focus. This course is designed about the following themes: spiritual self-care, spiritual research and health, and spiritual diversity. Students will engage in a variety of activities that will foster critical thinking skills and personal exploration. Students will be exposed to spiritual development models, spirituality and health research, and contemplative practices. Students will be assessed on their oral and written communication skills, as well as through their participation in experiential exercises. The course format includes lectures, small-group discussions, experiential exercises, and a final research project. 3 hours

HOL 3960 Learning, Work, and Lifestyles: Holistic Perspectives  This course is designed as an academic and experiential exploration of "whole person" approaches to learning, work and lifestyle choices. Using the lens of holism, it explores individual learning styles, meaningful work theories and practices, as well as personal, communal and global lifestyle options. Students will have an opportunity to deepen their understanding of how they make decisions regarding these dimensions of life, the physical, mental and spiritual interconnection of these decisions and how this has an impact on their health/healing. The format of this course will combine experiential activities, journaling, small group discussions, guest speaker presentations, and video-audio presentations. 3 hours

HOL 4610 Eastern Psychology  Eastern psychology has informed our current understanding of the mind/body/spirit connection. For thousands of years the spiritual and/or philosophical practices of the Eastern psychological traditions taught practitioners how to cultivate the qualities of self-awareness, mindfulness, kindness, contentment and compassion. Modern day science has confirmed that these qualities have a direct and positive impact on health. Through comparative analysis of various philosophical and religious traditions (primarily Tibetan and Zen Buddhism) and experiences, students will explore these practices and consider how they inform their daily life, their understanding of themselves, their communities and the wider world and how they have influenced and continue to influence current scientific research on the mind/body/spirit connection. Restricted to Honors students only. 3 hours

HOL 4700 Relationship-Centered Skills  This course provides students with a holistic approach to interpersonal process and communication in order to prepare them to function effectively in health care and relationship-centered settings. Students are exposed to theory and practice in the following areas: key principles of effective communication, holistic approaches to interpersonal process, and relationship-centered approaches to providing health and human services. This course is intended for students pursuing either the minor in holistic health or one of the majors in health and human services. Restricted enrollment to undergraduates who have completed 57 credits and above. 3 hours

HOL 4850 Capstone in Holistic Health  This class is meant to be the capstone class for the minor in Integrated Holistic Health and Wellness. It is meant to be taken by seniors before or concurrent with their senior internship or project. It provides an in-depth exploration of key issues and ethical considerations that arise when considering health at the individual, interpersonal, community and global level. The course provides students with critical thinking and decision-making skills in order to effectively assess scientific information in the field of holistic health. It culminates with students beginning to explore their own research interests in areas relevant to their professional work. Prerequisites: HOL 2000, (HOL 1000 or HOL 2801) and senior standing. 3 hours
HOL 4970 Independent Study in Holistic Health
This course will be arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of holistic healthcare. May be repeated for credit.
Prerequisite: Instructor approval.
1 to 4 hours

HOL 5300 Special Topics in Holistic Health
Variable topic, variable credit course for consideration of current and special interests in holistic health. Specific topics, number of credit hours and prerequisites, if any, will be announced each time the course is scheduled. May be repeated for credit with different topics. Special topics are offered each semester and may include: Bodymind Nutrition, Biofeedback, Chi Gong, Understanding Grief and Loss, Science and Spirit of Holistic Health, and Advanced Spirituality. Other topics are planned. Open to upperclass and graduate students.
1 to 4 hours

HOL 5301 Meditation to Enhance Living
The purpose of Meditation to Enhance Living is to introduce the student, through direct experience, to the practical application of meditation in daily life. We will discuss and experience various forms of meditation from different cultural and religious perspectives, yet the basic meditation practice is secular in nature. The latest scientific research on meditation will be reviewed, research that clearly supports the efficacy of meditation in reducing stress and in producing a sense of inner calm or peace. Participants who apply this practice to their daily lives will achieve a significant reduction in stress as well as an increase in their performance and perceived ease of performance. Open to upperclass and graduate students.
1 hour

HOL 5302 Advanced Meditation to Enhance Living
The purpose of Advanced Meditation is to deepen, through direct experience, the student's capacity to meditate and to apply meditation with increasing ease and effectiveness in daily life. We will discuss and experience various forms of meditation from different cultural perspectives yet the basic meditation practice is secular in nature. Prior experience with meditation is required. Open to upperclass and graduate students.
1 hour

HOL 5303 Tai Chi to Enhance Living
This course will provide students with an understanding of the body and mind health benefits of Tai Chi through learning and practicing a short set and other fundamental exercises. The benefits of practicing Tai Chi for health and well-being will be explored through a selected review of the research on the topic. This course will also prepare students to apply for certification to lead others in Tai Chi practice through the Arthritis Foundation (AF). This will be accomplished by providing students with both the didactic and the practice elements to meet AF requirements. Open to upperclass and graduate students.
1 hour

HOL 5304 Yoga to Enhance Living
This class is intended to introduce students to the history, philosophy, science, spirituality and health benefits that yoga has to offer. The class will combine lectures with the practice of yoga techniques including: asana (holding of postures), pranayama (breathwork), and meditation. Open to upperclass and graduate students.
1 hour

HOL 5305 Mindfulness Theory and Skills
This course will focus on the theoretical and experiential foundations of mindfulness. Research on the benefits of mindfulness for physical and mental health issues will be explored as well as the literature supporting the use of mindfulness in personal and professional relationships. Both formal mindfulness practices as well as informal strategies for everyday mindfulness will be offered and practiced in the class and individually. This class utilizes experiential activities, guided readings and reflective learning as well as focused scholarly study. Although there will be some overlap in the course content for HOL 5305 and HOL 3305, requirements will differ in specific content areas, and assessment measures will not be completely the same. Students will not be able to enroll in both classes either concurrently or sequentially. Open to upperclass and graduate students.
3 hours

HOL 5310 Introduction to Holistic Health
The primary purpose of this course is to provide an introduction to the philosophies, theories, and concepts involved in holistic health care. It is meant to serve both as a general educational experience for persons wishing to become familiar with holism and essential basic instruction for persons wishing to apply for admission to the graduate certificate program in Integrative Holistic Health and Wellness. Open to upperclass and graduate students.
3 hours

HOL 5320 Holistic Approaches to Personal Relationships
The purpose of this course is to provide an understanding of relationship development. In order to do this, students will acquire knowledge in self-concept formation, social systems theory, values development, and communication models. A major emphasis in the course will be on how to
assist people in establishing and maintaining healthy relationships. Open to upperclass and graduate students.

HOL 5321 Holistic Health Coaching This course introduces students to the foundational concepts of psychological coaching, including the history and theoretical roots, related professional organizations, and ethical codes regulating the coaching profession. The instructor, a professionally certified coach and trainer, will provide an overview of coaching techniques and models of coaching, as well as the role of coaching in promoting holistic health. Clear distinctions will be drawn between psychological coaching and psychotherapy, as well as other helping models. This course will also include an overview of the dimensions of wellness and how coaching techniques can promote lasting change to better support well-being. Suggestions and encouragement for integrating coaching skills into related professional roles will also be emphasized. Open to upperclass and graduate students.

HOL 5330 Holism and Community A course designed to help students better understand the dynamics of community and the potential for holistic growth and health through the investment of self in a common and purposeful experience with others. Open to upperclass and graduate students.

HOL 5340 Holistic Health and Spirituality This course helps students better understand the spiritual dimensions of each individual and the relationship of spirituality to the meaning of health. Various spiritual traditions, philosophies and practices will be explored with the primary emphasis on the implications of these teachings for everyday living. The course will address the role of spirituality in the therapeutic process for health care professionals and resources available for practitioners and educators. The format for the course will include lecture, discussion, experiential activities and audio/video presentations. Open to graduate students and undergraduates who have completed 57 credits and above.

HOL 5350 Holistic Approaches to Stress Students will be exposed to the current research and theories regarding stress acquisition and management. Historical precepts and information drawn from current scholarly sources will be presented to provide a thorough understanding of the physiological, neurological, physiological, and sociological causes for and impact of stress, as well as the spiritual considerations in stress acquisition and management. Students will be taught a variety of stress prevention and reduction methods and how to apply these to their own lives and the lives of those with whom they may work. Open to upperclass and graduate students.

HOL 5360 Wellness Skills for Health Professionals This course introduces wellness information and strategies for use by students and professionals working in the health and human services fields. The course is designed to teach the theories and techniques used to address wellness issues related to emotional, relational, cognitive, physical, and spiritual concerns. This course is designed to help students and health care professionals explore these wellness issues in their own lives to insure they are able to provide effective services to their clients/patients/consumers and to assist in preventing compassion fatigue. It is also designed to provide them with a guide to implementing these same wellness practices with those with whom they are working. Students will be exposed to current research in the areas of wellness and neurological functioning as it relates to wellness. Finally, students will explore diversity issues and ethical practices as they relate to wellness strategies. Open to graduate students and undergraduates who have completed 57 credits and above.

HOL 5370 Health and Humor This course will focus on the physical, intellectual, emotional and spiritual dimensions of laughter, humor and play. We will explore recent discoveries and research regarding their role in human physical and mental health. Students will learn about the social significance of humor and play, what makes people laugh and why, the role of happiness, and will learn ways to increase happiness and playfulness, use laughter and humor as a stress management technique, and build a basis for appropriate use of humor in helping others. Open to upperclass and graduate students.

HOL 5380 Eastern Thought and Practice Eastern thought and practice has informed our current understanding of the mind/body/spirit connection. For thousands of years the spiritual and/or philosophical practices of the Eastern psychological traditions taught practitioners how to cultivate the qualities of self-awareness, focus, kindness, contentment, mindfulness, and compassion. Modern day science has confirmed that these qualities have a direct and positive impact on health. Through comparative analysis of various philosophical and religious traditions (primarily Tibetan and Zen Buddhism) and experiences, students will explore these practices and consider how they inform their daily life, their understanding of themselves, their communities and the wider world and how they have influenced and continue to influence
current scientific research on the mind/body/spirit connection. The meditative/mindfulness practices will help students move along the path to their own sense of inner peace, calmness, clarity and liberation. Open to upperclass and graduate students.

3 hours

HOL 5500 Introduction to Holism and Expressive Arts This course is a survey of expressive arts therapies used to facilitate the healing process and will deepen the student's understanding of the role of creative expression in health and healing. The use of arts therapies to promote health, reduce stress, and complement the traditional treatment of physical and mental illness will be discussed. Topics covered will be visual arts, sound/music, movement/dance, writing/poetry, and drama/psychodrama. The format for the course will be a combination of experiential creative activities, guest lectures, and video and audio presentations. No artistic experience or background required. Open to upperclass and graduate students.

3 hours

HOL 5510 Holistic Approaches to Healing Through Visual Art This course introduces a holistic approach to the use of visual art in healing; how to choose and present appropriate art experiences; spontaneous and directed theme art activities, resources, and materials; guides for interpreting art; and ethics. A variety of activities such as drawing, painting, clay, sand tray, collage, mandalas, and masks will be explored. The format for the course is a combination of experiential activities, lectures, video, and slide presentations. The course is designed to give students and professionals in the counseling, social work, psychology, health care, occupational therapy, art, and other fields some practical tools and considerations for using art for health and healing with others or for personal growth. No artistic talent is required. The format for the course will be a combination of lectures, discussion, experiential activities, and audio and video presentations. Students enrolled in social work, counseling psychology, occupational therapy, nursing, physical education, and dance will especially benefit from this course. No artistic experience or background required. Open to upperclass and graduate students.

3 hours

HOL 5520 Healing through Movement This course is a survey of the use of movement for health and healing. Several movement and dance specialty areas are covered in order to explore personal growth, creativity, balance, stress reduction, spirituality, and cultural perspectives on healing of self and others. Body awareness, breathing, and communication will be emphasized throughout the exploration of movement modalities, such as Authentic Movement, Contact Improvisation, Creative Movement, Feldenkrais, Interplay, Labyrinth Walking, Progoff Journal Writing, Tai Chi Chuan, Dances of Universal Peace, and Movement Therapy. No movement or dance experience required. Open to upperclass and graduate students.

3 hours

HOL 5530 Holistic Strategies for Illness and End of Life This course will examine holistic strategies and techniques designed to help people cope with illness along the continuum from diagnosis through the end-of-life. Topics will include: complementary methods that assist with treatment, surgery, medical procedures, pain management, guided imagery; psychosocial/spiritual considerations; being/supporting the caregiver; and death and dying. Students will pursue their individual interests in a project which will include assessment, research and recommendations of holistic modalities for a person dealing with a particular illness. This course is appropriate for professionals/students in healthcare and related fields and for individuals who are looking for assistance with their own illness or caring for a loved one. Open to upperclass and graduate students.

3 hours

HOL 5540 Love and Forgiveness Students will be exposed to current research in the areas of love and forgiveness and the impact they have on an individual's personal well-being as well as social well-being. We will examine our own views of and experiences with love and forgiveness as well as how these have been viewed and experienced by notable others in literary, political, and religious areas. We will explore what contributes to the development of a grievance, what maintains it, and what gets in the way of being able to forgive it. And, we will examine methods of achieving love and forgiveness in our lives, and the positive benefits these have. Open to graduate students and undergraduates who have completed 57 credits and above.

3 hours

HOL 5550 Successful Aging-Holistic Perspectives This course will focus on holistic factors of aging and lifestyle choices that enable people to preserve and even enhance wellness and vitality in later life. Current images and myths of aging will be explored and research studies that outline holistic ways to delay, prevent, or positively treat common chronic diseases will be presented along with programs and policies that enable older people to practice positive aging strategies. This course will highlight the qualities of older people who remain physically active, intellectually engaged, emotionally involved, spiritually connected, and vital throughout their years. Open to upperclass and graduate students.

3 hours
HOL 5560 Understanding Grief and Loss  This course examines basic principles of grief and loss including the many types of loss, mourning, common reactions, manifestations and myths. Also considered are ambiguous loss, disenfranchised loss, substance use related to grief and the special needs of those who grieve in prison. Grief support in the form of healing listening is explored as well as issues related to self-awareness, self-care and boundaries in supporting those who grieve. The issues are explored through the lens of Holism as it relates to physical, emotional, intellectual, relational and spiritual areas. Open to upperclass and graduate students. 3 hours

HOL 5980 Readings in Holistic Health  This course provides individualized, independent study and readings under guidance of a faculty member. Initiative for planning topic for investigation and seeking the appropriate faculty member comes from the student, with consultation from the advisor. Open to upperclass and graduate students. Prerequisite: Consent of instructor. 1 to 4 hours

Human Performance and Health Education
HPHE 1100 Athletic Taping and Bracing Technique  This course is designed to introduce basic contemporary taping and wrapping techniques and the use of protective equipment in preventing and protecting the competitive athlete and the physically active. 1 hour

HPHE 1110 Healthy Living  This course is designed to provide students with the information and skills that are conducive to healthy living. Students will be introduced to concepts and skills related to priority health behaviors associated with substance abuse, HIV/AIDS, sexually transmitted diseases, unintended pregnancy, depression, lifestyle related diseases, stress, eating disorders, physical inactivity, and weight management. 2 hours

HPHE 1490 Computer Applications in HPHE  This course provides an introduction to computer terminology, technology, communication, and information systems. Its purpose is to provide students with the knowledge of current computer applications in the fields of Health, Physical Education and Recreation. The course includes, but is not limited to the use of the computer for information gathering via the Internet, information processing and communications, word processing, spreadsheets, and database management. Credit cannot be earned for both HPHE 1490 and either BIS 1020 or 1100, FCS 2250, SOC 1820, or CS 1050. 3 hours

HPHE 1500 Foundations of Physical and Health Education  An introduction to contemporary physical and health education teacher education and physical activity, this course will provide a philosophical background in the development of physical and health education and physical activity programs. Course content will include the history and philosophy of physical and health education, examination of the value of physical activity in the 21st century, professional competencies, ethics, organizations and issues. The initial development of a professional philosophy begins in this course. 3 hours

HPHE 1520 Foundations of Exercise Science  This is an introductory course for students majoring in Exercise Science. Its purpose is to provide students with information about: (a) Exercise science as a field of study; (b) the Exercise Science curriculum; (c) sub-disciplines in Exercise Science; (d) professional organizations and certification; (e) wellness and health related fitness; (f) physical exercise: an historical, sociological, and philosophical perspective; (g) exercise and aging; and (h) career options in Exercise Science. Student's health related fitness will be assessed. 3 hours

HPHE 1530 Introduction to Athletic Training  This course is designed to review the history and the governance of the athletic training profession and to address the educational domains and the responsibilities of the certified athletic trainer. The major content area of injury prevention will be emphasized. This course will also provide a general orientation to the clinical requirements of the student majoring in athletic training. 3 hours

HPHE 1550 Foundations of Health Education  This course will provide students with the philosophical background in the development and implementation of health education programs. Topics include: history and philosophy of health education/health promotion, health education settings, professional competencies, ethics, organizations and future issues. 3 hours

HPHE 1610 Skills and Instruction of Invasion Games  The purpose of this course is to provide teacher candidates with the opportunity to acquire the motor skills, knowledge and structured experiences that will facilitate teacher certification. Based on the Teaching for Understanding Framework, the domains covered in this course are invasions games
(e.g., basketball, soccer, football, lacrosse). Restricted to majors in Secondary Physical Education, and Physical Education: Teacher/Coach (and pre-program); minors in Coaching; and Pre-Physical Education Teacher/Coach. 3 hours

HPHE 1620 Skills and Instruction of Net/Wall Games The purpose of this course is to provide teacher candidates with the opportunity to acquire the motor skills, knowledge and structured experiences that will facilitate teacher certification. Based on the Teaching for Understanding Framework, the domains covered in this course are net/wall games (e.g., volleyball, pickleball, badminton, tennis). Restricted to majors in Secondary Physical Education, and Physical Education: Teacher/Coach (and pre-program); minors in Coaching; and Pre-Physical Education Teacher/Coach. 3 hours

HPHE 1630 Skills and Instruction of Target/Striking/Fielding Games The purpose of this course is to provide teacher candidates with the opportunity to acquire the motor skills, knowledge and structured experiences that will facilitate teacher certification. Based on the Teaching for Understanding Framework, the domains covered in this course are target or striking/fielding games (e.g., softball, golf, Disc golf, Frisbee). Restricted to majors in Secondary Physical Education, and Physical Education: Teacher/Coach (and pre-program); minors in Coaching; and Pre-Physical Education Teacher/Coach. 3 hours

HPHE 1640 Skills and Instruction of Early Elementary and Rhythmic Movements This course will provide the opportunity to acquire the motor skills, concepts (level, direction, pathway, speed, space), (non-)locomotor, and manipulative activities, selection of developmentally appropriate games, rhythmic activities (e.g., social, square, line dances, aerobics and tumbling), and the basic instructional components required for the plan and delivery of motor appropriate physical education and physical activity. Restricted to majors in Secondary Physical Education, and Physical Education: Teacher/Coach (and pre-program); minors in Coaching; and Pre-Physical Education Teacher/Coach. 3 hours

HPHE 1650 Skills and Instruction of Fitness Activities The purpose of this course is to provide teacher candidates with the opportunity to acquire the motor skills, knowledge and structured experiences that will facilitate teacher certification. Based on the Teaching for Understanding Framework, the domains covered in this course are fitness and nutrition concepts. Restricted to majors in Secondary Physical Education, and Physical Education: Teacher/Coach (and pre-program); minors in Coaching; and Pre-Physical Education Teacher/Coach. 3 hours

HPHE 1700 Introduction to Recreation/Sport Management This course offers an introductory analysis of the philosophical, economic, political, social and psychological impacts of recreation and sport. The course also offers a contemporary analysis of trends in recreational/sport. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

HPHE 1810 First Aid The standard course in first aid techniques leading to Red Cross certification. Open to all students. 2 hours

HPHE 2100 Strategic Planning for Special Events Provides a theoretical background and practical applications designed to provide a framework for the management of resources associated with the planning, implementation and evaluation of festivals and special events. Restricted to majors/minors in Recreation/Sport Management. 3 hours

HPHE 2200 Basic Health Concepts I This course will provide instruction and skills related to health and wellness, mental health and stress management, physical fitness, nutrition, weight control, and health issues related to growth and development (aging and death). 3 hours

HPHE 2210 Basic Health Concepts II Designed to provide students with basic health education content. Topics to be discussed include: health care systems and consumer health; alcohol, tobacco, and other drug addictions; Chronic and communicable diseases including sexually transmitted infections and environmental health issues; and intentional and unintentional injuries. 4 hours

HPHE 2220 Basic Health Concepts III This course is designed to provide students with basic health education content in the areas of chronic and communicable diseases including sexually transmitted infections and environmental health issues. 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPHE 2350</td>
<td>Theory of Coaching</td>
<td>Introduction to coaching includes basic principles, covers State Athletic Handbook, budgets, scheduling, facilities, liability, public relations, relationships with staff, faculty, students, parents, press, etc.</td>
<td>2</td>
</tr>
<tr>
<td>HPHE 2400</td>
<td>Human Motor Development and Learning</td>
<td>Course content focuses on birth to death study of the changes in motor behavior due to the interaction of environmental and biological factors. Special emphasis on the physical, cognitive, and personal-social development as this relates to the acquisition of motor skills. Prerequisite: BIOS 1120.</td>
<td>3</td>
</tr>
<tr>
<td>HPHE 2430</td>
<td>Physical Education Methods: Early Elementary Movement/Physical Activities</td>
<td>The content in this course includes movement concepts (level, direction, pathway, speed, space), locomotor, non-locomotor and manipulative activities, selection of developmentally appropriate games, rhythmic activities, and the basic instructional components required for the plan and delivery of motor appropriate physical education curricula for preschool and early elementary school children. Prerequisite: HPHE 1500</td>
<td>3</td>
</tr>
<tr>
<td>HPHE 2480</td>
<td>Skills and Instruction of Aquatics</td>
<td>This two credit lecture/lab course provides the physical education teacher education candidate the skills, knowledge and safety concepts required in developmentally appropriate aquatics courses. This course is designed for the candidate who does NOT have the aquatic skills necessary for certification as a Water Safety Instructor. Restricted to majors in Secondary Physical Education, and Physical Education: Teacher/Coach (and pre-program); minors in Coaching; and Pre-Physical Education Teacher/Coach.</td>
<td>2</td>
</tr>
<tr>
<td>HPHE 2530</td>
<td>Injury/Illness Survey and Management</td>
<td>Basic procedures in the recognition, assessment and the treatment of athletic related injuries and illnesses. To obtain the knowledge and skill needed to complete an on-site injury survey, and to initiate the management of the injury/illness. Addressing contemporary taping and wrapping techniques and the use of protective equipment in preventing and protecting the athlete and the physically active is addressed. Prerequisites: HPHE 1810, HPHE 1530, BIOS 2110.</td>
<td>3</td>
</tr>
<tr>
<td>HPHE 2540</td>
<td>Medical Conditions in Athletic Training</td>
<td>Basic procedures in the recognition, treatment, and management of general medical conditions are addressed. To obtain the knowledge, skills, and values needed to manage illnesses of athletes and the physically active and to recognize the need for a medical referral when appropriate. Pharmacology, drug testing, psychosocial interventions, and selected emergency procedures pertaining to general medical conditions are addressed. Prerequisite: HPHE 2530</td>
<td>3</td>
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<tr>
<td>HPHE 2720</td>
<td>Administration of Recreational Sports</td>
<td>This course offers an introductory analysis of recreational sport. Also known as campus recreation, this course will explore the history and growth of the profession. It will also offer students the opportunity to experience real life work in cooperation with the Student Recreation Center at WMU. Finally, the course will explore current issues and trends in the profession and introduce students to various professional associations. Restricted to majors/minors in Recreation/Sport Management.</td>
<td>3</td>
</tr>
<tr>
<td>HPHE 2900</td>
<td>Inclusive and Special Recreation</td>
<td>An overview of inclusive and special recreation programming designed for the student preparing for a career in recreation (leisure services). This course will provide the student with a sensitivity to, and knowledge about individuals with disabling conditions and their recreation/leisure needs. Restricted to majors/minors in Recreation/Sport Management.</td>
<td>3</td>
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<tr>
<td>HPHE 2950</td>
<td>Functional Anatomy and Biomechanics</td>
<td>This course involves a detailed study of the human musculoskeletal system and its function. It covers bony landmarks, muscle origin, insertion, and actions, as well as biomechanics and injury mechanism and prevention. The course will also emphasize the use of mechanics in assessing and evaluating human and sport related motion. Prerequisite: BIOS 2110.</td>
<td>3</td>
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<tr>
<td>HPHE 2980</td>
<td>Exercise Physiology</td>
<td>This course explores the physiological concepts and principles related to the acute and chronic adaptations the human body makes when responding to stress in the form of strenuous, physical exercise. Prerequisites: BIOS 2110, 2400.</td>
<td>3</td>
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<tr>
<td>HPHE 3000</td>
<td>Seminar Series</td>
<td>Designed to provide an opportunity for qualified students to examine and discuss a subject area in field of common interest. Prerequisite: Enrollment by written permission of the instructor.</td>
<td>1 to 4</td>
</tr>
</tbody>
</table>
HPHE 3100 Event Management Advanced Applications
Provides practical applications designed to provide opportunities to implement management theory and best practices in event and festival management, planning, implementation and evaluation.
Prerequisites: HPHE 1700 and HPHE 2100, with grades of “C” or better.
3 hours

HPHE 3110 Event Marketing
Provides fundamental and advanced concepts in the study and practice of event marketing including event mission and vision development, target audience development, event positioning, event product development, integrated event marketing tactics, and the formulation of the communication plan.
Prerequisites: HPHE 1700 and HPHE 2100, with grades of “C” or better.
3 hours

HPHE 3120 Planning School Health Programs
Designed to provide information and experiences in school settings which will enable students to develop planning skills for a variety of health promotion programming in the school setting.
Prerequisites: HPHE 1550 (with a “C” or better), HPHE 2200, HPHE 2210, HPHE 2220; ED 2500 (with a “C” or better); all cognates (BIOS 1120, BIOS 2110, BIOS 2400; PSY 1000; SOC 2000); and application to the Department of HPHE/HESJ/HESN program.
3 hours

HPHE 3150 Measurement, Evaluation, and Statistics for Exercise Science, Health, and Physical Education
This course covers measurement and evaluation techniques in terms of understanding, interpretation, and application with emphasis on administration, selection, and use of tests; interpretation of results through statistical procedures; analysis of tests available in Exercise Science, Health, and Physical Education and techniques for developing assessment tools.
Prerequisites: HPHE 1500 or HPHE 1520, HPHE 1530.
3 hours

HPHE 3160 Issues in Health Education
The course will focus on current health issues. May be designed to deal with one issue or several.
Prerequisites: HPHE 1550, HPHE 2200, HPHE 2210, and HPHE 2220.
2 hours

HPHE 3161 Current Pedagogical Practices
2 hours

HPHE 3300 Grant Writing in Health Education
Designed to prepare students with skills necessary to secure external grant funding through grant proposal writing. Emphasis is placed on grant sources and resources, the grant proposal process, grant management, and continued funding.
Prerequisites: HPHE 1550, HPHE 2200, HPHE 2210, and HPHE 2220.
3 hours

HPHE 3310 Community Health Education Planning
This course deals with the analysis of principles of program planning in public health education. Topics include: needs assessment, community analysis and organization, program selection, program coordination, and program evaluation.
Prerequisites: HPHE 1550, HPHE 2200, HPHE 2210, and HPHE 2220.
3 hours

HPHE 3350 Advanced Theory of Coaching
A continuation course for professional students with a major in physical education or minor in coaching pursuing the second level of Program for Athletic Coaches Education Certification (PACE). PACE Level II certification demonstrates advanced competence in the interpersonal and technical skills of coaching high school sports in Michigan. Course content provides an understanding as to significance of quality coaching, human growth and development, conditioning for sport performance and psychological and social skills necessary to coach high school sports.
Prerequisite: HPHE 2350
2 hours

HPHE 3400 Physical Education for the Elementary Classroom Teacher
This course is structured for the future elementary classroom teacher and/or special education teacher. It provides experience in the participation and teaching of appropriate elementary physical education movement activities in the areas of basic skills, stunts and tumbling, simple games and sports, rhythms and classroom correlated activities. This course is not open to physical education majors or minors. Open to all students.
2 hours

HPHE 3460 Physical and Health Education Methods: Special Populations
This course is an orientation to the instruction of health and physical activity to special populations. Emphasis is placed on meeting the needs of students with disabilities in health and physical education classes. Required curriculum adaptation, effective instructional techniques, identification and development of resources and services, as well as accommodation of activities, equipment, and
instructional materials for special populations attending grades K-12 are stressed. Restricted to majors in Physical Education/Teacher Coach and Health Education: School and minors in Secondary Physical Education. Prerequisite: HPHE 1500 with a grade of “C” or better. 3 hours

HPHE 3500 Modification of Health Behavior This course will provide students with skills that will enable them to comprehend, develop, and apply theories, models, skills, and strategies to help individuals and groups modify and maintain behaviors conducive to health. 2 hours

HPHE 3520 Teaching Health in the Elementary School This course will provide students with knowledge and skills needed to design, implement, and evaluate health education curricula for grades K-6. The focus of the course will be on the following: (a) planning a developmentally appropriate instructional program for elementary students, (b) identifying and evaluating existing health curricula, and (c) implementing health lesson/units into primary and intermediate grade levels in a public school setting. This course is restricted to majors in: early childhood professional education, elementary professional education, health education: school, special education: learning disabilities and cognitive impairment, and special education: learning disabilities and emotional impairment. Prerequisites: ED 2500 and (HPHE 1110 or HOL 1000); with a grade of “C” or better in all prerequisites. 2 hours

HPHE 3540 Human Sexuality Education This course provides students with knowledge and skills needed to design, implement, and evaluate health education curricula for grades K-6, including content- and process-oriented opportunities in sexuality education. Candidates will enhance their current understanding of human sexuality with knowledge and skills that will enable them to assess, plan, implement, evaluate, and advocate for developmentally appropriate instruction related to evidence-based sexuality education. The course includes: (a) planning a developmentally appropriate instructional program for elementary students, (b) identifying and evaluating existing health curricula, and (c) implementing health lesson/units into primary and intermediate grade levels in a public school setting. Restricted to majors/minors in Health Education and majors in Physical Education Teacher/Coach and Physical and Health Education Teacher Education: K-12. 4 hours

HPHE 3710 Practical Recreational Programming and Leadership The purpose of this course is to enable students to put programming theory into practice by allowing students the opportunity for hands-on programming. The course is designed to allow students to apply what they learned in programming/leadership theory (HPHE 2710). The course will center around two practical experiences (1) Programming the Intramural Sports Turkey Trot, and (2) designing a practical program given a real world situation. Restricted to majors/minors in Recreation/Sport Management. 3 hours

HPHE 3760 Management of Recreational/Sport This course is designed to provide students with the opportunity to understand the organizational and administrative principles, objectives, procedures, and practices involved in operating recreation and sport organizations. Restricted to majors/minors in Recreation/Sport Management. 3 hours

HPHE 3810 Instructor First Aid This course is designed to prepare students to be instructors in Community First Aid and Safety. This will be accomplished by providing first aid and CPR certification, and teaching skills related to certification. 2 hours

HPHE 3825 Athletic Injury Evaluation of the Lower Extremity This course is designed to present the techniques used in lower extremity athletic injury evaluation. An in depth analysis of lower extremity athletic injury mechanics, the theory and application of orthopedic and neurological evaluation are included. Restricted to majors in the Athletic Training program. Prerequisites: All pre-program core requirements; admission into Athletic Training Professional Program. 3 hours

HPHE 3830 Athletic Injury Evaluation of the Upper Extremity This course is designed to present the techniques used in upper extremity athletic injury evaluation. An in depth analysis of upper extremity athletic injury mechanics, the theory and application of orthopedic and neurological evaluation are included. Restricted to majors in the Athletic Training program. Prerequisites: All pre-program core requirements; admission into Athletic Training Professional Program and HPHE 3825. 3 hours
HPHE 3840 Therapeutic Modalities This course is designed to study the pain management techniques and the mediation of theory and practice of therapeutic modalities. To plan, implement, document and evaluate the efficacy of therapeutic modalities in the treatment of injuries to and illness of athletes and others involved in physical activity. Prerequisite: Admission into Athletic Training Professional Program. 3 hours

HPHE 3960 Principles for Strength and Conditioning This course is designed to provide students with the applied scientific knowledge to design and implement strength training and conditioning programs in order to improve health and performance. The major topics in this course include flexibility, cardiovascular conditioning and aerobic exercise, and strength training and endurance. This course will include exercise and sport-specific testing, designing and implementing safe and effective exercise programs, and injury prevention. The course will also familiarize the students with the requirements, knowledge and skills necessary for the NSCA CSCS certification. Prerequisites: HPHE 2950 and HPHE 2980. 3 hours

HPHE 3970 Exercise and Sports Nutrition The purpose of this course is to educate students in various aspects of nutrition, sports nutrition, body composition, and weight management techniques. The course will cover the topics of macro-and micro-nutrients, the assessment and interpretation of dietary intake, the application of nutrition to sport-specific performance, the assessment and interpretation of body composition, and the principles of weight management. Laboratory exercises will support the theoretical knowledge provided in the classroom. Prerequisite: HPHE 2980 3 hours

HPHE 3980 Sport Media This course is designed to introduce students to the many roles and responsibilities of sport media professionals. Students will gain experience in the various media formats which modern sport media professionals use. This is a writing intensive course with weekly assignments, which is a reflection on the importance of writing in the industry. Restricted to majors in Recreation/Sport Management: Sport Management. 3 hours

HPHE 3990 Practicum in Recreation/Sport The practical field experiences in recreation/sport. Enrollment by department approval and acceptance of practicum proposal. Students are given letter grades in course. Restricted to majors/minors in Recreation/Sport Management. 3 hours

HPHE 4000 Field Experience/Internship in HPHE This course will provide in-depth field experience or internships for undergraduate majors or minors in athletic training, recreation, health, coaching, exercise science, or exceptional child. Students will be assigned to classes or positions according to their selected area of emphasis. Enrollment by department approval. Prerequisite varies with area of emphasis and requires departmental approval. 1 to 8 hours

HPHE 4010 Athletic Training Field Experience I This course will provide in-depth field experience or internships for undergraduate majors in athletic training. Students will be assigned to clinical field experiences according to their selected area of emphasis. Restricted to majors in athletic training professional program. 3 hours

HPHE 4020 Athletic Training Field Experience II This course will provide in-depth field experience or internships for undergraduate majors in athletic training. Students will be assigned to clinical field experiences according to their selected area of emphasis. Restricted to majors in athletic training professional program. Prerequisites: HPHE 3825 and HPHE 4010, with a grade of “C” or better in all prerequisites. 3 hours

HPHE 4030 Athletic Training Field Experience III This course will provide in-depth field experience or internships for undergraduate majors in athletic training. Students will be assigned to clinical field experiences according to their selected area of emphasis. Restricted to majors in athletic training professional program. Prerequisites: HPHE 4020, with a grade of “C” or better. Corequisite: HPHE 4860 3 hours

HPHE 4040 Athletic Training Field Experience IV This course will provide in-depth field experience or internships for undergraduate majors in athletic training. Students will be assigned to clinical field experiences according to their selected area of emphasis. Restricted to majors in athletic training professional program. Prerequisites: HPHE 4030, with a grade of “C” or better. 3 hours

HPHE 4100 Intern Teaching Seminar in HPHE Through course activities and assignments, students develop professional skills which facilitate positive induction into the field of education. All assignments correspond with practical experiences which occur concurrently during HPHE 4750. Prerequisites: Students must attain a GPA of 2.5 in physical,
health and professional education courses as well as overall. All course work necessary for completion of student's major and minor curricula must be done prior to the semester during which the student applies for intern teaching.

HPHE 4120 Teaching Skills and Strategies
Designed to provide information and experiences that enable students to design and implement effective health education strategies in a school setting. Prerequisite: HPHE 3120
3 hours

HPHE 4140 Measurement and Evaluation in Health Education
This course provides a forum for developing measurement and evaluation skills relevant to the completion of HPHE 4120 (HESJ requirement) and HPHE 431 (CHDJ requirement) in health education. The core competencies for professional development of a health educator related to needs assessment and evaluation will also be covered. The settings for health education practice covered in this course would include the school and the community. Prerequisites: HPHE 3500 and (HPHE 3310 or HPHE 3120); Recommended Corequisites: HPHE 4310 or HPHE 4120.
3 hours

HPHE 4160 Topics in Recreation
The purpose of this course is to pick one or two topics or issues each time it is offered for in-depth investigation and study. The course will provide students with a background in current issues and current developments in the field of recreation, including special event management.
2 hours

HPHE 4199 Practicum in Event Management
The purpose of this course is for the student to gain work experience in special event management. The student will spend a minimum of 225 hours working with an organization on special event programming. Prerequisites: HPHE 1700, HPHE 2100 and HPHE, with grades of “C” or better in all prerequisites.
3 hours

HPHE 4310 Community Health Education Interventions: Individual Strategies
Designed to prepare students with skills necessary to implement health education programs within the context of community health settings. Emphasis is placed on community health education methods at the individual level, including development of educational materials, working with media, group processes, and effective presentations. Prerequisite: HPHE 3310
3 hours

HPHE 4320 Research and Writing in Recreation/Sport
This course is designed to instruct the student on research in the fields of recreation and sport. It will introduce students to the different types of research and research methodologies commonly used in recreation and sport. This course will also emphasize professional writing as it is used in the field. The course will emphasize, but is not limited to writing assignments including reports, research papers, research proposals, year-end reports, and other types of writing that are required of a successful professional in parks and recreation. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors/minors in Recreation/Sport Management with junior standing.
3 hours

HPHE 4430 Professional Development in Athletic Training
This course will concentrate on the professional development and awareness of professional concerns prior to student graduation and graduate school. Special emphasis is placed on the following: cover letters and resumes, interviewing skills, presentation skills, professional organizations, written policy and procedure development, and current events and research topics relating to athletic training. This course also serves as the writing intensive course for athletic training majors. Satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors in athletic training professional program. Prerequisite: HPHE 4020 with a grade of "C" or better.
3 hours

HPHE 4440 Professional Development in Exercise Science
This course will concentrate on the professional development and awareness of professional concerns prior to student internships, graduation and graduate school. Special emphasis is placed on the following: cover letters and resumes, interviewing skills, presentation skills, professional organizations and certifications, and current events and research topics relating to exercise science. This course also serves as the writing intensive course for exercise science majors. Satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: HPHE 2950, HPHE 2980 and HPHE 3150.
3 hours

HPHE 4450 Exercise Testing and Prescription
This course provides the student with the knowledge and tools to properly conduct various aspects of exercise testing such as the assessment of risk stratification, cardiorespiratory endurance, muscular strength and endurance, body composition and flexibility. The course then instructs the student as to how to apply these assessments in development of exercise programs and prescriptions for both a general health and fitness population and a clinical population. The American College of Sports Medicine’s guidelines for exercise training and
prescription will be emphasized with specific focus on the knowledge, skills, and abilities for the Health Fitness Instructor Certification. Prerequisites: HPHE 2950, HPHE 2980, HPHE 3150, HPHE 3960 and HPHE 3970. 3 hours

HPHE 4470 Physical and Health Education: Elementary Methods This course is designed to provide experiences which will enable students to develop, implement and assess health and physical education content in an elementary school setting. Restricted to majors in Physical Education: Teacher/Coach, Physical and Health Education Teacher Education: K-12, Health Education: School, and minors in Physical Education: Secondary Education. Prerequisites: HPHE 1500, HPHE 2400, HPHE 2950, HPHE 2980, HPHE 3150 and HPHE 3460. 4 hours

HPHE 4480 Physical and Health Education: Secondary Methods This course provides information and experiences which allow the student to plan and implement effective health and physical education curricula in a secondary school setting and to self-assess teaching performance using reflective systematic skills. Restricted to majors in Physical Education: Teacher/Coach, Physical and Health Education Teacher Education: K-12, Health Education: School, and minors in Physical Education: Secondary Education. Prerequisite: HPHE 4470 4 hours

HPHE 4500 Cultural Dynamics in Human Performance and Health Education This course is for majors in the physical education teacher/coach, health, recreation, and exercise science emphases. A comparative approach is taken that applies sociology and multiculturalism to the fields of health, physical activity, and recreation using the vehicle of contemporary sport issues and trends. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: HPHE 1500 or HPHE 1530 or HPHE 1550; and 56 hours (junior status). 3 hours

HPHE 4690 Fitness Management The purpose of this course is to provide students with an introduction to the scope, characteristics, management techniques, and business operations used in the field of sport management, as well as exercise science professions. Prerequisite: HPHE 3960 3 hours

HPHE 4700 Facilities and Risk Management This course is intended to provide the student with an understanding of the general principles and strategies related to the management of facilities that support the delivery of recreation/sport services. Restricted to majors/minors in Recreation/Sport Management with junior standing. 3 hours

HPHE 4720 Recreation for the Aging An overview of aging especially as it relates to leisure pursuits and organized recreation. Includes observation, participation and leadership of recreational activities or programs for retirees, nursing homes, senior citizens housing units and clubs. Restricted to majors/minors in Recreation/Sport Management. 3 hours

HPHE 4750 Intern Teaching in HPHE This course represents the final experience of the student's curriculum during which an application of all knowledge and skills acquired is facilitated. Through the experiences provided in this course, students develop the skills and knowledge necessary for certification as a health or physical education teacher in the state of Michigan. Graded on a Credit/No Credit basis. Prerequisite: Department approval. 5 or 10 hours

HPHE 4800 Heart Disease and Rehabilitation The purpose of this course is to examine the pathophysiology of and the risk factors for heart disease, and to understand the effects of exercise on the rehabilitation of individuals with heart disease. In addition, students will learn to identify various electrocardiographic changes often seen in heart disease, learn about various medications used for the treatment of heart disease, and diagnostic tests used to determine heart disease status. Various surgical procedures used to treat heart disease will also be discussed, along with the appropriate methods to prescribe exercise for patients with heart disease. Prerequisite: HPHE 2980 3 hours

HPHE 4860 Therapeutic Exercise for Athletic Injuries This course will study the theory of rehabilitation and to learn the correct application of therapeutic exercise techniques in the management of athletic injuries. To plan, implement, document, and evaluate the efficacy of therapeutic exercise program for the rehabilitation and reconditioning of athletic related injuries. Prerequisites: HPHE 3830 and HPHE 3840. 3 hours

HPHE 4870 Sports Medicine Seminar A course designed to address relevant and contemporary issues in sports medicine. Particular emphasis is given to the topic of health care administration and professional development of the certified athletic trainer. Prerequisite: Admission into Athletic Training Professional Program. 3 hours
HPHE 4910 Exercise Management of Chronic Diseases and Disorders  This course serves as an introduction to exercise management for individuals who experience chronic disease and disabilities. Students will develop and apply knowledge of testing procedures and program development for special populations, including the pathophysiology of various diagnoses and specific effects of exercise response, training, and contraindicated exercises.  Prerequisites: HPHE 2950, HPHE 2980 and HPHE 3960.  3 hours

HPHE 4960 Community Health Education Internship  Designed to prepare students with skills necessary to implement health education programs within the context of community health setting. Emphasis is placed on community health education methods at the community level, including community organization, coalition building, community empowerment, and legislative advocacy.  Prerequisites: All other required CHDJ major courses; departmental approval.  4 to 6 hours

HPHE 4970 Senior Seminar in Recreation/Sport  The course is designed to present to the undergraduate student a final overview of the field of recreation/sport and to prepare the student for his/her internship. It is also designed to cover topics including professional associations, current issues, ethics, jobs searching, and job skills. Restricted to majors/minors in Recreation/Sport Management.  2 hours

HPHE 4980 Exercise Science Internship  This course will provide an in depth internship in an applied setting supporting the outcomes of the Exercise Science undergraduate major. All course work must be completed prior to the internship. All internship sites must be approved by the HPHE Department. Student must apply one semester in advance of the internship placement. Course is graded on a Credit/No Credit basis. Prerequisites: Exercise Science major; all Exercise Science major courses completed.  6 hours

HPHE 4990 Recreation/Sport Internship  The recreation internship is structured to bring academic course work to life, provide valuable work experience, and professional contacts. This will help ensure a successful professional career. The recreation/sport management major must commit to a 15-week full item experience with an agency/organization in recreation/sport service delivery or an appropriately related field. Students are given letter grades in course. Restricted to majors/minors in Recreation.  Prerequisite: Department approval.  6 hours

HPHE 5000 Studies in Human Performance and Health Education  In-depth study of selected topics in HPHE. Format can include clinics, workshops, seminars, travel and/or mini-courses; and provide opportunity to acquire skills and teaching techniques. State, national, and international authorities or consultants may be involved. Topics include: Lifetime Sports, Outdoor Education, Physical Education, Stress Management, Physical Fitness, Business Procedures, Nutrition.  1 to 2 hours

HPHE 5160 Issues in Health Education  The focus will be placed on current health issues. May be designed to deal with one issue or several. Open to upperclass and graduate students.  1 to 3 hours

HPHE 5610 Legal Issues in Sport  This course is designed to help the sports professional become more conscious of legal responsibilities in the sport setting, thus reducing the penalties of legal action. Students will discuss basic legal concepts and structures as they apply to the physical activity context. Application will be made in regard to improving risk management strategies and skills. Open to upperclass and graduate students. Restricted to majors/minors in Recreation/Sport Management.  3 hours

HPHE 5980 Readings in Human Performance and Health Education  Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest.  Prerequisite: Department approval.  Open To Graduate students only.  1 to 2 hours

Interdisciplinary Health Services
HSV 1040 Introduction to the Health Disciplines and Inter-professional Practice  This course offers an introduction to health professions for students in the business and health professions. This course will provide information about the history, roles, and responsibilities of professionals working in health delivery systems. Students will gain an understanding of critical thinking, evidence based practice, and the influence of culture, illness, caring, and technology upon
health care. Legal considerations, political trends, and theories associated with the delivery of health care will be introduced.

HSV 2250  Growth, Development, and Aging  A study of physical, mental, emotional, and social patterns of growth, development, and aging. Aspects to be given special emphasis for the health student will be motor development, physiology of aging, growth patterns, and functional development in any of the above aspects. This course satisfies General Education Area V: Social and Behavioral Sciences.  3 hours

HSV 2350  Special Topics in Interdisciplinary Health Services  A variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credits will be announced each time the course is scheduled. May be repeated for credit.  1 to 4 hours

HSV 3100  Professional and Interpersonal Skills for Patient Centered Care  This course focuses on the development of knowledge and interpersonal skills needed to conduct assessments and to develop, implement, and evaluate patient care. It covers concepts for ensuring services meet the unique needs of individual patients. It addresses the utilization of ethical principles and evidence-base practice to address common problems and issues encountered in patient care. Restricted to majors/pre-majors in Interdisciplinary Health Services (all programs), pre-majors in Interdisciplinary Health Services with an Occupational Therapy concentration.  9 hours

HSV 3200  Clinical Practice in U.S. Health Care Delivery  This course focuses on clinical practice within U.S. health care systems, and the role various health care professionals play in service delivery. It looks at legal and ethical issues affecting clinical practice. It addresses the emerging concepts of interdisciplinary care and the utilization of technology in the health care arena. Restricted to majors/pre-majors in Interdisciplinary Health Services (all programs), pre-majors in Interdisciplinary Health Services with an Occupational Therapy concentration.  9 hours

HSV 3550  Perspectives in Women’s Health  This course will provide a socio-cultural perspective on concepts and issues in women's individual and aggregate health. Course will include definitions of women's health, women's health concerns, and the influence of cultural, social, historical, and medical factors on women's health. Students will be introduced to the concepts of inter-relationship and translational research. This course satisfies General Education Area III: The United States: Cultures and Issues. Crosslisted with NUR 3550.  3 hours

HSV 3650  Information Literacy in the Health Sciences  Building on the concepts of evidence-based practice in the health sciences, students will learn about the wide variety of information resources available to inform and direct their practice. Students will learn how to determine what types of information resources are needed, how to locate information resources efficiently, and how to evaluate the appropriateness of different resources for specific real-life scenarios faced by health science professionals. Students will learn the ethical and legal considerations surrounding use of information in the health sciences. Students will also learn disciplinary conventions (APA style) for appropriately formatting and communicating the results of their research. Restricted to majors/minors in Health Informatics and Information Management, majors/pre-majors in Interdisciplinary Health Services (all programs), and majors/pre-majors in Interdisciplinary Health Services with an Occupational Therapy concentration, all majors in Social Work. Prerequisite: BCM 1420, or ENGL 1050, or IEE 1020; with a grade of "C" or better in any prerequisite.  2 hours

HSV 3700  The Health System and Its Environment  This course provides a descriptive analysis of the organization of the health system. The student who participates can expect to gain an understanding of the structure of health services as well as the operational processes of the service system and the ways in which consumers make use of the system. The analysis focuses on the interplay of forces within the system as well as behind the system and its environment. Restricted to: majors/minors in Health Informatics and Information Management, majors/pre-majors in Interdisciplinary Health Services (all pre-programs), and majors/pre-majors in Interdisciplinary Health Services with an Occupational Therapy concentration.  3 hours

HSV 3900  Core Competencies and Contemporary Issues in Health Services  This course introduces students to the core competencies identified by the Institute of Medicine as needed across disciplines in today's healthcare environment. These competencies are: providing patient and family centered care, working in interdisciplinary teams, designing evidence based practices, quality improvement, health literate practices, and utilizing informatics. Use of the core competencies are applied to contemporary issues in health care. Restricted to majors in Health Informatics and Information Management, Interdisciplinary Health Services; associated pre-programs, Interdisciplinary Health Services with
a concentration in Occupational Therapy and associated pre-programs, and minors in Health Information and Information Management. Prerequisite: HSV 3700 (may be taken concurrently), with a grade of "C" or better.

3 hours

HSV 4100 Legal Issues in Health and Human Services This course presents an overview of the legal issues facing the health care industry. It provides students with a basic working knowledge of health law. It is a comprehensive and inclusive review of a wide variety of health care legal issues. Students are provided with a realistic knowledge of health law and its application to the real world. Restricted to majors/minors in Health Informatics and Information Management, majors/pre-majors in Interdisciplinary Health Services (all pre-programs), majors/pre-majors in Interdisciplinary Health Services with an Occupational Therapy concentration. Prerequisite: HSV 4810 with a grade of "C" or better.

2 hours

HSV 4120 Principles of Health Finance This course is an examination of the principles of finance as applied to health care management. The course will provide a basis for understanding the financial management function in a health administration environment and on the use of financial information in health care management and decision-making. 3 hours

HSV 4140 Basic Principles and Organization of Health Planning This course is an introduction to the principles and methods of planning in the health system. It includes a descriptive analysis of the significance of planning effective health care services, alternative planning frameworks, and technical approaches to the planning process. In addition, the course surveys the history of planning in the health systems as well as the current structural arrangements for carrying out planning in the health arena both at the macro and micro levels.

3 hours

HSV 4150 Administrative Functions in the Health Care Setting This course focuses on the knowledge and skills necessary for the major administrative functions in health organizations. These include goal setting, decision-making, personnel management, data processing, service design, and general principles of financial management.

3 hours

HSV 4200 Health and Human Services Research and Statistics This course introduces the fundamentals of research design and statistics used in health and human service research. It also introduces evidence based practices, the application of this research to the improvement of care and service delivery (evidence based practices). This course provides students with the basic skills to critically evaluate and analyze scientific research and to conduct computer literature searches and reviews introductory exposure to statistics to aid in that analysis. Restricted to majors/minors in Health Informatics and Information Management, majors/pre-majors in Interdisciplinary Health Services (all programs). Prerequisite: HSV 3650 or the Information Literacy for Health Care Professionals (ILHCP) proficiency exam with a score of 75% or above, (HSV 3700 or HSV 4810 or H&HS 5110), with a grade of "C" or better.

3 hours

HSV 4350 Special Topics in Health and Human Services This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit.

1 to 4 hours

HSV 4400 Diversity and Inclusion in Health and Human Services This course will prepare students to engage in ethnically and culturally sensitive health and human services. Students will develop values, knowledge, and skills to engage in more effectively with patients and coworkers who are different from them in a variety of ways. The class will expose students to historical insights into diverse populations, their cultural beginnings, how needs of different groups are or are not met, and how a diversity of values and behaviors may affect the delivery of health and human services. Three professional foundation areas to be covered in this course include: at-risk populations, health disparities, and promotion of social and economic justice. This course satisfies General Education Area III: The United States: Cultures and Issues.

3 hours

HSV 4450 Service-Learning in Community Health Care Settings This course provides an overview of preventive approaches in health education. Through a service-learning format, students will work with community-based organizations, schools and public health partners in areas they have identified with the greatest needs. Students will deliver preventive health education services that have some similarity to work within the Peace Corps sector. Guest lecturers will be used frequently, and student discussion and reflection on their community work will be employed as part of the service-learning component of the course. Students will conduct a formal needs assessment to the community partner at the completion of the course.

3 hours
HSV 4500  Individual Studies in Health and Human Services  This course will be arranged on an
individual basis to provide students the opportunity to pursue independently the study of special areas of interest. May be
repeated for credit. 1 to 4 hours

HSV 4690  AIDS/HIV: Perspective on an Epidemic  This course is intended to provide a historical
perspective and introduction to the social, psychological, biological, political, economic, ethical, and medical implications of
HIV infection and the Acquired Immune Deficiency Syndrome (AIDS). 3 hours

HSV 4780  U.S. Policy in Health and Human Services  This course will allow the student to critically read,
analyze, and understand current U.S. policy in health and human services and to understand how these policies affect specific
people in the community. Students will write advocacy letters, explanations (at the appropriate level of understanding) and
recommendations for potential revisions of current health policies. This course satisfies General Education Proficiency 2:
Baccalaureate-Level Writing. Restricted to majors/minors in Health Informatics and Information Management, majors in
Interdisciplinary Health Services, majors in Social Work, majors Interdisciplinary Health Services with a concentration in
Occupational Therapy and all related pre-programs. Prerequisites: BCM 1420 or ENGL 1050 or IEE 1020 with a
grade of "C" or better; pass the Information Literacy for Health Care Professionals (ILHCP) proficiency exam with a score of
75% or above or enroll in and successfully complete HSV 3650 with a grade of "C" or better. 3 hours

HSV 4800  Health Services Practice Management  This course introduces the student to the health care
delivery system from an administrative and management perspective. The student will learn about different delivery models
and how these relate to the management process. Restricted to: majors/minors in Health Informatics and Information
Management, majors/pre-majors in Interdisciplinary Health Services (all pre-programs), and majors/pre-majors in
Interdisciplinary Health Services with an Occupational Therapy concentration. Prerequisite: HSV 3700 with a
grade of "C" or better. 3 hours

HSV 4860  Health Literacy Practices  Examines the complexity of health literacy and the central role
that literacy strategies play in today’s health system. Students will also be exposed to the new national agenda regarding
health literacy and the developing programs around the country. They will use the health literacy national plan and the
universal precautions tool kit in developing good strategic practices in a particular health or human services setting. Particular
emphasis will be placed on low health literacy, including populations at risk, research, measurement tools, writing in plain
language; health communication techniques; and organizational approaches. Students will practice adjusting complex
information into plain language both orally and in written formats. This course satisfies General Education Proficiency 4:
Oral Communication. Restricted to majors/minors in Health Informatics and Information Management, majors in
Interdisciplinary Health Services, majors Interdisciplinary Health Services with a concentration in Occupational Therapy and
all related pre-programs. 3 hours

HSV 4880  Psychosocial Issues in Health and Human Services  This course covers the psychosocial aspects
of health and health care for both health care providers and health care recipients. The course will cover personal and
organizational factors that influence health care provision including: training, organizational culture, and social support. The
course additionally explores how psychosocial factors influence illness and health, including how individual beliefs, family
variables, and cultural and group factors influence health and illness. The course content will also cover how health care
providers may encourage patient empowerment, healing, pain relief, and behavior change. 3 hours

HSV 4890  Health and Human Services Independent Research  This course requires the completion
of a credible research project related to a current issue in health and human services. The project must be approved and
supervised by faculty. This course is only open to students who are registered, certified, or licensed health care providers who
wish to substitute a research project for the required HSV 4900 Internship. May be repeated for credit. This course is
restricted to majors in Interdisciplinary Health Services. Prerequisites: HSV 4810 and HSV 4200; Prerequisites (that
may be taken concurrently): HSV 4100, HSV 4780, HSV 4800 and HSV 4850. 3 hours

HSV 4895  Capstone Project in Health Services  This class is designed to combine formal instruction
in project design, implementation, and evaluation with the opportunity for students to provide a practical service to a health
care or health-related organization. Students work in groups, partnering with a community organization to address a
community-identified need. Community partners will provide advice and mentoring to students as they work towards
completing a project: both the student and community partner are expected to benefit from the project. Restricted to students in Interdisciplinary Health Services including all accelerated programs and tracks within the BS-IHS program.

Prerequisites: HSV 3700, HSV 4100, HSV 3900, HSV 4200, HSV 4780 and HSV 4800 (HSV 4200, HSV 4780 and HSV 4800 may be taken concurrently). A grade of "C" or better is required to satisfy any course prerequisite. 3 hours

HSV 4900 Health and Human Services Internship Provides the student with a supervised internship experience of at least 200 agency clock hours in a health and human service organization or agency in which the student can apply the knowledge learned in the program and develop or refine his/her skills with the assistance and guidance of professionals working in the field. May be repeated for credit. This course is restricted to majors in Interdisciplinary Health Services. Prerequisites: HSV 3700, HSV 4100 and HSV 3900; Prerequisites (that may be taken concurrently): HSV 4200, HSV 4780 and HSV 4800. All prerequisites must have a grade of "C" or better. 4 hours

Industrial & Entrepreneurial Engineering

IEE 1020 Technical Communication Principles of objective presentation of factual material in written, oral, and electronic communication, with emphasis on the research process. Content, format, and mechanics, as well as a clear, concise style are important components of individual and collaborative assignments. Prerequisite: ENGL 1000 or placement into College-level writing. 3 hours (3 - 0)

IEE 2010 Entrepreneurial Engineering I: Cost and Financial Analysis This course is the first of a series of three courses in entrepreneurial engineering. This course will introduce students to how engineers can be entrepreneurs. Topics covered will include techniques used in determining the cost of designing, developing, producing and selling a product or service and how these activities relate to entrepreneurial engineering. Topics covered will include an introduction to financial statements and cost accounting, labor and material analysis, and forecasting. 3 hours (3 – 0)

IEE 2050 Work Design Design of jobs and work environments in business and industry. Topics include techniques for job design, ergonomics in the workplace, and work measurement. A semester project requiring the design of a work station is required. Prerequisite: IEE 1020 and MATH 1220 or 1700. Corequisite: Recommended, IEE 2610. 4 hours (3 - 3)

IEE 2610 Engineering Statistics Introduction to statistical methodology emphasizing applications in engineering. Topics include descriptive and inferential statistics, regression, analysis of variance, and design of experiments. Prerequisite: MATH 1220 or 1700. 3 hours (2 - 3)

IEE 2620 Probability and Quality for Engineers Introduction to probability and quality emphasizing applications in engineering. Topics include the use of discrete and continuous random variables, Goodness of Fit Tests, fitting of distributions, statistical process control and process capability. Prerequisites: MATH 2720 (may be taken concurrently). 3 hours (3 - 0)

IEE 2621 Probability for Engineers Introduction to probability emphasizing applications in engineering. Use of discrete and continuous random variables common to engineering problems in engineering models. Prerequisite: MATH 2720 (may be taken concurrently). 2 hours (2 – 0)

IEE 2622 Statistical Quality Control Methods of applying statistics and probability theory to control processes. Application of computer programs to analyze quality control problems. Prerequisite: IEE 2610 2 hours (2 – 0)

IEE 2990 Cooperative Education A cooperative education program involves a full-time planned and supervised work experience in industry during the semester or the equivalent on a part-time basis. A written report of the student's activities will be required. May be elected four semesters for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis. 1 to 3 hours

IEE 3010 Entrepreneurial Engineering II: Product and Service Design Through research, analysis, drawing and prototyping, students will understand human needs that lead to the conceptualization and design of future products, environments, systems, and services. Students are taught to use design processes to resolve constraints arising from
technical, human, aesthetic, and business concerns. The course places emphasis on conceptual thinking, creativity, and risk-taking. Prerequisite: Junior or senior standing, or instructor approval required. 3 hours (2 – 3)

IEE 3090 Engineering Economy for Mechanical Engineers Economic decision making from an engineering perspective. This course is designed to provide undergraduate engineering students with sufficient knowledge to perform engineering economy studies. Topics covered include time value of money, decision making criteria, break-even studies, depreciation and taxes, inflation, and life cycle cost analysis. Prerequisite: Recommended, MATH 1230. 2 hours (2 - 0)

IEE 3100 Engineering Economy Application of principles of engineering economy for establishment of equipment and system feasibility. Interest, equivalence, taxes, depreciation, uncertainty and risk, incremental and sunk costs, and replacement models. Restricted to majors in Computer Engineering, Construction Engineering, Chemical Engineering, civil Engineering, Industrial and Entrepreneurial Engineering, Mechanical Engineering, and Paper Engineering. Prerequisites: MATH 1230 and Junior standing. 3 hours (3 - 0)

IEE 3110 Introduction to Operations Research The development of mathematical concepts and models concerned with industrial engineering problems. Topics include queuing theory, game theory, linear, and dynamic programming. Restricted to majors in Industrial Engineering, Industrial and Entrepreneurial Engineering; and accelerated masters in Industrial Engineering. Prerequisites: IEE 2610 with a grade of “C” or better. 3 hours (3 - 0)

IEE 3160 Report Preparation Learning techniques and procedures for preparation of technical documents. Intensifying critical, analytical process of thinking, and executing writing and oral strategies for different situations. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Junior standing and IEE 1020 or IME 1020 or ENGL 1050, with a grade of "C" or better in any prerequisite. 3 hours (3 - 0)

IEE 3300 Simulation Modeling and Analysis Use of computer modeling and discrete event simulation methodology with emphasis on designing and analyzing manufacturing and service systems. Commercial simulation packages will be used. Restricted to majors in Industrial Engineering, Industrial and Entrepreneurial Engineering; and accelerated masters in Industrial Engineering. Prerequisite: (IEE 2620 or IEE 2621) and IEE 2050 (any prerequisite may be taken concurrently). 3 hours (3 - 0)

IEE 3420 Ergonomics and Design An introduction to ergonomics affording students the necessary knowledge essential for the psychological and anthropometrical development leading to good design. Emphasis is placed on health and safety. A design project is required. 3 hours (2 – 3)

IEE 4010 Entrepreneurial Engineering III: Facilities Planning and Logistics This course explores how traditional industrial engineering topics such as supply chain management, facility layout and location are relevant to entrepreneurial engineers. Students design a facility that can be used to produce the product that they designed in IEE 3010. The course prepares students to effectively practice industrial and entrepreneurial engineering. Prerequisite: IEE 3010 and IEE 3110 and IEE 3300. 3 hours (3 – 0)

IEE 4160 Operations Control in Industry The function of production and inventory operations. Control of manufacturing production systems and modeling. Prerequisites: IEE 2010, IEE 3100, IEE 3110, and IEE 3300. 4 hours (3 - 3)

IEE 4190 IE Senior Design This course is the capstone industrial engineering course, taken in two separate semesters, the first semester for one credit, and the second semester for three credits. The course will require application of several IE design principles to a project. The projects are chosen by students or assigned by faculty. All students are required to present their projects at the Senior Engineering Design Conference hosted by the College of Engineering and Applied Sciences. Prerequisite: Department approval. 1 to 3 hours

IEE 4900 Independent Research and Development Individual research or special project in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours. 1 to 4 hours
IEE 4950 Special Topics in Industrial and Entrepreneurial Engineering  A specialized course dealing, each time it is scheduled, with some particular aspect of industrial or entrepreneurial engineering not usually included in other course offerings. May be repeated for credit with a different topic.  Prerequisite: Instructor approval.  3 hours (3 to 0)

IEE 4980 Readings in Engineering  Independent readings in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.  1 to 6 hours

IEE 4990 Studies in Engineering  Independent studies in engineering. Open only to students having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.  1 to 6 hours

IEE 5010 Survey of Industrial Engineering Topics  Course devoted to studying the basics of the industrial engineering profession. Subjects will include work analysis, engineering economy, statistical quality control, production planning and control, and material handling. Emphasis is placed on the application of these techniques to manufacturing related problems. This course cannot be applied for credit toward the Masters of Science degrees in Engineering Management or Industrial Engineering. Open to upperclass and graduate students.  Prerequisite: MATH 1220 or MATH 1700 or MATH 2000; Recommended: STAT 2600 or 3660, or equivalent.  3 hours (3 – 0)

IEE 5160 Design of Experiments and Regression Analysis  Topics related to experimental design and regression analysis. Topics include randomized blocks, Latin squares, factorials, multiple correlation and regression, and its application to response surfaces. Open to upperclass and graduate students.  Prerequisite: Recommended, IEE 2610 or equivalent.  3 hours (3 – 0)

IEE 5200 Modern Industrial Practices  Students will observe and analyze how advanced concepts in Capital budgeting, Simulation, Production/Operations Management, Project Management, Quality, and Concurrent Engineering are integrated into decision making and R&D functions at industrial and serviced-based enterprises. Students will visit companies and explore the many facets of contemporary practices and procedures. Open to upperclass and graduate students.  3 hours (1 – 6)

IEE 5420 Human Factors Engineering  The process of designing for human use. The course covers the study of the interactions between the individual, equipment, products, and the environment in any human-task-environment system. Topics include human capabilities and limitations; human input, output, and control; work space design; and the work environment. Open to upperclass and graduate students.  Prerequisites: Recommended, IEE 2610 or equivalent.  3 hours (3 – 0)

IEE 5570 Special Topics in Industrial Engineering  Study of special topics in industrial engineering. The specific topic will be shown in the course title when scheduled. May be repeated for credit with a different topic. Open to upperclass and graduate students.  Prerequisite: Department approval.  3 hours (3 – 0)

International and Area Studies

INTL 3300 Education Abroad - WMU Programs  Student participation in approved college-level programs of study in a college or university outside the United States administered and organized by Western Michigan University Study Abroad. Appropriate host university courses may be used to fulfill some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program, as approved by the student's college advising office. Approvals of courses should be obtained prior to departure. Credit is awarded based on transcript from host university. May be repeated for up to 32 credit hours.  Prerequisite: Prior approval for major/minor credit required by the major or minor department advisor, and approval from WMU Study Abroad (Haenicke Institute for Global Education).  1 to 19 hours

INTL 3310 Education Abroad - Non-WMU Programs  Student participation in approved college-level programs of study in a college or university outside the United States administered by Western Michigan University Study Abroad but organized by an institution other than Western Michigan University. Appropriate courses may be used to fulfill
some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program, as approved by the student's college advising office. Approvals of host university courses should be obtained prior to departure. Credit is awarded based on transcript from host university. May be repeated for up to 32 credit hours. Prerequisite: Prior approval for major/minor credit required by the major or minor department advisor, and approval from WMU Study Abroad (Haenicke Institute for Global Education).

1 to 19 hours

INTL 4040 Special Topics Abroad Undergraduate student experiences conducted outside the United States. Topics listed in Schedule of Classes. Appropriate courses may be used to fulfill some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program, as approved by the student's college advising office. Approvals of host university courses should be obtained prior to departure. May be repeated for credit. Prerequisite: Prior approval of the appropriate department chair or major advisor, and approval from WMU Study Abroad (Haenicke Institute for Global Education).

1 to 19 hours

Interprofessional Education

IPE 2350 Special Topics in Interprofessional Education This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit.

1 to 4 hours

IPE 3050 Study Abroad and Global Learning in Health and Human Services Seminars in Health and Human Services conducted outside the United States by WMU faculty or others associated with WMU. Students who complete such a seminar may receive credit toward the general education requirements in Area IV. This course satisfies General Education Area IV: Other Cultures and Civilizations. May be repeated for credit.

1 to 6 hours

IPE 4350 Special Topics in Interprofessional Education This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in health and human services. Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit.

1 to 4 hours

Italian

ITAL 1000 Basic Italian I Fundamentals of Italian with communicative emphasis. Italian cultural readings. This course satisfies General Education Proficiency 4: Foreign Languages.

4 hours

ITAL 1010 Basic Italian II Continuation of ITAL 1000. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: ITAL 1000 or equivalent.

4 hours

ITAL 4760 Foreign Study – non WMU Student participation in pre-approved program of study abroad that is not through Western Michigan University. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson.

1 to 16 hours

ITAL 4770 Foreign Study Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson.

1 to 16 hours

ITAL 5020 Italian for Graduate Study Italian instruction for graduate students enrolled in a degree program who need knowledge of Italian for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures.

3 to 4 hours

Japanese

JPNS 1000 Basic Japanese I Acquisition of beginning level communicative competence of the Japanese language in all four skills - speaking (able to handle some survival situations); listening (able to understand simple everyday conversation with repetition); writing (able to write short memos, simple letters and journals); and reading (able to read all
hiragana and katakana). Introduction to about 25 kanji, or Chinese characters, and some aspects of the Japanese culture and people. Introduction to computer-assisted Japanese language learning, including basic word-processing in Japanese. This course satisfies General Education Proficiency 4: Foreign Languages. 4 hours

JPNS 1010 Basic Japanese II Continuation of JPNS 1000. Acquisition of another 75 kanji. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: JPNS 1000 or equivalent. 4 hours

JPNS 2000 Intermediate Japanese I Continuation of JPNS 1010. Achievement of intermediate level communicative competence of the Japanese language in four skills. Acquisition of another 75 kanji. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: JPNS 1010 or equivalent. 4 hours

JPNS 2010 Intermediate Japanese II Continuation of JPNS 2000. Learning of another 75 kanji. Completion of basic Japanese grammar and structures. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: JPNS 2000 or equivalent. 4 hours

JPNS 2750 Japanese Life and Culture This course is designed to introduce selected themes of Japanese life and culture, past and present. The main themes covered by this course are mostly linguistic, literary, philosophic, artistic, and religious. The course will be offered in English with no prerequisites and open to all students. The aim is to provide students new to the subject with an informed and balanced first impression of some of the fundamental components of Japanese culture, and to do so in such a way as to demonstrate its differences from the Western heritage while also noting their universal human value. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

JPNS 3000 Advanced Japanese I Continuation of JPNS 2010. Study of more complex Japanese grammar and structures. Acquisition of another 100 kanji. Fundamental skills of Japanese writing both in handwriting and on the computer. Prerequisite: JPNS 2010 4 hours

JPNS 3010 Advanced Japanese II Continuation of JPNS 3000. Study of more complex Japanese grammar and structures. Acquisition of another 100 kanji. Emphasis upon increasing the student’s command of conversational Japanese. The course includes role play, film viewing with discussion, speeches, debates, and other communicative activities. Prerequisite: JPNS 3000 4 hours

JPNS 3240 Japanese for Specific Purposes This course emphasizes the effective use of the Japanese language in specific artistic, cultural, or professional contexts. Topics may include Japanese manga, anime, cinema, artistic traditions, and business rituals and interactions. The course includes practice in reading newspapers, transcription/dictation of texts, and listening to video, film and news broadcasts. Prerequisite: JPNS 2010 3 hours

JPNS 3250 Close Reading in Contemporary Japanese The course introduces students to writing in various genres, including essays, fiction, biography, and verse. Students will work on developing reading fluency and the skills to approach unfamiliar texts in modern and contemporary Japanese. Prerequisite: JPNS 3010 or instructor approval. 3 hours

JPNS 3260 Close Reading in Modern and Classical Japanese The course develops student reading skills by having students read works of various genres, including non-fictional essays, historical texts, and fiction. Students will develop reading fluency and the skills to approach unfamiliar texts from the early twentieth century and before. The course will also provide an introduction to classical Japanese grammar and vocabulary. Prerequisite: JPNS 3010 or instructor approval. 3 hours

JPNS 4510 Advanced Japanese Language Advanced study of conversation, composition, or reading in Japanese. Topic may vary from semester to semester. May be repeated for credit with change of topic. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: JPNS 3000 or JPNS 3010, or equivalent. 3 hours

JPNS 4760 Foreign Study – non WMU Student participation in pre-approved program of study abroad that is not through Western Michigan University. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson. 1 to 16 hours
JPNS 4770 Foreign Study  Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson. 1 to 16 hours

JPNS 5020 Japanese for Graduate Study  Japanese instruction for graduate students enrolled in a degree program who need knowledge of Japanese for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures. 3 to 4 hours

JPNS 5030 Japanese – English Translation Practicum  This is a practical course to teach the skills for translating texts from Japanese into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of Japanese texts, such as news, essays, documents, poetry, and short fiction. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: JPNS 2010 or instructor approval. 1 to 4 hours

JPNS 5100 Studies in Japanese Culture  An intensive study of selected aspects of Japanese culture. Course varies according to topic and may be repeated for credit with permission of advisor. Representative topics include Women in Japanese Society, the Japanese Tradition to Specific Cities (e.g. Edo/Tokyo, Kyoto, Okinawa), Japanese New Cinema, and Pop Culture in Japan. Open to upperclass and graduate students. Prerequisite: JPNS 2750 or instructor approval. 3 hours

JPNS 5200 Topics in Japanese Linguistics and Language Science  The advanced study of a language or a group of languages from a scientific point of view, such as the function and status of languages in society, the comparative history of different language families or the manipulation of language for pragmatic needs across cultures. May be offered as ARAB/CHIN/FREN/GER/ GREK/ITAL/JPNS/LAT/ RUSS 5200. May be repeated for credit. Open to upperclass and graduate students. 3 hours

JPNS 5500 Independent Study in Japanese  Directed individual study of a specific topic in Japanese language, literature, or culture. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: Completion of four courses in Japanese or equivalent; minimum grade point average of 3.0 in Japanese; departmental approval required. 1 to 3 hours

JPNS 5600 Advanced Literary Readings in Japanese  Topics will vary from semester to semester. Selections will be made from Japanese classics and contemporary fiction, to include Kawabata, Akutagawa, Murakami and Yoshimoto among others. May be repeated for credit under different topics with advisor approval. Open to upperclass and graduate students. Prerequisites: JPNS 3250 and JPNS 3260, or instructor approval. 3 hours

Journalism

JRN 1000 Foundations of Journalism  An examination of the role of journalism in American society and an introduction to writing for news organizations. This course includes discussion of news values, objectivity, journalism history, libel, ethics, current events and the impact of the mass media on individuals, groups and institutions. Students will learn news story content and structure and Associated Press Style. There is a strong emphasis on news writing assignments in this course. 3 hours

JRN 2200 Multimedia Journalism  A digital media course with a focus on news writing and reporting using innovative news gathering technology. Students will learn skills in gathering, writing, and disseminating news across multiple platforms including photographic, audio, video and computer-generated graphics. The principles of visual literacy will be emphasized along with related ethical and legal concepts. Restricted to the following majors/minors: communication studies, pre-communications studies, journalism, pre-journalism, journalism minor, telecommunications information management, pre-telecommunications information management. Prerequisite: JRN 1000 with a grade of "C" or better. 3 hours
JRN 2500 Photojournalism  Introduction to the use of still photography in journalism and related information gathering processes. Students will learn appropriate camera operation, the producing and processing of photographs and the preparation and editing of photographs for print and on-line media. Restricted to the following majors/minors: journalism, pre-journalism, journalism minor. Prerequisite: JRN 1000 with a grade of “C” or better. 3 hours

JRN 3100 News Reporting Using New Media  This course develops students’ skills in news writing and reporting with an emphasis on social media and digital reporting tools. Online writing techniques, online information gathering, databases, ethics, and a variety of medium and presentation formats are covered in this course that relies heavily on out-of-class reporting. Public agencies as well as community organizations affected by them are covered. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to the following majors/minors: communication studies, journalism, pre-journalism, journalism minor, public relations, pre-public relations, telecommunications information management, and by instructor approval. Prerequisite: JRN 1000 with a grade of “C” or better. 3 hours

JRN 3200 News Writing and Reporting  This course develops students’ skills in news writing and reporting with an emphasis on out-of-class reporting and interviewing. Information gathering, ethics, current events, and a variety of types of news stories and mediums and covered. Students will learn about beat reporting, the use of public documents, and meeting coverage. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to the following majors/minors: communication studies, journalism, pre-journalism, journalism minor, public relations, pre-public relations, telecommunications information management, and by instructor approval. Prerequisite: JRN 1000 with a grade of “C” or better. 3 hours

JRN 4100 Specialized Reporting  A writing-intensive capstone course for journalism majors and minors that explores in-depth an area of journalism. The course will include advanced reporting and writing assignments, as well as lecture in the special topic selected for that semester. Topics may include feature writing, health and science reporting, critical writing, the black press, narrative journalism and journalism history. Restricted to the following majors/minors: communication studies, pre-communication studies, journalism, pre-journalism, journalism minor, public relations, pre-public relations, pre-communication, journalism minor. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors/minors in journalism or instructor approval. Prerequisites: JRN 3100 and (JRN 3200 or JRN 2100), with a grade of “C” or better in all prerequisites. 3 hours

JRN 4200 Journalism Law and Ethics  The study of the legal and intellectual ramifications of the practice of journalism. Topics and issues include the application of Constitutional, common, and statutory law to journalism, reporting on the law and various court systems, and ethical behavior in writing and reporting news. Students will study the responsibilities of journalists to bring to their work relevant knowledge, informed judgment, critical intelligence and appropriate ethical standards. Restricted to the following majors/minors: Restricted to the following majors/minors: journalism majors and minors, and telecommunications and information management. Prerequisite: JRN 2100 or JRN 3100 or JRN 3200, with a grade of “C” or better in all prerequisites. 3 hours

JRN 4990 Journalism Practicum  Students must work 40 hours per credit hour during the course of the internship. Students must submit an application prior to contacting an internship sponsor and must receive prior approval from the journalism faculty. May be repeated for credit; no more than 6 credit hours in combination with COM 4990 or JRN 4990. Restricted to majors or minors in journalism. Prerequisites: JRN 2100 or JRN 3100 or JRN 3200, with a grade of “C” or better in all prerequisites, and school approval. 1 to 3 hours

World Languages and Literatures

LANG 1000 Basic Foreign Languages I  Study of a language not regularly offered in the department. Fundamentals of the particular language with emphasis on specific skills, as appropriate for that language. This course satisfies General Education Proficiency 4: Foreign Languages. 4 hours

LANG 1010 Basic Foreign Languages II  Continuation of LANG 1000. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: LANG 1000 or equivalent in the same language. 4 hours

766
LANG 2500  The Nature of Language  A broad introduction to the nature and development of language in human society and to the interdisciplinary aspects of current studies of language and language behavior. Student cannot complete both LANG 1050 and LANG 2050 for credit. This course satisfies General Education Area V: Social and Behavioral Sciences. 4 hours

LANG 3500  Classical Greek and Roman Mythology  Investigates the origins, elements, and interpretations of the principal myths and legends of Greece and Rome and their preservation not only in literature, but also in painting, music and sculpture. This course satisfies General Education Area II: Humanities. 3 hours

LANG 3510  The City of Gods: Power and Morality in the Roman World  The foundation myth of Rome combines elements of the sacred with rape and fratricide. This course explores the complex and sometimes paradoxical relationship between Rome's power and morality as portrayed by prominent writers. The evolving sense of Roman morality provides a perspective for understanding and appreciating morality, or moralities, today. Works from a variety of genres may be studied, including biography, epic poetry, satire, political oratory, and essays. This course satisfies General Education Area II: Humanities. 3 hours

LANG 3750  World Literature in English Translation: Views of Humanity  The content of the course will stress the observation and experience of non-Anglophone societies and cultures as depicted in major works of literature and/or cinema. All works will be studied in English translation. Universal themes about the human condition and insight into their treatment by representative writers and/or filmmakers will be presented. The course will consider the differences in treatment of individuals and society and will offer a comparison to contemporary life through various works and the social-historical background for each of the selections. The course may be repeated for credit with different content. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing, and General Education Area II: Humanities. 3 hours

LANG 4040  East and West Literary Relations  Introduces students to the most important literary and cultural ties existing between the East and the West. It provides critical tools for reading literature and culture in a global context. The course will draw upon a selection of texts from diverse periods and cultures, including non-Western traditions. May be repeated for credit if under a different topic. This course satisfies both General Education Proficiency 2: Baccalaureate-Level Writing and General Education Area II: Humanities. 3 hours

LANG 5250  The Practice and Theory of Literary Translation  The course examines the essential role of translation in our world of increasing globalization. Students must translate one extended text of their own choosing from any language into English. Meanwhile, readings and discussion will focus on the nuts and bolts of translation, plus the relationship between translation, literary canonization, nationalism, post-colonialism, and national representation. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: One 3000-level foreign language course or instructor approval. 3 hours

LANG 5500  Independent Study in Classics  Directed, individual study of a specific topic related to Classical languages, literature, and/or culture. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Completion of four courses or equivalent in Classics; minimum grade point average of 3.0 in the major; departmental approval required. 1 to 3 hours

LANG 5580  Second Language Acquisition and Teaching  Required for modern language teaching majors and minors. There will be a dual focus: a theoretical focus on second language acquisition and the ways by which non-native speakers come to acquire a second language; and a practical focus on methods of teaching in a proficiency-oriented program, as well as on the teaching and learning of culture and the pedagogical use of technologies. Students must complete this course before completing directed teaching. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: Minimum of four courses, including a language at the 3160 and 3170 level, or equivalent, or instructor approval. 3 hours

LANG 5800  Foreign Language for Special Purposes  The study of or practice in a specialized area in the field of language and culture such as court interpreting, medical or engineering terminology, or public school administration. The content of this course may vary from semester to semester. May be repeated for credit, provided the subject matter differs. Open to upperclass and graduate students. Prerequisite: Completion of four courses in area of specialization; departmental approval required. 1 to 12 hours
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LAT 1000</td>
<td>Basic Latin I</td>
<td>Fundamentals of Latin; readings emphasize Roman thought, culture, and civilization. This course satisfies General Education Proficiency 4: Foreign Languages.</td>
<td>4</td>
</tr>
<tr>
<td>LAT 1010</td>
<td>Basic Latin II</td>
<td>Continuation of LAT 1000. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: LAT 1000 or equivalent, and Latin Monitored Exam.</td>
<td>4</td>
</tr>
<tr>
<td>LAT 2000</td>
<td>An Introduction to the Study of Latin Literature</td>
<td>A review of Latin grammar based on selections from Latin authors representing various genres, for example: history, satire, political oratory, lyric poetry, comic drama. This course satisfies General Education Proficiency 4: Foreign Languages.</td>
<td>4</td>
</tr>
<tr>
<td>LAT 2010</td>
<td>Latin Composition</td>
<td>The course will cover fundamentals of writing Latin correctly and well, including grammar, idiom, word-choice, clarity, and elegance. While the course will emphasize ancient models of Latin writing, later examples may be studied. Topics for composition may include contemporary as well as ancient subjects. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: LAT 2000 or instructor approval; Latin Monitored Exam.</td>
<td>4</td>
</tr>
<tr>
<td>LAT 2030</td>
<td>Cicero</td>
<td>Selections from the writing of Cicero with special attention to improving reading skills while studying the thought and style of one of Rome's leading statesmen and orators. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: LAT 2000 or instructor approval; Latin Monitored Exam.</td>
<td>4</td>
</tr>
<tr>
<td>LAT 2040</td>
<td>Vergil</td>
<td>Readings from the works of Vergil, especially the <em>Aeneid</em>, with particular attention to improving language skills while exploring Vergil's thought and style. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: LAT 2000 or equivalent; Latin Monitored Exam.</td>
<td>4</td>
</tr>
<tr>
<td>LAT 3240</td>
<td>Latin Literature</td>
<td>Selections from Latin prose and poetry. Since specific readings vary according to genre, author, or period, this course may be repeated for credit. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: LAT 2000 or equivalent.</td>
<td>4</td>
</tr>
<tr>
<td>LAT 4760</td>
<td>Foreign Study – non WMU</td>
<td>Student participation in pre-approved program of study abroad that is not through Western Michigan University. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson.</td>
<td>1 to 16</td>
</tr>
<tr>
<td>LAT 4770</td>
<td>Foreign Study</td>
<td>Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson.</td>
<td>1 to 16</td>
</tr>
<tr>
<td>LAT 5020</td>
<td>Latin for Graduate Study</td>
<td>Latin instruction for graduate students enrolled in a degree program who need knowledge of Latin for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and literatures.</td>
<td>3 to 4</td>
</tr>
<tr>
<td>LAT 5030</td>
<td>Latin – English Translation Practicum</td>
<td>This is a practical course to teach the skills for translating texts from Latin into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of Latin texts, such as essays, poetry, documents, and short fiction. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: LAT 2010 or instructor approval.</td>
<td>1 to 4</td>
</tr>
<tr>
<td>LAT 5500</td>
<td>Independent Study in Latin</td>
<td>Directed, individual study of a specific topic in Latin literature or linguistics. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Completion of four courses in Latin; minimum grade point average of 3.0 in the major; departmental approval required.</td>
<td>1 to 3</td>
</tr>
</tbody>
</table>
LAT 5570 Teaching of Latin The purpose of the course is to acquaint the prospective teacher with theory and practice appropriate to the teaching of the Latin language, literature, and culture in its classical context and as it relates to the modern world. Required of Latin teaching majors and minors. Open to upperclass and graduate students. Prerequisites: Completion of four courses, or equivalent, in Latin; or instructor approval. 3 hours

LAT 5600 Medieval Latin A survey of the development of medieval Latin from late antiquity to the Renaissance. Specimens will include major literary and documentary sources of the medieval centuries including new genres such as hagiography, monastic rules, hymns, and homilies. Open to upperclass and graduate students. Prerequisite: One 2000-level Latin course or LAT 3240 or instructor approval. 4 hours

Law

LAW 3500 Computer Law Students will learn how the legal systems of the United States and other countries address the legal challenges raised by rapidly changing computer technology. Students will learn what laws apply to their business and personal actions so that they can make the most appropriate decisions. However, more importantly, students will learn how those laws were passed and why. Restricted to majors across multiple departments. Please see advisor for specific program restrictions. 3 hours

LAW 3800 Legal Environment An introduction to the legal environment in society. An examination of the role of law in society, the structure of the American legal system and the basic legal principles governing individual conduct. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. 3 hours

LAW 3820 Business Law The study of law affecting common business transactions. The course examines the formation and performance of contracts, basic types of property interests, and key aspects of laws affecting commercial paper. Sales law, creditor-debtor relationships, and estate planning laws are briefly discussed. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: LAW 3800 3 hours

LAW 3840 Criminal Law and Procedure This course surveys the laws and procedures underlying the American criminal justice system. After an introduction to the philosophy and sources of criminal law, the course investigates the legal definition of particular crimes and studies their elements. Legal procedures from arrest, through pre-trial and trial phases, to sentencing, probation and parole are also considered, together with relevant evidentiary topics. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: LAW 3800 3 hours

LAW 4840 International Business Law A study of national, regional and international laws which affect the conduct of international business. An examination of the legal regulations which promote or restrain trade or investment by international business firms. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: LAW 3800 3 hours

LAW 4860 Marketing and Sales Law The course examines the law as it applies to the sale of goods, warranties affecting such sales and the methods of financing those sales. Legal obligations imposed upon and risks assumed by the seller are emphasized. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: LAW 3800 3 hours

LAW 4870 Accounting Ethics and Legal Liability This course provides students with an opportunity to examine the ethical and legal issues affecting the work of accountants and related business professionals. The goals of this course include providing students with the ability to recognize the ethical implications of accounting issues, develop the abilities needed to deal with ethical conflicts and dilemmas, and learn to deal with the uncertainties of the accounting profession. Students will study the following topics: ethical theory; concepts and tools for recognizing and analyzing ethical issues in accounting and business; promoting ethical behavior in corporations and institutions; the social and legal responsibilities of accountants, including their obligations under Sarbanes-Oxley; the role of business and accounting in a free market economy; and the role of the accounting business profession in contemporary American society. Prerequisites: ACTY 2100, ACTY 2110 and LAW 3800. 3 hours
LAW 4880 Legal Aspects of Entrepreneurship
This course will cover the legal aspects of entrepreneurship. For example, should a person set up her start-up venture as a sole proprietorship, partnership, corporation or limited liability company? The course will trace the development of a successful start-up all the way to the IPO. The course will also cover intellectual property, employment law, the law regarding business competition and legal issues relating to the raising of capital. Prerequisite: LAW 3800 3 hours

LAW 4980 Readings and Research in Commercial Law
Directed individual study of legal problems that are not treated in departmental course offerings. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: Written approval of instructor and department chair. 1 to 3 hours

Literacy Studies
LS 1040 Effective Reading for College Students
Designed to provide the student with skills in vocabulary development, comprehension, and reading efficiency. Attention is given to the effective use of text and reference books in academic subjects, inferential reading, and synthesis of main ideas. Credit for course will not apply to the number of credit hours needed for graduation from WMU. 2 hours

LS 3050 K-12 Content Area Literacy
This course is designed to provide the K-12 preservice content area teacher (Art; Human Performance and Health Education; Music; Vocational Education) with the knowledge and skills necessary to assist students in using the language processes-reading, writing, speaking, listening, thinking, as well as performance-as tools for learning. Students will explore the following topics: 1) factors affecting the learner; 2) instructional methods designed to meet the needs of a diverse population; 3) the nature of the reading process and reading to learn; 4) implications of current research on teaching and learning; 5) ways to integrate language arts across the curriculum. The major goal of the course is the application of course concepts and strategies to subject area instruction. Prerequisites: ED 2500 and admission to the College of Education and Human Development. 3 hours

LS 3770 Literacy I: Early Literacy and Language Acquisition
This course addresses early literacy and oral language processes in readers and writers in pre-K through 3rd grade. Preservice teachers will examine how young learners' first experiences with language and literacy help shape them as readers and writers. Preservice teachers will learn about evidence-based literacy practices and standards for literacy including letters/sounds, word recognition, comprehension, fluency, vocabulary, critical thinking, speaking, listening and writing. Preservice teachers will explore the sociocultural, linguistic, and dynamic nature of language and how these factors inform responsive instructional planning based on formative and summative assessments. Multiple materials, genres, multimodal resources, texts, and assessments will be used to meet learners' instructional needs, and effective communication with caregivers, colleagues, and stakeholders will be emphasized. Students will complete 6-9 hours of a field experience in an educational setting. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors in education. Prerequisites: ED 3090 or ED 3100, with a grade of "CB" or better in all prerequisites. These prerequisites may be taken concurrently. 3 hours

LS 3780 Literacy II: Literacy/Language Arts across Disciplines
This course explores teaching methods, materials, and assessments that foster independent and strategic uses of literacy for students in grades K-8 across all subject areas (disciplines). Preservice teacher will explore and participate in literacy as a social, cultural, cognitive and critical process. The emphasis will be on how learners create meaning across multiple contexts in and out of school through literacy. Candidates will study ways to integrate literacy learning through a wide application of literacy practices, strategies, varied texts and multimedia to meet individualized needs of all learners. Candidates will design, select, and modify materials and assessments in response to student needs. This course addresses current standards for K-8 learners and for professionals seeking elementary K-8 certification. A field placement is required with this course. Students complete 18 hours of field experience with K-8 learners. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors in education. Prerequisite: LS 3770 with a grade of "CB" or better. 3 hours

LS 3790 Literacy III: Literacy/Language Inquiry and Multiple Media
This course will build upon the concepts and strategies learned in Literacy I & II. Students (teacher candidates) will learn to organize multiple materials for instruction using an inquiry framework focusing on literacy development as a life-long process. Students will learn how to support children in the use of reading, writing, speaking, listening, and visual representation as a means to generate questions, to gather and organize data, and to analyze, synthesize and critique information for all content areas. Meeting the standards of the Michigan Curriculum Framework, students will connect inquiry instruction in an integrated
curriculum to help young learners engage in critical thinking, problem solving, and independent literacy activities. Students will learn to evaluate materials and administer assessments to identify readers' strengths and needs. Designed for students seeking K-8 certification. Prerequisite: LS 3780.  3 hours

LS 4050 Secondary Content Literacy  This course explores content literacy as it relates to the acquisition of new knowledge in various subject areas. Students will apply the cognitive components of content literacy through assessment of learners and subject area materials, as well as instructional procedures designed to meet the needs of diverse students. Requires participating in a secondary classroom for a minimum of two class periods three days per week. Program requires a grade of "CB" or better. May repeat course one time only. This course is restricted to Secondary Education majors. Prerequisite: Minimum of 70 earned credit hours, ED 3000 and ED 4060 with a grade of "CB" or better (ED 4060 may be taken concurrently).  3 hours

LS 5020 Curriculum Workshop  Opportunity provided for teachers, supervisors and administrators in selected school systems to develop programs of curricular improvement. This may include short-term offerings to resolve a particular curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audiovisual materials, and the like. Each offering of LS 5020 will be given an appropriate subtitle, which will be listed on the student’s official transcript. Students may earn up to three hours of credit for any given subtitle. No more than three hours of LS 5020 may be applied toward the master’s degree with advisor approval. Prerequisite: Advisor approval.  1-6 hours

LS 5100 Diversity in Language, Literacy, and Learning  This course explores how diversity influences language, literacy, and learning in K-8 settings. Students will examine and apply theories and research on instructional practices responsive to students' local, national, and international histories, individual identities, and languages/dialects as they affect language and literacy learning. The course emphasizes language arts and literacy instruction that promotes social justice and critical engagement with complex issues related to maintaining a diverse, inclusive, and equitable society. Open to upperclass and graduate students. Prerequisite: LS 3780 with a grade of "C" or better.  3 hours

LS 5160 Professional Symposium in Reading  This course meets the Michigan reading course requirement for K-12 teachers seeking professional certification. The course examines reading, writing, and thinking processes with an emphasis on reading, writing, and communication across disciplines and across all grade levels. Special emphasis will be placed on the foundations of reading and writing, language development; vocabulary/concept development; sociocultural and linguistic factors that influence literacy; and the effective use of standards, strategic instruction, and assessment to support the diverse needs of all students. Open to upperclass and graduate students.  3 hours

LS 5160 Teaching Reading with Children’s Literature  Engage candidates in a wide reading of children’s literature with particular application to classroom curriculum and instruction. Candidates will explore multiple genres of texts, both print and electronic, to support and enhance young students’ learning and develop methods for integrating children’s literature throughout the curriculum. Open to upperclass and graduate students.  3 hours

LS 5220 Teaching Reading with Adolescent Literature  Engage candidates in a wide reading of young adult literature with particular application to classroom curriculum and instruction. Candidates will explore multiple genres of texts, both print and electronic, to support and enhance adolescent students’ learning and develop methods for integrating young adult literature throughout the curriculum. Open to upperclass and graduate students.  3 hours

LS 5980 Selected Readings in Education  Designed for highly qualified students who wish to study in-depth some aspect of literacy studies under a member of the departmental staff. Prerequisite: Department and instructor approval.  1-4 hours

**Lewis Walker Institute for Race and Ethnic Relations**

LWIR 2000 U.S. Civil Rights Movements  Provides students with a cross-cultural and historical perspective on civil rights movements in the U.S. Students will gain a broad understanding of race and the social movements that have occurred to promote equal rights under the law, primarily focusing on African Americans, but also considering the struggles of Native Americans and Latinos. This course will focus on the period of struggle from 1954 to the present.  3 hours
LWIR 3000 Immigration, Race and Ethnicity in the U.S. Explore the role of immigration in transforming racial and ethnic identity, inter-group relations, patterns of racial/ethnic stratification and inter-generational mobility in the United States, especially since the Immigration Act of 1965. This course satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

LWIR 3500 Special Topics in Race and Ethnic Relations Courses in this topical area will examine various topics through the lens of race or ethnic relations. Specific topics will be listed in Course Offerings. May be repeated for credit under different topics. 3 hours

LWIR 4000 Research in Race and Ethnic Relations Provides students with a foundation in theory, methods and concepts needed to conduct research in race and ethnic relations. Students prepare a research proposal that, upon approval of the instructor, becomes the basis for a research project. Research findings are presented to the class in an oral presentation and in the form of a written research report. This is the capstone course for the minor in Race and Ethnic Relations. Prerequisite: Completion of at least 12 credits of recommended courses toward the minor in Race and Ethnic Relations. 3 hours

Mathematics

MATH 1090 Pre-Algebra Designed to sharpen computational skills and strengthen analytical thinking. Students are encouraged to find patterns, make conjectures, and judge the validity of conjectures. Topics include integers, rational numbers, proportional reasoning, and geometry. Variables and problem solving are emphasized throughout the course. This course is required of students who place into Math 1090; students who place into Math 1110 (Algebra II) or higher must request departmental approval to enroll. Contact the department office for information on placement. Credit for course will not apply to the number of credit hours needed for graduation from WMU. Tutoring is available for all Math 1090 students. 2 hours

MATH 1100 Algebra I Designed to sharpen algebra skills and concepts, and strengthen analytical thinking. Topics include: arithmetic foundations of algebra, properties of real numbers, linear equations and inequalities, systems of linear equations expressions, equivalent linear expressions, and function sense. Variable and function sense are considered in terms of four representations: verbal, graphical, symbolic and numerical. Students find patterns, make conjectures, and judge the validity of given conjectures. Credit for MATH 1100 will not be granted to anyone having already received credit with a grade of "C" or better in any of MATH 1110, 1160, 1180, 1220, or 2000 or equivalent transferable courses. A graphing calculator is required. Tutoring is available for all Math 1100 students. Prerequisite: MATH 1090 with a grade of "C" or better, or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism. 3 hours

MATH 1110 Algebra II Designed to sharpen algebra skills and concepts in a function-based setting. Topics include: linear functions, quadratic functions, rational functions, composing and decomposing functions, inverse functions, logarithmic and exponential functions. In addition, the course emphasizes symbol manipulation with reason and the importance of reading a textbook. Credit for MATH 1110 will not be granted to anyone having already received credit with a grade of "C" or better in any of MATH 1180, 1220, 2000 or equivalent transferable courses. A graphing calculator is required. Tutoring is available for all Math 1110 students. Prerequisite: MATH 1100 with a grade of "C" or better, or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism. 3 hours

MATH 1140 Excursions in Mathematics This course satisfies the general education requirement of a college level mathematics course. It is intended for students whose programs of study have no further mathematics requirements. Its purpose is to develop an awareness of the use of mathematics in the world around us. Areas of application may include: compound interest and monetary growth, planning and scheduling, collecting and interpreting data, games and decision making, measurement and geometry, patterns and art. A graphing calculator is required. This course satisfies General Education Proficiency 3: College-Level Mathematics or Quantitative Reasoning. Prerequisite: MATH 1100 with a grade of "C" or better, or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism. 3 hours
MATH 1160 Finite Mathematics with Applications  
This course is designed to give the student a background in the elements of finite mathematics. Included will be a discussion of: sets, relations and functions; systems of linear equations and inequalities; vectors and matrices; concepts of probability; random variables and distribution functions; applications of linear algebra and probability; concepts of financial mathematics. Tutoring is available for all Math 1160 students. A graphing calculator is required. This course satisfies General Education Proficiency 3: College-Level Mathematics or Quantitative Reasoning.  
Prerequisite: MATH 1100 or by placement into the course. Placement may be determined by completing 2 years of college preparatory mathematics, by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.  
3 hours

MATH 1180 Precalculus Mathematics  
This course is designed to enhance algebraic, graphical, and trigonometric skills and concepts necessary for calculus. Topics include: functions (such as linear, quadratic, power, root, rational, exponential, logarithmic, and trigonometric), polynomials, trigonometry, coordinate systems and conic sections. Students will learn methods without and with the use of graphing calculators. Tutoring is available for all Math 1180 students. A graphing calculator is required. This course satisfies General Education Proficiency 3: College-Level Mathematics or Quantitative Reasoning.  
Prerequisite: MATH 1110 or by placement into the course. Placement may be determined by completing at least 3 years of college preparatory mathematics, by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.  
4 hours

MATH 1220 Calculus I  
The first of a two-semester sequence in differential and integral calculus. Functions, limits, continuity, techniques and applications of differentiation, integration, trigonometric, logarithmic and exponential functions. Tutoring is available for all Math 1220 students. A graphing calculator is required. Students who take more than one of MATH 1220, MATH 1700, or MATH 2000 will receive only 4 hours of credit toward graduation. This course satisfies General Education Proficiency 4: Mathematics or Quantitative Reasoning.  
Prerequisite: MATH 1180 or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.  
4 hours

MATH 1230 Calculus II  
A continuation of Calculus I. Techniques and applications of integration, trigonometric functions, sequences and series, indeterminate forms, improper integrals, applications to elementary differential equations. A graphing calculator is required.  
Prerequisite: MATH 1220 (recommended) or MATH 1700.  
4 hours

MATH 1450 Discrete Mathematical Structures  
Sets, functions, relations, graphs, digraphs, trees, recursion, mathematical induction and other proof techniques, counting techniques, Boolean Algebras and asymptotic analysis of algorithms. The relationship of these concepts with computer science will be emphasized.  
Prerequisites: MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710, and an introductory programming course.  
3 hours

MATH 1500 Number Concepts for Elementary/Middle School Teachers  
This course provides a foundation in number concepts appropriate for elementary and middle school teachers. Topics include numeration systems, number theory, rational numbers, and integers. Emphasis is placed on conceptual understanding, problem solving, mental arithmetic, and computational estimation. A graphing calculator is required. This course satisfies General Education Proficiency 3: College-Level Mathematics or Quantitative Reasoning. This course is restricted to those whose curricula include either Elementary Education or Special Education.  
Prerequisite: MATH 1100 with a grade of "C" or better, or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism.  
4 hours

MATH 1510 Geometry for Elementary/Middle School Teachers  
This course explores the fundamental ideas of planar and spatial geometry. Content includes the analysis and classification of geometric figures; the study of geometric transformations; the concepts of tessellation, symmetry, congruence, and similarity; and an overview of measurement. The course also includes an introduction to the use of computers in the teaching and learning of informal geometry. A graphing calculator is required. This course satisfies General Education Proficiency 4: Mathematics or Quantitative Reasoning.  
Prerequisite: MATH 1500 with a grade of "C" or better.  
4 hours

MATH 1700 Calculus I, Science and Engineering  
The first of a two-semester sequence in differential and integral calculus which emphasizes applications and preparation for science and engineering (particularly physics). Vectors, functions, limits, continuity, techniques of differentiation, integration, and trigonometric, logarithmic and
exponential functions. Students who take more than one of MATH 1220, 1700, or 2000 will receive only 4 hours of credit toward graduation. This course satisfies General Education Proficiency 4: Mathematics or Quantitative Reasoning. Prerequisite: MATH 1180 or by placement into the course. Placement may be determined by ACT/SAT scores and/or by a Department of Mathematics placement mechanism. 4 hours

MATH 1710 Calculus II, Science and Engineering A continuation of MATH 1700, with further applications and preparation for science and engineering. Techniques of integration, more on trigonometric functions, sequences and series, indeterminate forms, improper integrals, and more on elementary differential equations. Prerequisite: MATH 1700 4 hours

MATH 2000 Calculus with Applications A terminal one semester course in calculus with emphasis on techniques and applications. Topics include functions, limits, differentiation, integration and applications. This course should not be elected by those students taking courses in the MATH 1220 to 1230 sequence. Students who take more than one of MATH 1220, 1700, or 2000 will receive only 4 hours of credit toward graduation. Tutoring is available for all Math 2000 students. A graphing calculator is required. This course satisfies General Education Proficiency 3: College-Level Mathematics or Quantitative Reasoning and Proficiency 4: Mathematics or Quantitative Reasoning. Prerequisite: MATH 1110 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1450 or MATH 1700 or MATH 1710, or by placement into the course. Placement may be determined by completing 1-1/2 years high school algebra and 1 year high school geometry, by ACT/SAT scores and/or by a Department of Mathematics placement mechanism. 4 hours

MATH 2300 Elementary Linear Algebra Vectors and geometry in two and three dimensions, systems of linear equations, matrix algebra, linear transformations in R2 and R3, generalizations to the vector spaces Rn, inner products, determinants. Some emphasis on proofs. Prerequisite: MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2720 or MATH 3740. (MATH 1230 or MATH 1710 recommended.) 4 hours

MATH 2650 Probability and Statistics for Elementary/Middle School Teachers This course covers concepts of statistics and probability appropriate for elementary and middle school teachers. Topics include statistical techniques for organizing, summarizing, presenting, and interpreting data sampling techniques; simulation methods; counting techniques; and analytic methods in probability. Computers are used to reinforce major course ideas. A graphing calculator is required. This course satisfies General Education Proficiency 4: Mathematics or Quantitative Reasoning. Prerequisite: MATH 1500 with a grade of "C" or better. 4 hours

MATH 2720 Multivariate Calculus and Matrix Algebra Vectors and geometry in two and three dimensions, matrix algebra, determinants, vector differentiation, functions of several variables, partial differentiation, linear transformations, multiple integration, and change of variables. The computer algebra system Maple will be used to explore some of these topics. A graphing calculator is required. Prerequisite: MATH 1710 or MATH 1230. 4 hours

MATH 3140 Mathematical Proofs The prime objective of this course is to involve the students in the writing and presenting of mathematical proofs. The topics in this course will include logic, types of proof, sets, functions, relations, mathematical induction, proofs in an algebraic setting such as divisibility properties of the integers, proofs in an analytic setting such as limits and continuity of functions of one variable. Additional topics may include elementary cardinal number theory, paradoxes and simple geometric axiom systems. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: (MATH 1230 or MATH 1710) and (MATH 2300 or MATH 3740). 3 hours

MATH 3300 Modern Algebra I This course introduces the abstract algebraic concepts of groups, rings, and fields, and shows how they relate to the problem of finding roots of polynomials. Topics include: Properties of the integers, congruences, the Euclidean algorithm, groups, subgroups, cosets, Lagrange's theorem, direct product, isomorphism, symmetric groups, rings, integral domains, polynomial rings, fields, field extensions, quotients of polynomial rings. Prerequisite: MATH 3140 4 hours

MATH 3400 Fundamental Concepts of Geometry This course examines the axiomatic structures of Euclidean geometry and elementary non-Euclidean geometries. Transformational approaches to Euclidean geometry are also considered. Prerequisite: MATH 3140 3 hours
MATH 3500  Teaching of Middle School Mathematics  This course considers curriculum issues and trends in middle school mathematics focusing on methods and materials for teaching mathematics effectively to middle school students. Activity and laboratory approaches for teaching mathematics are emphasized. This class has four contact hours per week to accommodate student collaborations and field experiences in local schools. Prerequisite: MATH 3140 3 hours

MATH 3510  Computing Technology in Secondary School Mathematics  This course introduces uses of computing technology to enhance and extend the learning of mathematical topics in grades 7 to 12. Emphasis is placed on the use of technology in problem solving and concept development. A graphing calculator is required. This course has four contact hours per week to accommodate student collaborations and use of specialized computer software. Restricted to students pursuing a program leading to secondary mathematics teacher certification. Prerequisites: Prior programming experience and MATH 3500 with a grade of “C” or better. 3 hours

MATH 3520  Teaching of Elementary/Middle School Mathematics  This course covers curriculum and instructional issues in elementary school mathematics. Restricted to the following major(s): Early Childhood Education, Elementary Group Minors, Elementary Professional Education, Special Education. Prerequisites: MATH 1510 and MATH 2650 with grades of "C" or better. 3 hours

MATH 3740  Differential Equations and Linear Algebra  Slope fields, first order differential equations and applications, linear differential equations, numerical methods, solution of systems of linear algebraic equations, eigenvalues and eigenvectors, systems of differential equations, and series solutions. The computer algebra system Maple will be used to explore some of these topics. Prerequisite: MATH 2720 4 hours

MATH 4020  Mathematical Modeling  This course is an introduction to the methods of mathematical modeling. The major goal of this course is to learn about the formulation and solution of mathematical problems from real world situations. Representing practical and scientific problems in mathematical terms may give a better understanding of the problem and may allow prediction of future events. Case studies will involve different applications and will use a variety of techniques. Computer programs will be used to analyze some problems. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. A writing project involving a mathematical model is required of all students. Prerequisite: MATH 3740 and working knowledge of a high-level mathematical computer package or knowledge of a computational computer language. 3 hours

MATH 4050  Financial Mathematics  This is an introductory course on financial mathematics primarily serving students majoring in applied mathematics, economics and finance. It illustrates how the concepts from calculus, differential equations and probability can help in establishing models to study interest theory, portfolio management and option pricing problems. This course will also benefit students from other disciplines in learning how to use methods in mathematics to study real world problems. Prerequisite: MATH 2720 or instructor approval. 3 hours

MATH 4080  Linear Programming  Linear programming and its applications. This course will cover basic theory and applications of linear programming. The topics will include convex geometry, the simplex algorithm, and duality. The applications may include problems in the areas of network optimization, the transportation problem, the assignment problem, the diet problem, cluster analysis, L1 fits, game theory, and scheduling. Prerequisite: MATH 2300 or MATH 3740. 3 hours

MATH 4300  Modern Algebra II  This course continues MATH 3300 by studying groups, rings, and fields in more generality and detail. Topics are chosen from: Group homomorphism, normal subgroups, quotient groups, the fundamental homomorphism theorem, groups acting on sets, Sylow's theorem, ring homomorphisms, ideals, quotient rings, Euclidean domains, principal ideal domains, unique factorization domains. Prerequisite: MATH 3300 3 hours

MATH 4400  Graphs and Mathematical Models  Elements of graph theory, including the study of Eulerian graphs, Hamiltonian graphs, planar graphs, trees, digraphs, and the applications of graphs as models. Emphasis will be on proofs and proof techniques. Examples of other discrete models may be considered. Prerequisites: MATH 1450 or MATH 3140 or instructor approval. 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description and Prerequisites</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MATH 4500</td>
<td>Teaching of Secondary School Mathematics</td>
<td>This course considers curriculum issues and trends in secondary school mathematics focusing on methods and materials for teaching mathematics effectively to secondary school students. Prerequisite: MATH 3510 and either (MATH 3300 or MATH 3400).</td>
<td>3 hours</td>
</tr>
<tr>
<td>MATH 4900</td>
<td>Topics in Mathematics</td>
<td>The content of this course varies with the semester offered and with the instructor. The course is intended to introduce students to significant topics not ordinarily encountered and to present more variety in their undergraduate programs. May be taken more than once with the approval of the student's advisor. Prerequisite: Approval of Department.</td>
<td>3 hours</td>
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<tr>
<td>MATH 5070</td>
<td>Numerical Analysis I</td>
<td>The analysis and use of numerical algorithms for the solution of nonlinear equations, systems of linear equations, interpolation, numerical differentiation and integration. Open to upperclass and graduate students. Prerequisites: MATH 3740 and a computer programming language beyond Basic, e.g., Fortran or C.</td>
<td>3 hours</td>
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<tr>
<td>MATH 5100</td>
<td>Applied Matrix Algebra</td>
<td>An introduction to the study of methods to solve linear systems of equations, least squares approximation problems, and eigenvalue problems. Topics covered include the algebra of real and complex matrices with particular emphasis on LU-decompositions, QR-decompositions, singular value decompositions, generalized inverses, Hermitian symmetric matrices, positive definite matrices and the Spectral Theorem. Applications from multivariate calculus will be discussed. Open to upperclass and graduate students. Prerequisites: MATH 2300 or MATH 3740.</td>
<td>3 hours</td>
</tr>
<tr>
<td>MATH 5220</td>
<td>Introduction to Topology</td>
<td>Topics to be chosen from: Topological spaces and continuous functions, metric spaces, connectivity, separation axioms, compactness, product and quotient spaces, paracompactness, and manifolds. Open to upperclass and graduate students. Prerequisite: MATH 3300 or MATH 5700.</td>
<td>3 hours</td>
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<tr>
<td>MATH 5270</td>
<td>Differential Geometry of Curves and Surfaces</td>
<td>An introduction to Riemannian Geometry with emphasis on curves and surfaces. Topics may include isometries, orientation, differential forms, curvature, metrics, and geodesics. Open to upperclass and graduate students. Prerequisites: MATH 2720 and either (MATH 2300 or MATH 3740).</td>
<td>3 hours</td>
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<tr>
<td>MATH 5501</td>
<td>Teaching of Middle School Mathematics</td>
<td>This course considers curriculum issues and trends in middle school mathematics focusing on methods and materials for teaching mathematics effectively to middle school students. Activity and laboratory approaches for teaching mathematics are emphasized. This class has four contact hours per week to accommodate student collaborations and field experiences in local schools. Open to upperclass and graduate students. Restricted to majors in Elementary/Middle School Mathematics. Prerequisite: MATH 5540 with a grade of &quot;C&quot; or better, or instructor approval.</td>
<td>3 hours</td>
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<tr>
<td>MATH 5511</td>
<td>Computing Technology in Middle School Mathematics</td>
<td>This course introduces uses of computing technology to enhance and extend the learning of mathematical topics in middle grades through secondary school. Emphasis is placed on the use of technology in problem solving and concept development. A graphing calculator is required. This course has four contact hours per week to accommodate student collaborations and use of specialized computer software. Open to upperclass and graduate students. Restricted to majors in Elementary/Middle School Mathematics. Prerequisite: MATH 5501 and MATH 5550 with a grade of &quot;C&quot; or better, or instructor approval.</td>
<td>3 hours</td>
</tr>
<tr>
<td>MATH 5531</td>
<td>Number Systems and Proportional Reasoning for Middle Grades Teachers</td>
<td>This course provides an opportunity for middle school teachers to enhance their ability to reason proportionally through explorations of linearity and right triangle trigonometry with a focus on inquiry and the use of digital tools. Attention will be given to multiple representations (e.g., verbal descriptions, table of values, graphs, and symbolic function rules) of the proportional relationships. Similarities and differences among the systems on integers, rational numbers, and real numbers will also be examined along with the historical development of these number systems. May be taken in conjunction with MATH 3520. Open to upperclass and graduate students. Restricted to majors and minors in Elementary/Middle School Mathematics. Prerequisites: MATH 1500, MATH 1510, and MATH 2650 with a grade of &quot;B&quot; or better in all prerequisites, or instructor approval.</td>
<td>4 hours</td>
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MATH 5540  Functions and Modeling for Middle Grades Teachers  This course provides an opportunity for middle school teachers to both deepen and expand their understanding of functions through the exploration of linear and exponential function families as well as power functions, polynomial functions, and common logarithmic functions. Attention will be given to multiple representations (e.g., verbal descriptions, tables of values, graphs, and symbolic function rules), to special characteristics of functions (e.g., patterns of change, intercepts, extrema, end behavior), and to modeling with functions. Digital tools will be used throughout the course to facilitate student learning. Open to upperclass and graduate students. Restricted to majors and minors in Elementary/Middle School Mathematics.  Prerequisites: MATH 3520 with a grade of "B" or better and MATH 5531 with a grade of "C" or better, or instructor approval.  

4 hours

MATH 5550  Concepts of Calculus for Middle Grades Teachers  This course provides an opportunity for middle school teachers to extend their understanding of function and develop an understanding of the conceptual underpinnings of differential and integral calculus through inquiry and applied problem solving that makes extensive use of digital tools. Attention will be given to historical perspectives of calculus. May be taken in conjunction with MATH 5501. A graphing calculator is required. For specific model see the Mathematics department website. Open to upperclass and graduate students. Restricted to majors in Elementary/Middle School Mathematics.  Prerequisites: MATH 5540 with a grade of "C" or better or instructor approval.  

4 hours

MATH 5700  Advanced Calculus I  Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Open to upperclass and graduate students.  Prerequisites: MATH 2720 and MATH 3140. MATH 3300 is recommended.  

4 hours

MATH 5710  Advanced Calculus II  Topology of n-dimensional space, continuity and differentiability of functions of one variable; Riemann-Stieltjes integral; convergence of sequences and series of functions; Fourier series; analysis of functions of several variables. Open to upperclass and graduate students.  Prerequisite: MATH 5700 or approval of advisor.  

3 hours

MATH 5720  Vector Calculus and Complex Variables  Functions of several variables, implicit and inverse functions, Jacobians, multiple integrals, Green's Theorem, divergence, curl, the Laplacian, Stokes' Theorem, analytic functions, Laurent expansions, residues, argument principle, and conformal mapping. Open to upperclass and graduate students.  Prerequisite: MATH 3740  

4 hours

MATH 5740  Advanced Differential Equations  Series solutions at ordinary and singular points of linear ordinary equations, Bessel and Legendre functions, self-adjoint boundary value problems, Fourier series, solution of partial differential equations by separation of variables. Open to upperclass and graduate students.  Prerequisite: MATH 3740  

3 hours

MATH 5800  Number Theory  Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Open to upperclass and graduate students.  Prerequisite: MATH 3300  

3 hours

MATH 5900  In-Service Professional Development in Mathematics  This course develops specific professional skills related to the teaching and learning of pre-college mathematics. Final course outcomes have demonstrated applications to the mathematics classroom. This course may be repeated for credit. Each offering of MATH 5900 will be given an appropriate subtitile which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtile. Credit hours may be applied to continuing teacher certification programs with approval of the Teacher Certification Office, but will not be applicable to a new endorsement in mathematics nor to any graduate program within the Department of Mathematics. Graded on a Credit/No Credit basis.  Prerequisite: Instructor approval.  

1 to 3 hours

MATH 5990  Independent Study in Mathematics  Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student. May be repeated for credit. Open to upperclass and graduate students.  Prerequisite: Department approval.  

1 to 6 hours

Physician Assistant
MDSC 2010 Medical Terminology The language of medicine-through an understanding of the Greek and Latin derivations and construction of medical terms, the student learns the vocabulary of the health-related professions. 1 hour

MDSC 4300 Cadaver Dissection Lab This course will enable the student to develop basic cadaver dissection skills. Students will also assist/observe more advanced techniques including craniotomies and laminectomies. Students will gain appreciation for dissection planes, muscular layering, and structural relationships by producing prosected specimens to be used for anatomical instruction in other courses. May be repeated for credit. Graded on a Cred/No Credit basis. Prerequisite: BIOS 2110 with a grade of "B" or better. 2 hours

MDSC 4390 Pharmacology for Health Professionals This is a medical pharmacology course designed to provide the interdisciplinary health services student with a foundation for understanding pharmacologic principles as they relate to human diseases. Students will review clinically relevant physiology and acquire a working knowledge of pharmacology. Emphasis will be on the cellular mechanisms of pharacotherapeutic agents and the body's reaction to them. Prerequisites: BIOS 2400 and CHEM 3550. 3 hours

MDSC 4450 Pathophysiology for the Health Professional This is a medical pathophysiology course designed to provide the interdisciplinary health services student with a foundation for understanding the pathophysiology principles behind disease states. Using an organ system approach the students will review the pathophysilogic basis for disease states. Emphasis will be on the cellular and tissue level of each organ system. Prerequisite: BIOS 2440 and junior or senior status. 3 hours

Medieval Studies
MDVL 1450 Heroes and Villains of the Middle Ages An interdisciplinary course designed to introduce beginning students to the medieval roots of the individual, social, and institutional ideals and values of modern Western culture as they are expressed and exemplified in the images of medieval heroes and their counterparts. Students may not receive credit for both MDVL 1450 and HIST 1450. This course satisfies General Education Area II: Humanities. 3 hours

MDVL 5300 Introduction to Medieval Studies This seminar is meant to serve as a guide to the study of the Middle Ages in its multiple disciplines. It is also intended as an introduction to the considerable resources for study available at Western and in the greater Kalamazoo region, including institutions and individuals students should know. Open to upperclass and graduate students only. Undergraduate students must have instructor approval. 1 hour

MDVL 5970 Directed Study Research on a selected topic in the field of Medieval Studies directed and supervised by a faculty member. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Approval application required. 1 to 3 hours

Mechanical Engineering
ME 2200 Processes and Materials in Manufacturing Manufacturing principles and organization, principal processes used to make metal, plastic and ceramic parts, design considerations for computer integrated manufacturing, simultaneous engineering. 4 hours (3 – 3)

ME 2320 Thermodynamics I Fundamental laws of classic thermodynamics including ideal and non-ideal processes. Applications are studied in relationship to the traditional thermodynamic cycles and to alternate energy systems such as solar and wind energy. Prerequisites: MATH 1230 or 1710, PHYS 2050, PHYS 2060; with a grade of "C" or better in all prerequisites. 3 hours

ME 2500 Materials Science for Engineers First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers, and ceramics. Effects of environment on material properties. Prerequisites: (ME 2615 or ME 2200 or IME 1500 or EDMM 1500), and (CHEM 1100, CHEM 1110), and (MATH 1220 or 1700); with a grade of "C" or better in all prerequisites. 3 hours

ME 2560 Statics Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, shear and moment diagrams, centroids, moments of inertia and friction.
Prerequisite: Either (MATH 1230 or MATH 1710), PHYS 2050 and PHYS 2060; with a grade of "C" or better in all prerequisites.

ME 2570 Mechanics of Materials
Compression, tension, shear, torsion, and bending in structural members including stress distribution, deflection, buckling, and fatigue on engineering materials. Design and selection of simple machine members and a knowledge of design codes and standards are applied. Prerequisite: ME 2560 with a grade of "C" or better. 3 hours

ME 2580 Dynamics
Kinematics and kinetics of particles, rigid bodies in translation, rotation, and plane motion. Includes impulse-momentum and work-energy methods. Introduction to vibrations. Prerequisites: ME 2560 or ME 2530, PHYS 2050, PHYS 2060; with a grade of "C" or better in all prerequisites. 3 hours

ME 2615 Introduction to Mechanical Engineering
Introduction to mechanical engineering systems, the design process and their connections to basic ideas of physics. The lectures will focus on visual experiences and demonstrations of mechanical systems, with the appropriately related physics explanations and mathematical relationships. The students will be involved in competitive design projects, experiencing teamwork, design process, testing and communication. Prerequisites: MATH 1220 or MATH 1700 (either may be taken concurrently); with a grade of "C" or better in all prerequisites. 3 hours

ME 2950 Introductory Topics in Mechanical Engineering
A specialized course dealing with various areas of introductory topics in mechanical engineering systems, design processes and their connections to basic ideas of physics and mathematics. The lecture will focus on visual experiences and demonstrations of mechanical systems and processes, with the appropriately related physics explanations and mathematical relationships. The students will be involved in competitive design projects, experiencing teamwork, design process, testing and communication. May be repeated for credit. Prerequisite: Departmental approval. 1 to 4 hours

ME 3350 Instrumentation
Principles of measurement, testing, and evaluation of mechanical and aerospace engineering systems. Experimental design. Estimation of error. Technical report preparation. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisites: ME 2570, ME 3620, ECE 2100, and writing requirement; with a grade of "C" or better in all prerequisites. 3 hours (2 – 3)

ME 3560 Fluid Mechanics
Analysis of fluid systems and problems. Incompressible and compressible fluids, turbulent and laminar flows, subsonic and supersonic flows are covered. Pipe systems, flow orifices, and open channels. (Credit may not be earned in both ME 3560 and EDMM 3840.) Restricted to majors in aerospace engineering, aeronautical engineering, civil engineering, construction engineering or mechanical engineering. Prerequisites: ME 2580 and MATH 3740, with a grade of "C" or better in all prerequisites. 3 hours

ME 3580 Mechanism Analysis
Analysis of displacement, velocity, and acceleration in mechanisms by analytical and graphical methods. Introduction to mechanism synthesis with computer applications. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisite: ME 2580 and (CS 1060 or CS 1022 or CS 1023), with a grade of "C" or better in all prerequisites. 3 hours

ME 3600 Control Systems
Theory and analysis of linear closed-loop control systems containing electronic, hydraulic, and mechanical components. Differential equations. Laplace transforms, Nyquist and Bode diagrams are covered. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisites: ME 2580, MATH 3740 and ECE 2100; with a grade of "C" or better in all prerequisites. 3 hours

ME 3620 Theory of Engineering Experimentation
Principles of experimental design using a statistical approach. Statistical analysis of experimental data with computer applications. Restricted to majors in aerospace engineering, aeronautical engineering, electrical engineering or mechanical engineering. Prerequisites: (MATH 1230 or MATH 1710) and (CS 1060 or CS 1022 or CS 1023 or CS 1110 or CS 1200), with a grade of "C" or better in all prerequisites. 3 hours

ME 3650 Machine Design I
The application of engineering principles to the fundamental design of machine mechanisms and basic systems. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum. Restricted to majors in aerospace engineering,
aeronautical engineering or mechanical engineering. Prerequisites: EDMM 1420 and (ME 2615 or AE 2610) and (ME 2500 or AE 2500) and ME 2570 and ME 2580; with a grade of "C" or better in all prerequisites. 3 hours (2 – 3)

ME 3670 Internal Combustion Engines I Introduction to internal combustion engine systems and mechanical design. Consideration of factors affecting engine design using principles of engineering science. Analysis of common engine systems for reciprocating and continuous flow internal combustion engines. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisites: MATH 2720, ME 2580 and ME 2320; with a grade of "C" or better in all prerequisites. 3 hours (2 – 3)

ME 3990 Cooperative Education A cooperative education program involves a full-time, semester-long and supervised engineering work experience. A written report of the student’s work activities is required and must be submitted to the Mechanical Engineering office. Course may be repeated for credit. Graded on a Credit/No Credit basis. Prerequisite: Advisor approval. 1 hour

ME 4310 Heat Transfer Steady state and transient conduction, radiation functions, radiation networks, natural and forced convection, design of heat exchangers, and computer applications. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisites: ME 2320 and (ME 3560 or AE 3710), with a grade of "C" or better in all prerequisites. 3 hours

ME 4320 Thermodynamics II Advanced topics including gas-vapor mixtures, combustion, and compressible flow. Restricted to majors in aerospace engineering, aeronautical engineering, chemical engineering or mechanical engineering. Prerequisites: (ME 2320 or CHEG 3200) and (ME 3560 or CHEG 3110), with a grade of "C" or better in all prerequisites. (ME 3560 or CHEG 3110 may be taken concurrently). 3 hours

ME 4330 Environmental Systems Design in Buildings Theory of the conditioning of air, applications to the design of systems to control temperature, humidity, distribution, and ventilation. Computer simulation of buildings and systems. Restricted to majors in aerospace engineering, aeronautical engineering, chemical engineering: energy management, chemical engineering or mechanical engineering. Prerequisites: (ME 4310 or CHEG 3120) and ME 4320, with a grade of "C" or better in all prerequisites. 3 hours

ME 4390 Design of Thermal Systems Application of energy concepts to thermal fluid design problems. Open ended design projects in incompressible and compressible fluid flows, thermodynamics, heat transfer, power generation, alternate energy systems including computer simulations. Experimentation and theoretical analysis verification with data analysis and report preparation. Restricted to majors in aerospace engineering, aeronautical engineering, chemical engineering or mechanical engineering. Prerequisites: (ME 3350 and ME 4310) or (CHEG 2810, CHEG 3120 and IME 2610); with a grade of "C" or better in all prerequisites. 3 hours (2 – 3)

ME 4530 Machine Design II The application of mechanical engineering concepts to the mechanical synthesis process. Computer-aided design, computer modeling, and optimization applied to the synthesis of a system. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisites: ME 3650 with a grade of "C" or better. 3 hours (2 – 3)

ME 4570 Experimental Solid Mechanics Principles and methods of mechanical testing, stress and strain analysis under monotonic and cyclic loading, fatigue behavior and fracture involving life prediction and prevention of failure. Experimentation and theory verification, including planning, testing, and data analysis with report preparation. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisites: ME 3350 and (ME 3650 or AE 4630); with a grade of "C" or better in all prerequisites. 3 hours (2 - 3)

ME 4590 Dynamics of Machinery Kinematic and dynamic analyses of machine, mechanisms, and rotating systems. Topics include open and closed loop kinematic analyses, Newton's law for rigid body motion, inertia, work and energy methods, flywheels static and dynamic balancing, Lagrange's equations of motion, and introductory vibration analysis. Prerequisite: ME 3580 with a grade of "C" or better. 3 hours

ME 4650 Vehicle Dynamics Design of ground vehicle suspension and steering systems. Vehicle ride, handling and safety systems. Passive and active suspension control. Restricted to majors in aerospace engineering,
aeronautical engineering or mechanical engineering. Prerequisites: ME 3580, ME 3600, ME 3650; with a grade of "C" or better in all prerequisites.

ME 4680 Engine Design Application of the knowledge of the mechanics, thermodynamics and fluid mechanics to the design of internal combustion engines to meet specific mission requirements. Optimization of the design using computer modeling and parametric studies. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisites: ME 3560 and either (ME 3670 or ME 4320); with a grade of "C" or better in all prerequisites. 3 hours (2 – 3)

ME 4700 Vehicle Structural Design Structural design of surface and air vehicles to meet specific mission requirements. Design of structures with minimum weight and cost while maintaining structural integrity under the imposed loads. Prerequisites: ME 3580 and ME 3650; with a grade of "C" or better in all prerequisites. 3 hours

ME 4710 Motion and Control Analysis and implementation of linear closed-loop motion control systems containing electrical, hydraulic, pneumatic and mechanical components. Analytical and experimental development of models for components and systems. This course is cross-listed with ECE 4710. Prerequisite: ME 3600 or ECE 3710, with a grade of "C" or better in all prerequisites. 3 hours

ME 4790 Mechanical and Aerospace Engineering Project Planning An introduction to the design process, including problem definition, decision making and project planning. Goal of the course is to develop a project proposal and work plan for a major design project. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisites: ME 3350 and ME 3600. Corequisites: ME 4330 or ME 4390 or ME 4530 or ME 4680 or ME 4700 or ME 4810 or ME 5390 or ME 5500 or ME 5530 or ME 5730 or AE 4600. A grade of "C" or better is required in all prerequisites. 1 hour

ME 4800 Mechanical and Aerospace Engineering Project An engineering experience in completing an open-ended design project including synthesis, analysis, evaluation, and presentation. Classroom discussion subjects include legal, ethical and professional aspects of engineering practice. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Restricted to majors in aerospace engineering, aeronautical engineering or mechanical engineering. Prerequisite: ME 4790 with a grade of "C" or better. 1 hour

ME 4950 Topics in Mechanical Engineering: Variable Topics A specialized course dealing with some particular area of mechanical engineering not included in other course offerings. May be repeated for credit with a different topic up to six credits. Prerequisite: Consent of department. 3 hours (1 – 6)

ME 4990 Independent Studies An independent studies assignment available only by special arrangement with an instructor and approved by the department chair. Prerequisite: Consent of department. 1 to 6 hours

ME 5200 Orthopaedic Biomechanics Current methods for analysis of biomechanical systems that include bone, tendon, ligament, cartilage, and other soft tissue. Mechanics that govern biomechanical systems including beam theory, anisotropic materials, viscoelasticity, and contact. Also prosthetics, orthotics, and other medical devices. Open to upperclass and graduate students. Prerequisite: ME 3650 or AE 4630 or instructor approval. Prerequisite courses require a grade of "C" or better. 3 hours

ME 5300 Theoretical and Computational Fluid Mechanics The theory and numerical implementation of ideal flow, viscous effects, and exact solutions of Navier-Stokes equations. Special emphasis will be on planning methods, conformal mapping, and singular distributions for flows around two- and three- dimensional bodies. Familiarity with VMS and some FORTRAN experience are required. Open to upperclass and graduate students. Prerequisites: ME 3560 with a grade of “B” or better, or instructor approval. 3 hours

ME 5350 Applied Spectroscopy Fundamentals of spectroscopy including rotational, vibrational and electronic transitions of molecular species, absorption and fluorescence spectra, lineshape profiles and broadening mechanisms. Description of spectroscopic techniques and their application for the measurement of relevant quantities such as concentration, velocity and temperature in practical systems, including internal combustion engines. Experimental hardware
used for spectroscopic measurements. Prerequisites: Senior or graduate standing; and ME 3350 with a grade of “B” or better; or instructor approval.

ME 5360 Experimental Methods in Fluid Mechanics This course covers basic characteristics of turbulence, governing equations, and random data, probability and statistics related to turbulence, and experimental methods in fluid flow. Basics of Hot-Wire Anemometry, Laser Doppler Velocimetry, and Particle Image Velocimetry will be covered in detail. Experiments will be conducted to show the basics of these techniques. Open to upperclass and graduate students. Prerequisites: ME 3350 and (ME 3560 or AE 3610), with a grade of "B" or better in all prerequisites; or instructor approval. 3 hours

ME 5390 Advanced Thermal Design Theory and practical thermal system design using advanced computer-aided design tools with emphasis on modeling and optimization of modern thermal elements. Prerequisites: Senior or graduate standing; and ME 4310 with a grade of “B” or better; or instructor approval. 3 hours

ME 5410 Continuous System Modeling and Simulation Principles and methods associated with simulating continuous dynamic systems in the mechanical and aerospace engineering disciplines. Linear and non-linear systems. Time and frequency domain analyses. Brief introduction to real-time simulation. Extensive use of current simulation software. Open to upperclass and graduate students. Prerequisites: ME 3600 with a grade of "B" or better, or instructor approval. 3 hours

ME 5430 Mechanical Systems Control Classical and modern control analysis and design methods for mechanical and aerospace systems; transfer function vs. state-space description, single-input-single-output (SISO) vs. multi-input-multi-output (MIMO) system, linear vs. nonlinear system, linearization, classical control design method, state-space design method, emphasis on ground and space vehicle dynamics and control problems, extensive use of commercial software package. Open to upperclass and graduate students. Prerequisite: ME 3600 with a grade of "B" or better, or instructor approval. 3 hours

ME 5450 Computational Fluid Dynamics I Basics of Computational Fluid Dynamics (CFD) including classification of partial differential equations, finite difference formulations, parabolic partial differential equation, stability analysis, elliptic equations, hyperbolic equations, scalar representation of the Navier-Stokes equations and grid generation. Open to upperclass and graduate students. Prerequisites: ME 3560 and CS 2010, with a grade of "B" or better in all prerequisites; or instructor approval. 3 hours

ME 5500 Modern Engineered Materials Advanced course in both metallic and non-metallic engineering materials, including electronic and magnetic materials and biomaterials. Mechanical, physical and biocompatibility properties will be examined with relationship to materials composition, structure, and processing. Failure mechanisms and prevention will be examined. Open ended projects will be assigned. Open to upperclass and graduate students. Restricted to majors in aerospace or mechanical engineering. Prerequisites: (ME 2500 or AE 2500) and ECE 2100; or instructor approval. Prerequisite courses require a grade of "C" or better. 3 hours

ME 5530 Advanced Product Engineering An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout. Open to upperclass and graduate students. Prerequisites: ME 3600 and ME 4530, with a grade of "B" or better in all prerequisites; or instructor approval. 3 hours

ME 5550 Intermediate Dynamics Three dimensional kinematics and dynamics of rigid bodies; equations of motion; Lagrange's equations; work and energy; impulse and momentum; virtual work; stability; computer simulation; intro. to vibrations. Open to upperclass and graduate students. Prerequisites: (ME 2500 or AE 2500) and ECE 2100, with a grade of "B" or better in all prerequisites; or instructor approval. 3 hours

ME 5580 Mechanical Vibrations A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems. Open to upperclass and graduate students. Prerequisites: ME 2580 and MATH 3740, with a grade of "B" or better on all prerequisites; or instructor approval. 3 hours
ME 5600 Engineering Analysis Application of vector analysis and differential equations to the solution of complex engineering problems. Open to upperclass and graduate students. Prerequisite: ME 3600 or equivalent, with a grade of "B" or better; or instructor approval. 3 hours

ME 5610 Finite Element Method Development of finite element method for solution of one-, two-, and three-dimensional problems in heat transfer, fluid flow, structures and elasticity. Open to upperclass and graduate students. Prerequisites: ME 2570, ME 3560, ME 4310, and MATH 3740 or equivalents, with a grade of "B" or better on all prerequisites; or instructor approval 3 hours

ME 5620 Application of Numerical Methods in Engineering Finite difference methods for initial value and boundary value problems; 2D finite differencing, boundary element methods applications to differential equations of heat transfer, fluid flow, and solid mechanics. Open to upperclass and graduate students. Prerequisites: MATH 3740 and ME 3600 with a grade of "C" or better, or instructor approval. 3 hours

ME 5640 Engineering Noise Control Introduction to basic concepts of noise control. Nature of sound and its effects on our environment. Indoor and outdoor sound propagation. Noise standards and measurements. Case studies of real-world implementations of noise control engineering. Laboratory demonstrations. Open to upperclass and graduate students. Prerequisites: ME 2580 and MATH 3740, with a grade of "B" or better on all prerequisites; or instructor approval 3 hours (2 – 3)

ME 5690 Principles of Fatigue and Fracture Basics of experimental techniques and modeling used in industry to study inelastic deformations, fatigue, and fracture of engineering materials and structures. Open to upperclass and graduate students. Prerequisite: (ME 3650 or AE 4630) with a grade of "B" or better, or instructor approval. 3 hours

ME 5700 Gas Dynamics Basic equations of compressible flow, isentropic relationships, and normal and oblique shock. Prandtl-Meyer expansion, Fanno Line, and Rayleigh Line flow. Applications to nozzles, diffusers, and supersonic wind tunnels. Linearized flows, method of characteristics. Open to upperclass and graduate students. Prerequisites: ME 4310 and ME 4320, with a grade of "B" or better in all prerequisites; or instructor approval. 3 hours

ME 5710 Advanced Thermodynamics Topics including the conditions of equilibrium, process and thermodynamic engines, the extremum principle, Maxwell relations, stability of thermodynamic systems, phase transitions, chemical thermodynamics, irreversible thermodynamics, and an introduction to the statistical thermodynamics. Open to upperclass and graduate students. Prerequisites: ME 4310 and ME 4320, with a grade of "B" or better in all prerequisites; or instructor approval. 3 hours

ME 5720 Materials Selection in Design Material selection for resistance to both load and environment. Design parameters for material selection and various metal systems, corrosion, service failures, and mechanical behavior of engineering alloys at high and low temperatures. Open to upperclass and graduate students. Prerequisites: ME 3650 with a grade of "B" or better, or instructor approval. 3 hours

ME 5750 Tribology - Principles and Applications Surface chemistry, topographical measurement and description, contact mechanics, wear mechanisms, lubrication and film formation, application to friction and wear situations in machine elements. Open to upperclass and graduate students. Restricted to students in Aerospace Engineering and Mechanical Engineering. Prerequisites: ME 3560 or AE 3610, with a grade of "B" or better in all prerequisites; or instructor approval. 3 hours

ME 5770 Fuel Cell and Alternative Energy Fundamentals of fuel cells, working principles and types. Function of main components, basic chemistry and thermodynamics, electrochemistry. Alternative fuels and emerging energy technologies. Fuel cell and hydrogen era. Open to upperclass and graduate students. Prerequisites: (ME 3670 or ME 4320) and ME 3560, with a grade of "B" or better in all prerequisites; or instructor approval. 3 hours (2 – 3)

ME 5850 Mechatronics A course in fundamentals of motion control, primarily as it is applied to robotics. Students will learn the basics of control systems as applied to multiaxis servo systems. Appropriate time will be devoted to develop a sound basis in the electro-mechanical discipline. This course is cross-listed as ECE 5850. Open to
upperclass and graduate students. Prerequisites: ECE 2100, ME 2580 and (ECE 3710 or ME 3600), with a grade of "B" or better in all prerequisites. 3 hours

ME 5950 Topics in Mechanical Engineering A specialized course dealing with some particular area of Mechanical Engineering not included in other course offerings. May be repeated for credit with a different topic up to six total credits. Open to upperclass and graduate students. Prerequisite: Consent of department. 1 to 4 hours

ME 5990 Practical Training Designed for Master’s students who wish to pursue practical training in off-campus activities in industrial and/or other settings. To be eligible, students must be registered in the MAE department, must have completed at least 6 credits towards as advanced degree, must have had less than 6 months of prior industrial work experience in the US, and have approval of their faculty advisor and Graduate Programs Director or Department Chair. A maximum of 3 credits may be approved towards a graduate degree. May be repeated for credit. Students enrolled will be classified as having full time status for the purpose of loan deferments and insurance eligibility. Open to upperclass and graduate students. Prerequisite: Advisor or Departmental approval 1 – 3 hours

Manufacturing Engineering

MFE 1200 Engineering Design and Verification Study in the application of ANSI and ISO standards in the design of manufactured parts and assemblies. Linear and geometric dimensioning and tolerancing (GDT) in both metric and customary units will be applied in functional designs. An introduction to statistical process control and quality assurance using precision measurement instruments and coordinate measuring systems. Prerequisite: A course in computer-aided design or consent of instructor. 3 hours (2 - 3)


MFE 3300 Manufacturing Materials I Structure and properties of metallic materials. Considerations for selection in applications. Manufacturability. A three-hour laboratory is required. Prerequisites: [CHEM 1010 or 1100] and 1110. 4 hours (3 - 3)

MFE 3400 Design for People at Work The application of Human Factors/Ergonomics principles to the design of the workplace, equipment, and environment to provide safe and productive facilities for people at work. Topics will include a review of OSHA/Safety and ADA requirements. 3 hours (3 - 0)

MFE 3600 Computer Control of Manufacturing Operations Introduction of concepts related to computer control of manufacturing operations. Brief coverage of analog/digital conversion, automation components, microprocessor and its applications, principles of classical control theory, NC/CNC systems, robotics, and programmable logic controllers (PLC). The classroom lectures are reinforced with a series of laboratory experiments. Prerequisites: ECE 2120 3 hours (2 - 3)


MFE 4300 Manufacturing Materials II Properties of ceramic and polymeric materials. Considerations for selection in applications. Manufacturability. Prerequisite: MFE 3300. 4 hours (3 - 3)

MFE 4400 Production Engineering The quantitative and computer-based methods and techniques of planning and controlling manufacturing operations are presented. Topics included are product design and process selection,
design of manufacturing facilities and jobs, aggregate planning, inventory systems, operations scheduling, and system improvement.

MFE 4420 Quality Assurance The tools necessary to control and assure quality in the manufacturing environment are addressed. They include statistical process control, product design quality, manufacturing process quality systems, process capability, lot-by-lot sampling, gage reproducibility and repeatability, design of experiments, and quality improvement tools such as Pareto analysis, Ishikawa diagrams, system flowcharting. Prerequisite: IEE 2610. 3 hours (3 - 0)

MFE 4440 Simulation of Industrial Operations Use of computer simulation as a modeling tool with emphasis on most current simulation languages and simulators is presented. Every week an industrial case study is introduced and, in a lab environment, the simulation model is developed. Statistical analysis of input data and simulation results are examined. 3 hours (2 - 3)

MFE 4800 Senior Design Project I First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design and feasibility report are required at the end of this course. Project will be completed in MFE 4820. Prerequisites: Consent of instructor; Senior status. 2 hours (2 - 0)

MFE 4820 Senior Design Project II Completion of the engineering design project started in Senior Design Project I. A formal written and oral presentation is required. Prerequisite: MFE 4800. 2 hours (2 - 0)

Management

MGMT 2140 Exploring Entrepreneurship This course is an introduction to the exploration of entrepreneurs and entrepreneurship. It is specifically targeted to both the non-business student and the business student. It is intended for students who are interested in or presently involved in entrepreneurial activities in diversified pursuits including but not limited to engineering, sustainability, technology, and natural science along with the students who have a traditional business focus. 3 hours

MGMT 2500 Organizational Behavior This course provides an examination of individual, interpersonal, group, and organization processes faced by employees. Current theory, research, and practice regarding variables that influence human behavior are discussed. Emphasis is placed on learning relevant to goal setting, managing change, team processes, reward structures, human productivity, and career management in organization settings. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. 3 hours

MGMT 2520 Human Resource Management This course covers various HRM functions including workforce needs; staffing and development; organization and individual appraisal; employee compensation and benefits; safety and health; approaches to employee problems; and labor relations. 3 hours

MGMT 2750 Analytical Foundations This course covers the use of qualitative and quantitative techniques for research and decision-making across the business functions of production, distribution, marketing, information management, accounting, finance, and human resource management. It may include analytical techniques such as research methods, problem identification, project management, decision cycle, decision models, forecasting, etc. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: STAT 2160 or STAT 1600 or STAT 3660. 3 hours

MGMT 2800 Introduction to Supply Management This course introduces the integrated/cross-functional core concepts of supply chains from product/service development and launch through customer service and redemption. The primary focus is on critical analysis and the decision-making tools necessary to develop and manage supply chains that deliver customer requirements and contributes to the organization's overall competitive advantage. An emphasis will also be placed on supply chain management as a competitive weapon using various industry and externally validated models such as the SCOR framework, the Gartner Talent Attribute Model, IBM 7-step Sourcing Process, etc. Key topics include: quantitative analysis, fact-based decision-making, project management concepts, information technologies, and supply/demand integration methodologies which create a cross-functional, demand driven value-added supply chain network. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.
Prerequisite: Sophomore standing.

MGMT 3010 Project Management Students acquire the knowledge, tools, and experience to work effectively as a member of a project team through a combination of lectures and experiential learning. In addition to acquiring specific project management skills and using computing applications for project management, the course advances students' understanding of the human dimensions of work processes. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MGMT 2500

MGMT 3120 Sustainability Operations This course provides students with an understanding of the design, implementation, management and continuous improvement of sustainable operations. It provides frameworks, tools and techniques for making short and long term sustainable operations decisions that are consistent with the business strategy of the organization. Topics covered may include: corporate social responsibility; triple bottom line management; sustainable operations challenges and opportunities; environmental legislation and regulation; ISO 14000 and ISO 26000; closed-loop supply chains; life cycle assessment; sustainable product and process design; lean systems; quality management; remanufacturing, reduce, reuse and recycle processes; LEED certification; operations ethics; and the measurement and communication of sustainable operations performance. Prerequisite: Junior standing or instructor approval.

MGMT 3140 Small Business Management The knowledge and skills a business-trained individual needs after founding or buying an independent firm are introduced in this course. Specific applications of business areas such as finance, advertising, accounting, and tax law for the owner/operator of a small business will be addressed. It is assumed that students have a basic knowledge of business fundamentals before taking this course. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: MGMT 2500 and MKTG 2500.

MGMT 3200 Managing ERP Systems Through a hands-on Enterprise Requirements Planning (ERP) software configuration project, students learn how information technology can help a firm manage its business processes. Management issues associated with implementing and managing ERP systems, such as project management, configuration control, training, system testing and change management, will also be explored.

MGMT 3340 Business Model Design This course provides a tested methodology for university students who are interested in developing, testing and validating business models and value propositions to start new businesses or increase innovation in existing businesses. Students will get hands-on experience talking to customers, partners, and competitors as they encounter chaos and uncertainty in starting a new business and when changing an existing business. Restricted to majors and minors in entrepreneurship and management. Prerequisites: MGMT 2140 or MGMT 2500 and FIN 2420 or FIM 3200.

MGMT 3500 Managing Diversity in Organizations Knowledge and skills needed to manage an increasingly diverse work force are explored. The impact of gender, race, ethnicity, culture, and other dimensions of a diverse work force on organizations are examined. Human Resource Information Systems (HRIS) are used to study effective utilization of human resources. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

MGMT 3530 Organization Development This course focuses on the role of the HR professional in guiding organizational change. Thus, the content of the course emphasizes training and development activities, but also includes the integration of these activities into strategic change imperatives. The course pedagogy includes case studies and group exercises designed to stimulate students toward the integration of training, development, and strategy. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MGMT 2520 or MGMT 3520.

MGMT 3810 Applied Six Sigma Problem-Solving This course provides a unique opportunity for students to apply the concepts, tools and techniques studied in previous ISM classes to issues and problems facing today's supply chain. After mastering process management concepts and techniques (e.g., value stream mapping, value analysis/value engineering, quick changeover, etc.), students are given the opportunity to apply a problem solving architecture i.e. Lean Six Sigma, A3, etc. to on-site industry processes. In collaboration with WMU industry partners, faculty and student teams scope a company's supply chain problem area, develop and execute a problem-solving strategy, and present the conclusion and
recommendations to the firm's executives. Students gain valuable professional work experience by solving real world industry issues and insight into the design, implementation, and management of effective and efficient integrated Supply Chain Systems. Restricted to majors/minors in Integrated Supply Management. Prerequisite: MGMT 2800

3 hours

MGMT 4000 Topics in Management
An examination of advanced topical problems in management. May be repeated for credit. Restricted to majors across multiple departments. Please see advisor for specific program restrictions.

3 hours

MGMT 4010 Project Leadership
Students acquire the knowledge, tools, and experience to lead project teams through a combination of lectures and experiential learning. This class emphasizes advanced project management skills and concepts crucial to successful leadership such as motivation, decision making, and negotiation. Students apply the concepts learned by assuming leadership roles for the project teams in MGMT 3010. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MGMT 3010

3 hours

MGMT 4020 Leadership in Business Organizations
Leadership ability is in great demand in the business world. Leaders are needed in all types of organizations and at all levels within organizations. This course is designed to provide students with theoretical knowledge, practical guidelines and skill building exercises that will enhance their leadership abilities. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MGMT 3010

3 hours

MGMT 4040 Business and Society
A systematic analysis and evaluation of the institutions and other external and internal factors which shape the role of business in the United States. Illustrative topics: pluralism, values, ethics, social responsibility, the business/government relationship, productivity, corporate governance and social responsiveness. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

3 hours

MGMT 4070 Change Management
The purpose of this course is to provide students with an understanding of the role managers play in guiding organizational change. The course is designed to promote an understanding of processes and techniques necessary to create and support productive organizational transformation. Essentially, the course aims to enhance student insights on how the effective management of organizational change can contribute to improved organizational capabilities and performance. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: Senior standing and (MGMT 2500 or MGMT 2520 or MGMT 3520), with a grade of "C" or better in any prerequisite.

3 hours

MGMT 4100 Multinational Management
An examination of management strategy, controls, environmental influences of the multinational corporation with consideration of geographic factors. The management function abroad will be examined in light of the cultural assumptions underlying U.S. management and will deal with the necessary modification for effective operations in a cross-cultural environment. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

3 hours

MGMT 4120 Management Internship
Students may engage in a variety of professional experiences under the direction of a faculty advisor. Each internship is supervised by a faculty member, requires written term reports by the intern, and requires a written evaluation of the intern's performance by the firm hosting the internship. Does not count toward the major. Repeatable for a maximum of 4 hours credit. Graded credit/no credit basis. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: Department approval.

1 to 4 hours

MGMT 4140 Building the Business
Students will learn about the different approaches for starting a business, including the resources available to entrepreneurs both locally and nationally as well as basic funding approaches. Students will learn the skills to manage the human resources of new, small, and growing firms; gain knowledge of how to be resourceful and properly manage the limited resources in new, young, and small firms; and develop the ability to evaluate the progress of an entrepreneurial enterprise and make appropriate and timely adjustments to the business operations and strategy. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: (MGMT 2140 or MGMT 2500) and (FIN 2420 or FIN 3200).

3 hours
MGMT 4320 Compensation and Benefits  This course is intended as an advanced undergraduate course for students with a commitment to Human Resources Management. The course builds on knowledge of motivation and statistics to develop an understanding of organization wage and salary statistics, incentive systems, and employee health and pension systems. Students completing the course are expected to have acquired an understanding of contemporary approaches to compensation and benefits. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MGMT 2520 or MGMT 3520, with a grade of "C" or better in any prerequisite. 3 hours

MGMT 4340 Family Business Management  This course will explore and analyze family business continuity challenges and present examples of successful management, family, and governance practices to lead a family owned business. Topics will include the dynamics of family interactions and family business culture, communication and conflict resolution, as well as succession planning. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: (MGMT 2140 or MGMT 2500) and (FIN 2420 or FIN 3200). 3 hours

MGMT 4360 Technology Entrepreneurship  This course provides students with a unique understanding of how technology-focused firms are created and technologies are commercialized. Technology commercialization topics that lie at the intersection of technology and business will be the focus of the class. Topics include intellectual property, technological convergence, industry creation, technology standards, modularity, and technology strategy. Students will apply these principles by assessing the commercial potential of real technological ideas. Restricted to majors in entrepreneurship. This course is cross-listed with CIS 4360. Prerequisites: MGMT 2500, MKTG 2500, FIN 3200 and (BUS 2700 or CIS 2700); or approval of instructor. 3 hours

MGMT 4380 Entrepreneurship Practicum  This course focuses on executing real entrepreneurial opportunities. Students will put entrepreneurial thought into practice by engaging with customers, experts, suppliers, competitors and investors to develop and implement a business idea/model/plan as part of the launch of their venture. Core to the class experience is the question - how do you build and lead a start-up? Students work independently as well as interdependently with other students in the course. Students are guided by the instructor, but are expected to provide most of the initiative to identify and deliver upon the key outcomes of the course. Contact time for this course will be split between in-class sessions and out-of-class individual meetings with the instructor, faculty advisors, and start-up mentors. Prerequisite: Instructor approval. 3 hours

MGMT 4510 Staffing Organizations  This course is intended to: a) provide an overview of the process by which organizations acquire and deploy the organization's workforce, and b) begin developing specific knowledge, skills, and abilities needed to effectively carry out staffing activities (attracting, selecting, placing, and socializing employees). Students learn theories, research, policies, practices, and legal considerations relevant to these objectives. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MGMT 2520 or MGMT 3520, with a grade of "C" or better in any prerequisite. 3 hours

MGMT 4540 Employment Relations  This course is designed to present methods and concepts of managing employment relations. How labor unions operate and how businesses avoid or become involved with labor unions are investigated. Negotiation, conflict resolution, and contract administration processes and their operation are covered. The goals, purposes and history of organized labor are examined. Maintenance of the quality of relationships between employees and organizations is explored. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MGMT 2520 or MGMT 3520, with a grade of "C" or better in any prerequisite. 3 hours

MGMT 4640 Production Management and Control  Quantitative and computer-based methods of planning and controlling operations in manufacturing are explored. Topics covered in depth include forecasting, production planning and inventory control. The course employs a problem-based approach using in-class problems, spreadsheet analysis, enterprise system applications and simulations. Restricted to majors in Management and Integrated Supply Management. Prerequisite: ACTY 2110 and either (BUS 3750 or MGMT 2800). 3 hours

MGMT 4650 Managing for Quality  The course will examine the total quality management (TQM) philosophy. The topics include benchmarking, continuous improvement, employee participation, statistical control charts and
quality tools. A detailed discussion of the Deming, Juran and Crosby principles is undertaken. Also, Malcolm Baldridge Award and ISO 9000 certification are examined. To further enhance understanding about the TQM philosophy, the principles are applied in the classroom. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: MGMT 2500 and MKTG 2500.

MGMT 4950 Independent Study
Independent research on specialized management topics. May be repeated for credit. Restricted to majors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: Instructor approval. 1 to 4 hours

Marketing

MKTG 2500 Marketing Principles
Introduction to the role of marketing in the U.S. and global economy. Emphasis on how organizations create customer value through marketing strategy planning. Topics covered include buyer behavior, market segmentation, product planning, service quality, promotion, pricing and managing channel relationships. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. 3 hours

MKTG 2750 Global Negotiation
This course is designed to be a "learning laboratory" for developing negotiation skills. The course will focus on the negotiation process and how individuals can understand and thus shape that process to achieve more desired outcomes. Negotiation will be explored with a global orientation so that students can understand the impact of culture and business climate on the negotiation process. The course will use multiple cases with students negotiating these cases to reinforce the concepts they learn. Prerequisite: Sophomore standing. 3 hours

MKTG 2900 Introduction to Food and CPG Industries
An introductory course designed to provide an overview of the food and consumer package goods (CPG) industries. The marketing functions performed by producers, manufacturers, wholesalers, and retailers are examined, along with consumer shopping, purchasing and consumption behavior. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. 3 hours

MKTG 3330 Sustainability Marketing
This course is an introduction to the role of sustainable marketing in the U.S. and global economy. Emphasis within this course is on how organizations create sustainable value through strategically driven marketing action. Topics include buyer & consumer behavior, market segmentation, product planning, service quality, promotion, pricing, and managing channel relationships. Prerequisite: Junior standing or instructor approval. 3 hours

MKTG 3340 Entrepreneurial Marketing
An examination of marketing theory, concepts and processes used by entrepreneurial companies to create customer value while accomplishing their strategic mission and objectives. The basic objectives of the course are to have students: 1) Develop an understanding of the essence of marketing terminology, concepts, and strategies as they apply to small and new ventures; 2) Develop skills in analyzing and solving entrepreneurial marketing problems in business; and 3) Learn to write a basic marketing plan for an existing or proposed entrepreneurial company. Restricted to majors/minors in entrepreneurship. Prerequisite: MKTG 2500. 3 hours

MKTG 3600 Professional Selling
An introduction to the principles of selling. Includes study of selling in our present economy, analysis of the steps in the sales process and a videotaped sales presentation. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MKTG 2500. 3 hours

MKTG 3710 Marketing Research
An introduction to the research process as it aids decision making in marketing management. The focus is on the stages of research process from the planning of the research to gathering, analysis, and interpretation of data as it relates to marketing management. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: MKTG 2500 and (STAT 1600 or STAT 2160 or STAT 3660). 3 hours

MKTG 3720 Sourcing and Purchasing
This course studies the integrative elements of sourcing decisions and their impact on the design and development of supply chains. The primary focus of the course is on the critical analysis of sourcing decision on the performance of operations, production and inventory control, and logistics, in terms of delivering a
best-in-class customer experience. Topics include: spend analysis and commodity strategy development, strategic sourcing processes, early supplier involvement, price and cost management techniques, regression-based cost modeling, negotiation and contracting, supply chain risk profiling and supplier risk management, and supplier performance and relationship management. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions.

Prerequisite: MKTG 2500

3 hours

MKTG 3730 Digital and Social Media Marketing
This course examines the strategic use of the Internet and other digital technologies in marketing in order to develop or enhance the overall customer experience. Topics in the course will include: basic website design, development and usability; search engine optimization (SEO); paid search marketing (PPC); web analytics; social media marketing; blogging; mobile marketing; and other emerging technologies. Restricted to majors/minors in Marketing. Prerequisite: MKTG 2500 or instructor approval.

3 hours

MKTG 3740 Advertising and Promotion
A comprehensive survey of basic principles of advertising and promotion. The course will include the study of promotion media, practices and theories and the effects of advertising and promotion in the firm, the economy and society. Students will be introduced to the fundamentals of Integrated Marketing Communications (IMC). Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MKTG 2500

3 hours

MKTG 3750 Sales Management
Topics include the role of personal selling in the firm, determination of market and sales potential, recruiting, training, sales compensation, territories and quotas, motivation; measuring selling effectiveness. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisite: MKTG 2500

3 hours

MKTG 3760 Marketing Analytics
The course introduces the principles and key metrics used to evaluate the most important and contemporary marketing strategies and expenditures. Students will learn appropriate quantitative methods for assessing key performance indicators across all marketing mix variables (product, price, place and promotion), as well as larger market effectiveness measures such as share of hearts, minds and markets and customer profitability. Restricted to advertising and promotion and marketing majors and minors; and majors in electronic business marketing, sales and business marketing, and food and consumer packaged goods. Prerequisite: MKTG 2500 (MKTG 3710 is recommended and may be taken concurrently)

3 hours

MKTG 3800 Sport Marketing
This course presents an overview of the marketing of sports at the professional and collegiate levels, as well as the use of sport sponsorships by commercial enterprises to help market products and services. Class projects emphasize original research into sport marketing topics, with collaboration from industry professionals. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: MKTG 2500 and instructor approval.

3 hours

MKTG 3910 Retail Merchandising
This course is designed to acquaint students with merchandising principles and applications related to the marketing of food and consumer packaged goods (CPG). The art and science of maximizing customer satisfaction through pricing, assortment, promotion and presentation of products and services will be studied. Consumer and shopper demographics and lifestyles trends will be examined related to store location/design and the product and service offerings necessary. Restricted to majors in Food and Consumer Package Goods Marketing or instructor approval. Prerequisites: MKTG 2500 and MKTG 2900 (2900 may be taken concurrently).

3 hours

MKTG 3920 Applied Marketing Analysis
This course is designed to actively involve students in an applied marketing research project. Working closely with a business, nonprofit, or government organization, students will be involved in the process of research design, including problem identification, sampling design, instrument development, data collection, data analysis, interpretation of findings, and presentation of findings. Emphasis will be placed on the development and application of analytical techniques to address marketing problems. Restricted to majors in Marketing. Prerequisites: MKTG 3710 and instructor approval.

3 hours
MKTG 3921 Food and CPG Marketing Analytics
This course is designed to introduce students to applied techniques and tools for analyzing secondary data in the food and consumer packaged goods (CPG) industries. Students will learn analytics and metrics for analyzing and synthesizing data sources, such as large syndicated databases, textural data, and social media data. The emphasis will be on the accurate interpretation and effective communication of strategic solutions to address marketing problems, using data visualization techniques, in oral presentations and written reports. Restricted to majors in Food and Consumer Package Goods Marketing or instructor approval.
Corequisite: MKTG 3910
3 hours

MKTG 3930 Food and CPG Sales
This course introduces selling principles employed within the food and consumer package goods industries. Multi-tier retail channel selling as well as Key Account headquarters selling and negotiation practices will be examined. Students apply fact-based selling methods utilizing syndicated market data, retail merchandising principles, and category management tools related to the selling process. Extensive role-playing, exercises, and real-world sales presentations to industry professionals relevant to the buying/selling process will be used. Restricted to majors in Food and Consumer Package Goods Marketing. Prerequisites: MKTG 3910 (may be taken concurrently).
3 hours

MKTG 3960 Survey of Food and CPG Industries
An intensive two-week survey of manufacturers, retailers, wholesalers and businesses related to the food and consumer package goods industries. Company visits include presentations by industry executives and tours of manufacturing, distribution, and company facilities. Students observe practices related to marketing, production, packaging, distribution, research and technology development. Written reports are required. Bus travel and overnight stays are necessary. A fee for transportation and housing is required. Restricted to majors in Food and Consumer Package Goods Marketing. Prerequisite: MKTG 2900
3 hours

MKTG 3970 Food and CPG Internship
Under the direction of a faculty advisor, students seek and obtain a position offering full-time work experience related to the food and consumer package goods industries. Students are expected to work a minimum of 150 hours for each internship credit hour received. Interns are required to submit periodic written reports, and an employer evaluation of their performance. Course may be repeated for credit up to three times for a maximum of 6 hours credit. Graded on a Credit/No Credit basis. Restricted to majors in Food and Consumer Package Goods Marketing. Prerequisite: Approved application form, signed by a faculty advisor is necessary before registration is permitted.
3 hours

MKTG 4100 Selling Skills Development
This course will expand the breadth and depth of the selling topics introduced in MKTG 3600 while including a significant number of experiential learning activities. Additionally, new selling contexts (e.g. team selling, selling to senior executives) will be incorporated. Topics include the basic communication and organizational skills required for success in personal selling. This course will include lectures, discussions, exercises and experiential learning activities such as role-plays. Course meetings (e.g. role-plays) outside of scheduled class time are required for this course. Restricted to majors in Sales and Business Marketing. Prerequisite: MKTG 3600 with a grade of “C” or better.
3 hours

MKTG 4500 Customer Relationship Management
Examines customer relationship management (CRM) and its application in marketing, sales, and service. Effective CRM strategies help companies align business process with customer centric strategies using people, technology and knowledge. Companies strive to use CRM to optimize the identification, acquisition, growth and retention of desired customers to gain competitive advantage and maximize profit. Anyone interested in working with customers and CRM technology will find this course beneficial. Emphasis is given on both conceptual knowledge and hands-on learning using CRM software. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: CIS 2700 and MKTG 2500.
3 hours

MKTG 4600 Advanced Selling Strategies
This course examines advanced methods of questioning, customer need analysis and problem finding, creative solution development, computer based sales planning, team selling, negotiation and elements of time and territory management. Exercises, extensive role playing and cases are used. Restricted to majors in Sales and Business Marketing. Prerequisites: MKTG 4100
3 hours

MKTG 4630 Supply Chain Logistics
This course analyzes the integrative elements of a logistical system across supply chains. The primary focus is on critical analysis of the service and economic justification of supply chain...
designs. Topics include: Total landed cost, demand/supply integration, analysis of demand fulfillment, transportation service quality, transportation costing/pricing, inventory management and application of information technologies. Students cannot receive credit for both MKTG 4630 and MKTG 4840. Restricted to majors/minors in Integrated Supply Management and majors in Sales and Business Marketing. Prerequisites: MKTG 2500 and either (BUS 3750 or EDMIN 3260 or MGMT 2800).

MKTG 4700 Business Marketing Strategy
An advanced course in planning and implementing business-to-business marketing strategies with an emphasis on segmenting markets, managing channel relationships and creating customer value through continuous improvement and re-engineering. Restricted to majors in Imaging/Printing, Marketing, and Sales and Business Marketing. Prerequisites: Senior standing; MKTG 3710, MKTG 3760, and FIN 3200. 3 hours

MKTG 4720 Advertising Media Strategy
Let's connect. Advertising today is all about connecting with the consumer across print, broadcast, digital, mobile, and social networks. This course explores consumer media habits, audience measurement, creative strategies, and research to meet business objectives. Using media buying software, you will create and execute an innovative media plan for a global brand. Restricted to majors/minors in Advertising and Promotion. Prerequisites: MKTG 3710 and MKTG 3740. 3 hours

MKTG 4730 Data Driven Marketing
This course introduces students to database development and its uses in marketing to establish and maximize personalized, one-on-one customer relationships that span both traditional and digital marketing channels, and in all marketing contexts. Data-driven marketing strategies will be discussed including: the creation and use of databases for customer profiling, segmentation, creative offer development, as well as database analytics, affiliate marketing, e-mail marketing, campaign performance metrics, and ethical and regulatory issues. Restricted to majors/minors in Advertising and Promotion, or Marketing; and majors in Food and Consumer Package Goods Marketing, Sales and Business Marketing, and Electronic Business Marketing. Prerequisites: MKTG 3710 and (MKTG 3740 recommended). 3 hours

MKTG 4740 Creative Strategy
Picture this. Learn the creative process from a business perspective. This course will focus on messaging strategies, and techniques for writing and designing ads for traditional and digital platforms. You will develop a personal branding project, and an online portfolio showcasing your work. A major component of this course is a collaborative project solving a marketing communication problem for an existing brand. Restricted to majors/minors in Advertising and Promotion. Prerequisite: MKTG 3740 3 hours

MKTG 4750 International Marketing
An examination of the theories and principles of International Marketing. This course focuses on major concepts and dimensions of international marketing for small and large businesses. Emphasis on developing managerial frameworks within which global or multinational marketing programs can be planned, analyzed and assessed. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: Junior standing and MKTG 2500. 3 hours

MKTG 4760 Retail Management
This course focuses on professional management of retail companies. It addresses all levels of management responsibility (strategic, administrative and operational) within the two largest functional divisions of retail organizations, namely, the merchandising and the store operations divisions. Attention is also given to other functions (finance, human resources, research, advertising, etc.) but primarily as they relate to merchandising and store operations. Restricted to majors/minors across multiple departments. Please see advisor for specific program restrictions. Prerequisites: MKTG 2500 3 hours

MKTG 4770 Consumer Behavior
Investigate, analyze and interpret the extensive body of research information on consumer behavior considering both the theoretical and practical implications. Restricted to majors/minors in Advertising or Marketing and majors in General Business. Prerequisites: MKTG 2500 and MKTG 3710 (3710 may be taken concurrently). 3 hours

MKTG 4780 Special Topics in Marketing
Study of advanced topics within the marketing discipline. The course topic will be indicated in the student record. Repeatable for credit under different topics. Restricted to majors/minors in Marketing or majors in Sales and Business Marketing. Prerequisites: MKTG 2500 and instructor approval. 3 hours
MKTG 4790  Marketing Internship  Marketing internship experience under the supervision of participating employers. Term reports required. Employer must submit a written performance appraisal. Variable credit at the rate of approximately 100 hours of approved internship experience per credit hour. May be repeated for a maximum of 6 hours. Graded on a credit/no credit basis. Cannot be counted toward major requirements. Restricted to majors/minors in Advertising and Promotion or Marketing; and majors in Food and Consumer Package Goods Marketing or Sales and Business Marketing.

Prerequisites: MKTG 2500, MKTG 3710, and instructor approval. 1 to 3 hours

MKTG 4791  Advanced Digital Marketing Strategies  Students will critically assess the success or failure of a specific industry, client situation and/or multi-channel market effort to increase their knowledge of technology's disruptive impact on current business and marketing models.

Prerequisites: CIS 2900, CIS 3900, MKTG 3710 and MKTG 3730. 3 hours

MKTG 4810  Integrated Marketing Communications Campaigns  This is it. The capstone course where you will have the opportunity to collaborate and create a complete IMC campaign using hands-on research to build media, creative, and promotional strategies to solve everyday business challenges. The work associated with this course will enhance career development skills and become a key component in your professional portfolio. Restricted to majors in Advertising and Promotion.

Prerequisites: MKTG 4720, MKTG 4740 and MKTG 4770. 3 hours

MKTG 4820  Advanced Sports Marketing  This course will challenge the advanced sports marketing student to plan, execute, and present marketing solutions for existing sports organizations. The projects will include secondary and/or primary research, strategic planning, and the creation of an innovative marketing plan. Emphasis will be placed on digital marketing and social media. Students will be expected to present findings/solutions as a significant portion of their deliverable(s) for this course.

Prerequisites: MKTG 3800 and instructor approval. 3 hours

MKTG 4840  Marketing Logistics  An analysis of the movement and storage of finished products to support physical availability in markets. Emphasis on customer requirements and customer satisfaction, logistics process capability and optimization of total distribution costs. Students cannot receive credit for both MKTG 4630 and MKTG 4840. Restricted to majors/minors in Marketing and majors in Food and Consumers Package Goods Marketing or Sales and Business Marketing.

Prerequisites: MKTG 2500 and either (BUS 3750 or EDMM 3260 or MGMT 2800). 3 hours

MKTG 4860  Marketing Strategy  Students in this course apply a variety of analytical and theoretical marketing tools to gauge how consumer and organizational behavior, competitive dynamics and market forces impact demand for a firm's products or services. Through decision-making exercises, case studies, computer simulations and/or team projects, students develop competence in making target market and marketing mix decisions and developing strategic marketing plans. Restricted to majors in Marketing.

Prerequisites: Senior standing, MKTG 3710, (MKTG 3740 or MKTG 3780), and FIN 3200. 3 hours

MKTG 4880  Applied Process Reengineering  This course examines the application of analytical and process measurement techniques to process design decisions. The benefits of process standardization and improvement will be documented and discussed. Restricted to majors/minors in Integrated Supply Management. This course is cross-listed with EDMM 4880.

Prerequisites: Senior standing or instructor approval. 3 hours

MKTG 4920  Category Management  This course will examine the collaborative process between manufacturers and retailers to manage product categories to optimize shopper satisfaction. Fundamentals of the category management process will be examined including category, consumer and shopper insights, sales trends and the impact product assortment, price, promotion and shelf presentation have on optimizing product category performance over time. Successful completion of this course prepares the student for certification in category management. Restricted to majors in Food and Consumer Package Goods Marketing.

Prerequisite: MKTG 3710 and MKTG 3910. 3 hours

MKTG 4940  Food and CPG Marketing Issues and Strategies  This capstone course examines current issues and strategies relevant to the marketing of food and consumer package goods (CPG). The course provides an opportunity for students to learn and apply strategic marketing decision processes to establish, sustain or enhance an organization's competitive position. Current industry issues and targeted case study interaction with industry professionals provide real-world insights and viewpoints. The use of new product projects, simulations, and/or company projects may be used to demonstrate the importance of relevant and strategic options and marketing tactics. Restricted to majors in Food and Consumer Package Goods Marketing.

Prerequisites: MKTG 3710, MKTG 3910 and FIN 3200. 3 hours
MKTG 4980  Readings in Marketing  Directed individual study of bodies of knowledge not otherwise treated in departmental offerings.  Prerequisite: Written approval of instructor.  1 to 3 hours

Military Science and Leadership

MSL 1010  Introduction to the Army and Critical Thinking  The purpose of this course is to introduce students to the personal challenges and competencies associated with effective leadership. Students are introduced to critical thinking and learn critical life skills including time management, goal setting, stress management and comprehensive fitness. Students are also introduced to the Army Values and Military Customs and Courtesies.  Prerequisite: Approval of department chair.  1 hour

MSL 1020  Introduction to the Profession of Arms  The purpose of this course is to introduce students to the personal challenges and competencies that are critical for effective leadership. Students develop effective communication skills which are essential to effective leadership. In learning the basics of effective communications, students learn about the Army writing style and persuasive presentation techniques. Students also examine the Army Values and Warrior Ethos to better understand the Army Profession and what it means to be a professional in the U.S. Army.  Prerequisite: Approval of department chair.  1 hour

MSL 2010  Leadership and Decision Making  This course explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and leadership theories that form the basis of the Army leadership framework culminating in a leadership capstone presentation. Focus is on continued development of the knowledge of leadership values and attributes through an understanding of critical thinking and the Army problem solving process. Case studies provide tangible context for application of troop leading procedures and the military orders process in the contemporary operating environment (COE).  Prerequisite: Approval of department chair.  2 hours

MSL 2020  Army Doctrine and Team Development  This course examines challenges of leading in complex contemporary operational environments with specific emphasis on the dimensions of cross-cultural challenges, and ethics and the Law of Land Warfare as applied to practical Army leadership tasks and situations. Cadets develop greater self-awareness as they assess their own leadership styles and practice communication and team building skills. Practical exercises give insight into the importance and practice of teamwork and tactics in real-world scenarios.  Prerequisite: Approval of department chair.  2 hours

MSL 2990  Studies in Military Science and Leadership  An opportunity for students who have been unable to take the basic 1000- or 2000-level military science and leadership courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the student.  Prerequisite: Approval of department chair.  1 to 3 hours

MSL 3010  Unit Training and the Warfighting Functions  This course is designed to challenge students mentally, physically and emotionally. Students will hone their basic Soldier Skills while given the opportunity to lead fellow students in the program. Students will be placed in leadership roles and presented with challenging scenarios and receive systematic and specific feedback on their leadership attributes and actions. Based on this feedback, as well as their own self-evaluations, students continue to develop their leadership and critical thinking abilities. Students will learn the warfighting functions of the various branches in the United States Army. The focus is on developing students so they have the necessary skill set to effectively lead as future United States Army officers.  Prerequisite: Approval of department chair.  3 hours

MSL 3020  Applied Leadership in Small Unit Operations  This course is designed to challenge students mentally, physically and emotionally. Students are placed into situational leadership challenges to build awareness and skills in leading tactical operations up to platoon level. Students will receive systematic and specific feedback on their leadership attributes and actions. Based on this feedback, as well as their own self-evaluations, students continue to develop their leadership and critical thinking abilities. The focus is on developing students so they have the necessary skill set and decision-making ability to effectively lead as future United States Army officers.  Prerequisite: Approval of department chair.  3 hours
MSL 4010 Mission Command and the Army Profession  This course explores the dynamics of leading in the complex situations of current military operations. The course places significant emphasis on preparing students to become commissioned officers in the U.S. Army and for their first assignment as a U.S. Army Officer. It uses mission command case studies and scenarios to prepare students to face the complex ethical demands of serving as a commissioned officer in the United States Army. Students:

- Explore military professional ethics, organizational ethics and ethical decision making processes
- Gain practical experience in Cadet battalion leadership roles and training management
- Begin their leadership self-development including civil military and media relations
- Prepare for the transition to a career as an Army Officer

The course transitions the focus of student learning from being developed, mentored and evaluated as a junior-level student to learning how to develop, mentor, and assess underclass students. Students will learn the duties and responsibilities of an Army staff officer and apply the Military Decision Making Process (MDMP), the Army Writing Style and the Army's Training Management and METL Development processes during weekly Training Meetings to plan, execute and assess battalion training events. Students will learn how to safely conduct this training by understanding and employing the Risk Management Process.  Prerequisite: Approval of department chair.    3 hours

MSL 4020 Mission Command and the Company Grade Officer  This course explores the dynamics of leading in the complex situations of current military operations. The course places significant emphasis on preparing students to become commissioned officers in the U.S. Army and for their first assignment as a U.S. Army Officer. It used mission command case studies and scenarios to prepare students to face the complex ethical demands of serving as a commissioned officer in the United States Army. Students:

- Identify leaders roles and responsibilities for enforcing Army policies and programs
- Explore the dynamics of building teams
- Examine the significance of organizational culture
- Gain practical experience in Cadet battalion leadership roles and training management
- Explore military professional ethics and ethical decision making processes
- Prepare for the transition to a career as an Army Officer

The course transitions the focus of student learning from being developed, mentored, and evaluated as a junior-level student to learning how to develop, mentor, and assess underclass students. Students will learn about Unified Land Operations and the Art of Command. Students continue to develop verbal and written communication skills through a battle analysis case study and presentation. Students also learn counseling and influencing techniques. Students will also conduct weekly Training Meetings to plan, execute and assess battalion training events.  Prerequisite: Approval of department chair. 3 hours

MSL 4990 Advanced Studies in Military Science and Leadership  An opportunity for students who have been unable to take the advanced 3000- and 4000-level military science and leadership courses in sequence to obtain needed course work at more convenient times. Also, this course is available for students wishing to pursue special topics or an independent study in military science and leadership. Course content is adapted to meet the individual needs of the students. Topics may vary from semester to semester and students may repeat the course.  Prerequisite: Approval of department chair. 1 to 4 hours

Music

MUS 1000 Applied Music  This level of applied music indicates private music study at a fundamental level. Credit earned may be applied to a Bachelor of Music degree only by special arrangement through the School of Music. 1 to 2 hours

MUS 1010 Music Convocation  A series of special musical events required of music majors. Programs include lectures and recitals by faculty, selected students, and guest artists. Restricted to majors in music. No Credit

MUS 1020 Piano Class I  This is a beginning course for the development of piano playing skills for non-music majors/minors. The course will cover fundamentals of music reading, keyboard techniques, sight-reading, and harmonization. 2 hours
MUS 1030 Piano Class II  A continuation of MUS 1020 Piano Class I. Because course goals do not align with other keyboard classes in the School of Music, the student will not be prepared to progress into other piano courses offered for music majors/minors. Prerequisite: MUS 1020 or instructor consent. 2 hours

MUS 1070 University Choruses  The University Choruses are composed of students from all disciplines. These ensembles provide students with the fundamentals of artistic choral ensemble singing. As part of that education, performance experiences may include concerts and local tours. Repertoire includes a wide variety of multicultural literature. Examples of ensembles offered include Women's Chorus, Concert Choir, and Special Ensemble. Repeatable for credit. Prerequisite: Audition or instructor consent. Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other singers with the consent of the conductor. 1 hour

MUS 1080 Collegiate Singers  A choral ensemble which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition. Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other singers with the consent of the conductor. 1 hour

MUS 1090 Marching Band  The University Marching Band is the major performing ensemble for Fall football activities. Positions are open to all students who play wind or percussion instruments. Music Education: Instrumental majors who play a wind or percussion instrument are required to take this course during two Fall semesters. Membership is by audition. 1 hour

MUS 1100 Symphonic Band  The University Symphonic Band is dedicated to the performance of outstanding literature, including original works for band, compositions for wind ensemble and orchestral transcriptions. An emphasis is placed on understanding the pieces performed from an aesthetic and stylistic basis as well as from a technical point of view. This ensemble maintains an active performance schedule on campus and in the community, as well as throughout Michigan and the surrounding states. Membership by audition. 1 hour

MUS 1110 University Orchestra  The orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and played during the year, and the orchestra joins with other campus organizations in joint programs. Instruments are available for the use of students. Membership is by audition. 1 hour

MUS 1120 University Chorale  An advanced choral ensemble which maintains a very active performance schedule on campus and in the community as well as throughout Michigan and surrounding states. Membership by audition. Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and University Choruses, but membership is open to other singers with the consent of the conductor. 1 hour

MUS 1130 Concert Band  The University Concert Band is an all-campus organization dedicated to the performance of fine literature, including original works for band as well as outstanding orchestral transcriptions. The aesthetic aspect of the music is stressed and special emphasis is placed on musical style. This ensemble presents concerts on campus and in the surrounding community. Membership is by audition. 1 hour

MUS 1140 Digital Media in Music  This course will provide instruction in important technologies needed by music majors to successfully complete coursework in their major and prepare for careers in music performance, composition, music education, and music therapy. Instruction will include the following technologies: the use of music notation software to compose and arrange musical scores, the use of digital audio and video editing software to create and edit multimedia, and the use of online portfolios to promote professional aptitude and achievement. This course will fulfill the School of Music’s computer literacy graduation requirement. Restricted to majors in music (excluding Multimedia Arts Technology). 1 hour

MUS 1170 Vocal Techniques for Music Educator  A course that develops the understanding of vocal hygiene and vocal production, as well as develop the ability to perform simple phrases with direct application of production
principles. Application of vocal production principles will be made using the speaking voice in the classroom. Prerequisite: Music Education major.  1 hour

MUS 1180 Gold Company II A vocal jazz and show entertainment ensemble which gives students the opportunity to develop their vocal skills while performing challenging contemporary choral literature. A small instrumental combo accompanies the ensemble, and choreography and specialty acts are included. The ensemble maintains an active performance schedule on campus and throughout the surrounding west Michigan area. Membership is open to all students by audition.  1 hour

MUS 1190 Gold Company A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental ensemble accompanies the group. A very active performance schedule is maintained on campus, in the community, in Michigan and out-of-state. Membership is open to all University students by audition.  1 hour

MUS 1200 Keyboard Fundamentals The course covers basic fundamentals of piano technique, sight-reading, transposition, improvisation, and simple harmonization of melodies using primary harmonies. Prerequisite: MUS 1600 or concurrent.  1 hour

MUS 1210 Keyboard Fundamentals A continuation of MUS 1200. The course of study includes major scales, sight-reading of simple pieces with two independent parts or melody with blocked and broken chord accompaniment, transposition, harmonization of melodies using primary and secondary harmonies, and improvisation using penta scales and specified chord progressions. Prerequisite: MUS 1200 with a grade of "C" or better, or instructor approval.  1 hour

MUS 1220 Voice Class A study of the fundamental processes of breath control and tone production, providing some individual instruction in preparing and singing standard song literature. The course is designed to benefit students interested in solo and choral singing.  1 hour

MUS 1240 Guitar Class I This class will enable the student with no previous experience to use the guitar as an accompanying instrument. The course will provide basic instruction in the fundamentals of music reading as well as the fundamentals of guitar. The student will be required to own or have access to a Folk or Classical type guitar.  2 hours

MUS 1250 Guitar Class II This class is intended for the student who has completed Guitar Class I or the student with some guitar ability who wishes to further develop his/her skills. The course will enable the student to use the guitar as a solo or melody-playing instrument. Instructions will be provided on tablature and transposition as it applies to the guitar and on various techniques as used in both the Classical and Folk idioms for melody or single-note playing. The student will be required to own or have access to a Folk or Classical type guitar. Prerequisite: Completion of MUS 1240 or instructor consent.  2 hours

MUS 1260 Fundamentals of Guitar This class is for the music major or minor who has an ability to read music and a basic knowledge of harmony but who cannot already play the guitar. The class will focus on the use of guitar in the music education and music therapy professions and will cover the different styles of beginning guitar playing, including an overview of basic chords, barre chords and the various strumming and picking patterns. The student must own or have access to Folk or Classical type guitar. Prerequisite: MUS 1600.  1 hour

MUS 1290 String Class-Violin, Viola A course in the fundamentals of pedagogy and performance for the violin and viola presented through materials commonly used in classes in the public schools. Prerequisite: Music Education major.  1 hour

MUS 1300 Percussion Class Fundamentals of percussion instrument pedagogy and performance. The student is required to perform on the snare drum in an acceptable manner and to demonstrate a working knowledge of percussion instruments, including methods and materials, care and maintenance, and the function of the percussion section in a band or orchestra. For music majors only.  1 hour

MUS 1420 Oboe/Bassoon Class Fundamentals of oboe and bassoon pedagogy and performance. Restricted to majors in music (excluding Performance and Choral Ed).  1 hour
MUS 1430 Trumpet/Horn Class  Fundamentals of trumpet and horn pedagogy and performance. Restricted to majors in music (excluding Performance and Choral Ed). 1 hour

MUS 1440 Trombone/Tuba Class  Fundamentals of trombone and tuba pedagogy and performance. Restricted to majors in music (excluding Performance and Choral Ed). 1 hour

MUS 1460 Clarinet/Flute/Saxophone Class  Fundamentals of clarinet, flute, and saxophone pedagogy and performance. Restricted to majors in music (excluding Performance and Choral Ed). 1 hour

MUS 1480 Direct Encounter with the Arts  A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of arts: cinema, photography, theatre, sculpture, music, poetry, dance, and architecture. Classroom discussions are held following the students' participation in the various art events scheduled each semester, with students expected to write journals or response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross-listed with ART 1480, THEA 1480. May be taken only once from College of Fine Arts Departments. 4 hours

MUS 1500 Music Appreciation: Live Music  An introduction to musical concepts, styles, and literature through assigned readings, recorded listening examples, and live concert attendance that will stimulate musical perception, understanding and enjoyment. The on-campus version of this course in fall/spring semesters is linked to an evening concert series at WMU where attendance is required during class time (a schedule of the musical events required for that semester will be issued during the first week of the class). The fully-online version of this class requires concert attendance at live events that the student chooses in their own local area. This course satisfies General Education Area I: Fine Arts, but may not be elected by music majors (except students pursuing the Multimedia Arts Technology - Music program). 4 hours

MUS 1510 Jazz in American Culture  Introduction to the history and traditions of jazz. The history of jazz, the nature of improvisation, stylistic evolution, and the great masters of the art form are examined. African diaspora and African American sociology will be examined through: the slave trade, race relations, social sciences and racial diversity. The evolution of early African American musical forms (work songs, field hollers, prison songs, and the blues) will be investigated within the context of a specific cultural group. This course satisfies General Education Area III: The United States: Cultures and Issues, but may not be elected by music majors (except students pursuing the Multimedia Arts Technology - Music program). 4 hours

MUS 1520 Rock Music: Genesis and Development  A study of rock and roll music since its inception in the mid-1950s. The impact of black rhythm and blues, jazz forms, and radio and television upon early rock will be studied as well as further evolutionary developments such as "do-wop", soul music, folk rock, psychedelic rock, jazz rock, the various English schools, heavy metal, and punk styles, to mention but a few. The course will cover the material of rock from 1955 to present. This course satisfies General Education Area I: Fine Arts, but may not be elected by music majors (except students pursuing the Multimedia Arts Technology - Music program). 3 hours

MUS 1590 Fundamentals of Music  A study of fundamentals, including notation, scales, intervals, basic chord construction, and the rhythmic/metric aspect of music. 2 hours

MUS 1595 MTP Musicianship I  This class is the first in a two-part sequence of courses designed to encompass a study of basic music theory, keyboard fundamentals and aural skills to develop the singer's ability to understand music on the page and by ear and to hear music internally before it is performed aloud. Recognition of music patterns will result from the development of listening skills (dictation, error detection, musical memory) and performance skills. Restricted to majors in music theatre performance. Prerequisite: MUS 1590 with a grade of "C" or better or departmental examination. 2 hours

MUS 1600 Basic Music I  A study of basic harmony in classical, jazz, and popular music including triads and seventh chords (and their inversions), melodic construction (including non-harmonic tones). Prerequisite: MUS 1590 with a grade of "C" or better or departmental examination. 3 hours

MUS 1605 Jazz Theory  A study of jazz music theory, including chord and scale construction and nomenclature; elementary principles of chord voicing and arrangements; chordSCALE relationships; and blues, AABA and
other song forms. Analysis of jazz solo transcription as well as basic keyboard skills will be emphasized, in addition to listening to great jazz recordings and attending jazz concerts. Prerequisite: MUS 1600 with "C" or better or instructor approval. 2 hours

MUS 1610 Basic Music II  A continuation of MUS 1600. Includes fundamental principles of counterpoint and part writing. Continues study of harmony with modulation and an introduction to chromatic harmony. Prerequisite: MUS 1600 with a grade of "C" or better. 3 hours

MUS 1620 Aural Skills I  The first in a sequence of courses designed to develop a musician's "inner" ear: the ability to understand music by ear and to hear music internally before it is performed aloud. Recognition of music patterns will result from the development of listening skills (dictation, error detection, musical memory) and performance skills (sight reading, prepared performance, conducting and improvisation). This course concentrates on diatonic melodies, simple and compound meters, intervals, triads, and basic chord progressions. Prerequisite: MUS 1590 with a grade of "C" or better or departmental examination. 1 hour

MUS 1630 Aural Skills II  A continuation of MUS 1620. This course develops sight-reading, dictation, error detection, and improvisation skills applied to more advanced diatonic melodies, subdivisions of simple and compound beats, and diatonic chord progressions. The final exam for this course requires each student to demonstrate aural proficiency in the areas of rhythm, harmony, and melody. Prerequisite: MUS 1620 with a grade of "C" or better. 1 hour

MUS 1700 Introduction to Music History  This course introduces the music from the late seventeenth century to the early nineteenth century with an emphasis on perceptions of creative practice from these historical periods. Prerequisite: MUS 1600 with a grade of "C" or better, may be taken concurrently. 2 hours

MUS 1800 Experiencing Music Education  Students will be introduced to the fundamental principles of music education. They will learn about music education philosophy, advocacy, and history. Students will be introduced to best teaching practices through classroom observations, and they will emulate these practices through hands-on teaching experiences. Participation in this course will inform the students' decisions to enter the field of music education. Restricted to majors in music. 2 hours

MUS 1900 Accompanying  Supervised experience in accompanying vocal and instrumental music, both solo and ensemble. 1 hour

MUS 1940 Introduction to Audio Engineering  This course will introduce the student to the fundamentals of audio engineering. The course begins with the basics of how sound propagates and how we perceive it, and moves on to examine the devices that are used to capture (microphones), route (consoles), store (analog and digital recording), manipulate (EQ, compression, reverb, etc.) and listen back (speakers) to recordings. The course requires no previous experience with audio engineering and is open to students from any major at the university. The instructor's assessment of each student's performance in this course will determine which students will be allowed to proceed to upper-level courses in audio engineering. 2 hours

MUS 1945 Intro to Sound Reinforcement  Students learn to understand and operate the basic equipment required for live sound reinforcement, in addition to learning basic acoustics. 1 hour

MUS 1950 Digital Video Concepts  Students in this course will be introduced to technical aspects of digital video, including basic principles of digital images, storage formats, compositing, video compression, and media encoding. Student projects applying these principles will include exercises in image capturing, motion graphics, compositing, and video editing. The course is designed to approach these concepts from the perspective of students with music technology backgrounds, covering material in a manner commensurate with the technical expectations of a foundational course in a B.S. degree. 2 hours

MUS 1990 Applied Music-Music Theatre (voice)  This level of Applied Music indicates "lower division" standing for music theatre students who have been approved for this level. 1 to 4 hours
MUS 1995 MTP Ensemble Vocal Technique An ensemble taught vocal technique course. Introduction to the study of applied music for music theatre voice, focusing on breathing physiology of voice production, vocal styles and repertoire. Restricted to majors in music theatre performance. 2 hours

MUS 2000 Applied Music This level of applied music indicates "lower division" standing for music students who have been approved for this level through auditions or jury examinations. Restricted to majors in music (excluding Multimedia Arts Technology). 1 to 4 hours

MUS 2100 Jazz Lab Band The Jazz Lab Band affords students the opportunity to develop performance skills in contemporary and traditional big band jazz. Student compositions and arrangements are encouraged and are a regular part of Lab Band Concerts. The Ensemble performs regularly on campus and in the surrounding community. Membership is by audition. 1 hour

MUS 2120 Jazz Orchestra The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus. Membership is by audition. 1 hour

MUS 2150 Conducting A course in the fundamentals of conducting, including beat patterns, various gestures for attack, release, phrasing, etc., use of the left hand, and score-reading. The student will be afforded a variety of experiences, i.e., conducting exercises for videotaping, conducting practice laboratories, etc. Prerequisites: MUS 1610, MUS 1630, and MUS 1700 all with a grade of "C" or better. 1 hour

MUS 2170 Chamber Music With Conductor Study and rehearsal of a broad spectrum of chamber music in ensembles of six to 24 performers conducted by faculty. Conducted chamber ensembles will meet from one to three hours per week. Prerequisite: Instructor approval. 1 hour

MUS 2180 Chamber Music Without Conductor Growth in artistry, technical skills, collaborative competence and knowledge of repertoire through regular ensemble experiences. Ensembles should be varied both in size and nature. Prerequisite: Instructor approval 1 hour

MUS 2200 Keyboard Musicianship A course primarily designed for those who need to develop more advanced practical skills at the piano. Students learn to play all major and natural minor scales, harmonization using secondary chords, transposition of band parts into concert key, improvisation on specified progressions and rhythms, and sight-reading of pieces with larger range. Prerequisite: MUS 1210 with a grade of "C" or better, or instructor consent. 1 hour

MUS 2210 Keyboard Musicianship A continuation of MUS 2200. Course emphasis is on adding all forms of minor scales to those previously learned, sight-reading 2 parts of SATB vocal scores, hymns and simple accompaniments, playing 3-part scores, harmonizing melodies using secondary dominants, and improvising accompaniments to specified melodies and to physical movement. Prerequisite: MUS 2200 with a grade of "C" or better, or instructor consent. 1 hour

MUS 2220 Computer Music Design This course covers the fundamental of computer music programming in the context of the laptop orchestra. The course emphasis is on the design of digital musical instruments for real-time performance. Topics include digital signal processing and audio synthesis, procedural and object-oriented programming, computer networking, and design of human-computer interfaces. Programming languages studied may include basic Unix, MIDI, ChucK (a concurrent, time-based, procedural audio programming language), and Max (a graphical object-oriented programming environment for music and multimedia). The class includes performance participation in KLOrk, the Kalamazoo Laptop Orchestra. Students should have either a strong expertise in music with some background in computers, or a strong expertise with computer programming and some background in music. This course satisfies General Education Proficiency 4: Computer Programming and Applications. Prerequisite: MUS 1140 or equivalent basic computer literacy/usage. 3 hours

MUS 2240 Electronic Music Techniques Students will engage in creative work in a digital audio workstation (e.g., Pro Tools, Logic). Students will learn the necessary techniques to create music in various styles. Students
complete projects incorporating digital audio sampling, editing, and arranging. Students also complete projects incorporating MIDI and software instruments.

MUS 2330 Italian/English Diction A phonetic approach to the pronunciation of these languages designed for singers and choral directors. The performance of the language utilizes the vocal literature of major composers in each language. Restricted to Music Performance: Vocal majors or by instructor approval. 1 hour

MUS 2340 French/German Diction A phonetic approach to the pronunciation of these languages designed for singers and choral directors. The performance of the language utilizes the vocal literature of major composers in each language. Restricted to Music Performance: Vocal majors or by instructor approval. 1 hour

MUS 2400 Music for the Classroom Teacher Designed for elementary education students without regard to previous musical training. Students are prepared to use music functionally and developmentally in the elementary classroom through singing, through playing the piano and informal instruments, and through responding to music rhythmically. Creative aspects and values of music are emphasized, and materials are studied in relation to their future uses in the classroom. 3 hours

MUS 2480 Teaching and Learning in Music This course is designed to examine theories of learning as they relate to instruction in music settings. Students will learn to write outcome statements, plan and prepare learning activities to reach those outcomes, and to evaluate and assess the process used and outcomes. Diverse classrooms and differentiated instruction, classroom management, questioning techniques, conceptual hierarchies, sequencing techniques, and lesson planning will be discussed. Students will apply classroom content in required music-based experiences in educational and community-based settings. Prerequisite: MUS 1800 with a grade of "C" or better. 3 hours

MUS 2590 Aural Skills III A continuation of MUS 1630. This course will stress the application of aural skills specific to vocal and instrumental students' disciplines. Course material will include the study of tonicization and modulation in tonal melodies and harmonic progressions; changing meter, syncopation, and irregular divisions of the beat in simple and compound time; two-part rhythmic and melodic dictation; and continued development of sight-reading, error detection, and improvisational skills. Prerequisite: MUS 1630 with a grade of "C" or better. 1 hour

MUS 2595 MTP Musicianship II This class is the second in a two-part sequence of courses designed to encompass a study of basic music theory, keyboard fundamentals and aural skills to develop the singer's ability to understand music on the page and by ear and to hear music internally before it is performed aloud. Recognition of music patterns will result from the development of listening skills (dictation, error detection, musical memory) and performance skills. Restricted to majors in music theatre performance. Prerequisite: MUS 1595 with a grade of "C" or better or departmental examination. 2 hours

MUS 2600 Basic Music III A continuation of MUS 1610. Study of advanced chromatic harmony and 20th century harmonic, melodic, and rhythmic concepts by means of analysis and composition assignments. Prerequisite: MUS 1610 with a grade of "C" or better. 3 hours

MUS 2610 Basic Music IV A continuation of MUS 2600. A study of form, process, and style in various musical periods with an emphasis on analysis of complete works. Prerequisite: MUS 1610 with a grade of "B" or better or MUS 2600. 3 hours

MUS 2620 Composition I Beginning work in composition, with emphasis on the development of short works utilizing small instrumental combinations. Attention is given to melodic, rhythmic and harmonic devices. Includes in-class performance of student compositions. Prerequisite: MUS 2600 with a grade of "C" or better, or MUS 2600 be taken concurrently, or instructor approval by portfolio review. 2 hours

MUS 2630 Composition II A continuation of MUS 2620. Emphasis on more extensively developed works. Includes in-class performance of student compositions. Prerequisite: MUS 2620. 2 hours

MUS 2640 Jazz Composition The fundamental aspects of composition in the jazz idiom, including harmonic progression, melodic design and rhythmic formulation. Intensive study will be made of well-known standard tunes as well as classic jazz compositions. All periods will be studied so that the student will have a well-grounded familiarity with
basic compositional idioms, including the blues, standard AABA song forms, modal forms and more complicated sectional forms. All compositions created in class will be performed by class members or by the appropriate ensemble outside of class. Prerequisites: MUS 1605 (or instructor consent), MUS 2600 (may be taken concurrently); with a grade of "C" or better in all prerequisites.

MUS 2650 Aural Skills IV  A continuation of MUS 2590 and the final course in the 4-course aural skills sequence. This course focuses on advanced aural skills practices specific to different fields of study. This is a multiple-topic course. Topics may include, but are not limited to, advanced chromatic and contemporary aural skills, aural skills for jazz, aural skills for improvisation, and aural skills for electronic music. Additional topics may be offered based on emerging interests in the field. The course title of each section will reflect the specific topic. May be repeated for credit. Prerequisite: MUS 2590 with a grade of "C" or better.

MUS 2700 Music History I  A survey of music from late Antiquity through the Baroque era. Prerequisite: MUS 1700 with a grade of "C" or better.

MUS 2710 Music History II  A survey of the music from the Classic, Romantic, and Twentieth-Century eras. Prerequisite: MUS 1700 with a grade of "C" or better.

MUS 2790 Instruments of the Band and Orchestra  Students survey the string, woodwind, brass and percussion instruments commonly used in the band and orchestra. The major aim of the course is to make the student aware of the unique sound which characterizes each instrument and how that sound is produced. In developing perception and discrimination in this regard, the student investigates such things as the acoustical properties of the instruments, the correct formation of the embouchure for the brasses and woodwinds, the techniques of bowing string instruments, and the physical attributes required to perform successfully on certain instruments. All will learn the proper techniques for playing various percussion instruments commonly used in the classroom and will be given the opportunity to explore one or more of the brasses and woodwinds. Prerequisite: Instructor consent.

MUS 2800 Instruments of the Music Classroom  Students will survey the instruments commonly used in the music classroom. All will learn the proper techniques for playing and teaching autoharp, ukulele, recorder, dulcimer, and others. Emphasis is placed on inclusion of these instruments in the music classroom. Prerequisite: Acceptance into Music Education curriculum.

MUS 2810 Introduction to Music Therapy  An orientation to the discipline of music therapy via classroom lectures, video tape presentations, and clinical observations. This course should be taken following or concurrent with PSY 1000.

MUS 2890 Music Therapy Activities for Children  This class will examine labels and categorizations involved in children populations, offer instruction in social-recreational instruments, allow for a more in-depth study of appropriate music materials and activities, and allow for experience in designing and implementing music therapy treatment procedures for individuals and groups. Class time will be primarily used for instruction with some selected help times to allow for more individualized instruction. Exams will be of a written, playing, and/or presentational format. Prerequisites: MUS 1260 and MUS 2810, or both may be taken concurrently.

MUS 2900 Music Therapy Activities for Adults  This class will examine labels and categorizations involved in adult populations, offer instruction in social-recreational instruments (e.g., guitar, ukulele, etc.), allow for a more in-depth study of appropriate music materials and activities and allow for experience in designing and implementing music therapy treatment procedures for individualized instruction. Exams will be of a written, playing and/or presentational format. Prerequisites: MUS 1260 and MUS 2810, or both may be taken concurrently.

MUS 2940 Multi-track Recording  This course will teach students the steps required to successfully complete a multi-track recording and mixing project. Students will learn the signal flow of the recording console and patch bay, how to set proper levels, how to record with a multi-track recording device, how to create headphone (cue) mixes, and other tasks necessary for basic multi-track recording projects. Students must plan and execute multiple recording sessions and create a final mix of the recorded tracks. Prerequisite: MUS 1940 with a grade of "B" or better.
MUS 2950 Music Theatre Performance Workshop I  A workshop format utilizing exercises, scene
rehearsals and performances in order to develop students' performing ability in musical theatre with particular emphasis on
audition techniques. Content includes sound and motion exercises, routining of a song or aria, and projection and audition techniques.
Prerequisites: THEA 1420, THEA 2900, MUS 1595, MUS 2595 (may be taken concurrently), and (DANC 1200, DANC 2200 or DANC 3200) (may be taken concurrently). 3 hours

MUS 2990 Applied Music – Music Theatre (Voice)  This level of applied music indicates "upper division"
standing for music theatre students in applied music and is used to designate junior- and senior-level applied music.
Prerequisites: Junior standing and acceptance into the Music Theatre Performance program (BFA). 2 hours

MUS 3000 Applied Music  This level of applied music indicates "upper division" standing in applied music
and is used to designate junior-and senior-level applied music. A maximum of four credits per semester may be earned at this level. 1 to 4 hours

MUS 3120 Explorations in World Music  An introduction to the field of ethnomusicology, this course
explores the transition of "traditional" and "folk" musics into newer forms of music expression, including "popular",
"cosmopolitan" and "modern" music. Through an examination of socio-cultural contexts in North America, South America,
Asia, the Middle East, and Sub-Saharan Africa, students investigate the relationship of music to history, religion and
philosophy. This course satisfies General Education Area II: Humanities. 3 hours

MUS 3170 Opera Workshop  A production experience in the acting, singing, accompanying, and
producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic
scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal
interview with the instructor. 1 hour

MUS 3200 Advanced Keyboard Musicianship  Course emphasis is on the development of sight-
reading and harmonization skills, introduction to four-part, open-score reading, modal improvisation, improvisation on
specified progressions, and playing by ear.  Prerequisite: MUS 2210 with a grade of "C" or better, or instructor consent. 1 hour

MUS 3210 Advanced Keyboard Musicianship II  A course designed to continue development of
keyboard skills necessary for music therapists and voice majors in performance and music education. The course content will
include accompanying techniques, harmonization, playing by ear, transposition, improvisation, open-score reading and sight-
reading, with frequent in-class student performances.  Prerequisite: MUS 3200 with a grade of "C" or better or
instructor consent 1 hour

MUS 3240 Effects Processing and Synthesis  This course will teach students the concepts necessary to apply
effects processing and synthesis in generative audio projects. Students will learn the parameters and typical applications for
filters and equalization, dynamics processing, delay and delay-based effects, distortion, pitch shifting, granular processes, and
processes involving Fast Fourier Transforms. Students will learn the parameters and typical applications of low frequency
oscillators, additive synthesis, subtractive synthesis, wave-shaping, and modulation processes.  Prerequisite: MUS 2240
with a grade of "C" or better. 2 hours

MUS 3300 Choral Conducting and Literature  The fundamentals of choral conducting are presented,
including patterns and rehearsal techniques. The study and selection of literature appropriate to various levels of junior and
senior high school choirs is included.  Prerequisites: MUS 2150 with a grade of "C" or better. 2 hours

MUS 3310 Instrumental Conducting and Literature  Beginning methods for homogeneous and
heterogeneous groups will be used with students acting as conductor-teachers and playing secondary instruments. Literature
appropriate to various levels of junior and senior high school bands and orchestras will serve as materials for conducting with
students performing on major instruments.  Prerequisite: MUS 2150 with a grade of "C" or better. 2 hours

MUS 3360 General Music Methods  A study and survey of sequential musical experiences in general music
classes in grades K-8. The course will include education objectives, philosophical concepts, instructional methods and
materials and various innovative approaches used in the general music class. Administration and implementation of the class
will be examined. The course is especially designed to acquaint the student with various teaching techniques. Each student

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will have an opportunity to participate in general music classes in area schools one-half day a week. Restricted to majors in music education. Prerequisite: MUS 2480 with a grade of "C" or better. 3 hours

MUS 3390 Choral Techniques A course which develops the principles of vocal pedagogy, diction, and improvisation as they apply to choral settings. Study will include the development of the child's and adolescent's voice, selecting and arranging appropriate music for those voices, the problem of vocal abuse, and the rationales behind group vocal warm-up practices. Prerequisite: MUS 2150 with a grade of "C" or better. 2 hours

MUS 3400 Choral Methods Extensive involvement with actual teaching of choral music in public schools is a central part of this course. Various philosophies of music education, music reading programs, and choral music education will be discussed. Students will focus on the development of aesthetic behaviors and performance objectives for choral ensembles. Administrative duties needed to implement and maintain a choral program will be identified. Advanced techniques for production of musicals and madrigal dinners, and the principles involved with developing show/jazz choirs will be examined. Job seeking and professional growth will be discussed. Restricted to majors in music education. Prerequisite: MUS 3360 with a "C" or better. 3 hours

MUS 3440 Instrumental Methods I Students will apply various learning theories, behaviorist techniques, and cognitive learning skills to the instrumental music lesson. Administrative skills needed to implement and maintain an instrumental program will be developed. Field experiences in the schools will be central to this course. Elementary and middle school literature will be reviewed and studied. While this course will primarily focus on beginning and middle school instrumental music programs, marching band techniques and arranging will also be studied. Restricted to majors in music education. Prerequisite: MUS 2480 with a grade of "C" or better. 3 hours

MUS 3470 Instrumental Methods II Advanced study of the materials and methods needed for successful teaching of instrumental music in the schools. Various philosophies of music education and curriculum development will be discussed. Extensive involvement with actual teaching of bands and orchestras in public schools is a central part of this course. Students will focus on the development of aesthetic behaviors and performance objectives for middle school/junior and senior high instrumental ensembles. Specialized ensemble techniques including jazz and chamber ensemble and solo and small ensemble contest and festival preparation in band and orchestra will be discussed. Literature for the various high school level ensembles will be reviewed and studied. In addition to administration and development of various types of instrumental ensembles, students will study chamber ensemble performance utilizing secondary instruments. Prerequisite: MUS 3440 with a "C" or better. 3 hours

MUS 3500 American Music A survey of 20th-Century music in the United States including concert, popular, and jazz styles. Influences of earlier American traditions and of other continents will be traced. The relationships between America's diverse modern music and its complex society will be explored. Ability to read music is not required. This course satisfies General Education Area III: The United States: Cultures and Issues. 4 hours

MUS 3520 World Music in Theory and Practice A study of the traditional and popular musics of China, Japan, Southeast Asia, India and the Middle East, as well as music transmitted orally, such as Native American, Australian Aborigine, African, and Micronesian musics. One or several cultures will be selected for close study to examine the customs and attitudes of a people through their music. This course fulfills General Education Area IV: Other Cultures and Civilizations and is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. 4 hours

MUS 3620 Applied Music Composition Original work in composition through private lessons accompanied by the study and analysis of current trends and creative concepts in contemporary music. May be repeated for credit. Prerequisite: MUS 2630 or MUS 1000 (Composition), with a grade of “C” or better. 2 to 4 hours

MUS 3800 Psychology of Music Physical, psychological and physiological aspects of sound and systems of tonal relationships. The effects of music on the individual and the consideration of music as a form of communication; the nature and measurement of musicality; the nature of musical memory; the underlying bases for musical taste and for aesthetic experience in music with emphasis on cultural influences. Prerequisite: PSY 1000. 2 hours
MUS 3810 Research in the Psychology of Music  Development and employment of research methods and techniques applied to the psychology of music. Experimental projects will be required in areas dealing with music and/or musical behavior.  Prerequisite: MUS 3800 with a grade of "C" or better.  2 hours

MUS 3811 Your Brain on Music  An introduction to music neuroscience which explores one of the most exciting and relevant topics in current cognitive psychology and neuroscience. The effects of music on brain and behavior functioning will be addressed through both scientific and musical frames of reference. This course satisfies General Education Area V: Social and Behavioral Sciences.  3 hours

MUS 3830 Observation and Measurement in Music Therapy  Overview of techniques of behavior measurement and accountability paired with actual clinical observations.  Prerequisite: MUS 2810 or concurrent. Reserve time for observation.  1 hour

MUS 3850 Senior Seminar in Music Education  The primary focus of this course will be on the diversity of learners and differentiated instruction in music classrooms. The seminar format will provide senior students an opportunity for analysis, synthesis, and evaluation, in relation to prior practicum or observational experiences, and contemporary learning theories. An independent project combining observation and application will be an outcome of this course. Restricted to majors in music education.  Prerequisite: MUS 3400 or MUS 3470; with a grade of "C" or better.  1 hour

MUS 3860 Music Technology Concepts  This class prepares students to employ music technology in education and performance circumstances. Students learn to work with real-time sound-file triggering and manipulation, basic programming for and construction of external electronic devices, and basic programming for MIDI triggering.  Prerequisite: Music Education major or Music major.  2 hours

MUS 3940 Advanced Recording I  Advanced Recording I is the third course in the sequence of classes in audio engineering in the School of Music. Students will spend several weeks learning a professional digital audio workstation and associated hardware in depth. Students will learn mono/stereo microphone techniques, in addition to advanced application of compression, reverb, and delay. Students are required to complete two recording/mixing projects.  Prerequisite: MUS 2940 with a grade of "C" or better.  2 hours

MUS 4240 Audio Programming I  Students will learn the basics of programming algorithms to create musical outcomes in an object-oriented programming language. This course will focus on programming design to trigger pre-built synthesizers and samplers and provide an introduction to digital signals.  Prerequisite: MUS 3240 with a grade of "C" or better.  2 hours

MUS 4500 Music Appreciation: The Symphony  The course in THE SYMPHONY is a general music course which presents music for symphony orchestra from the listener's point of view. It deals with the materials, structure, texture, sonority, and style of orchestral music since the mid eighteenth century as well as the cultural milieu which gave rise to and brought about changes in musical style. Music reading ability not required. MUS 4500 may not be elected by music majors to fulfill General Education requirements. Not open to graduate music majors. This course satisfies General Education Area I: Fine Arts.  3 hours

MUS 4720 Clinical Practicum in Music Therapy I  A practicum course to provide an opportunity for the music therapy student to apply music therapy principles with assigned individual/group clientele in the Music Therapy Clinic and/or affiliated community agencies. Students will develop and expand basic clinical foundations.  Prerequisites: MUS 2810, MUS 2890, MUS 2900, and MUS 3830 with a grade of "C" or better. Reserve time for clinical participation.  2 hours

MUS 4730 Clinical Practicum in Music Therapy II  A continuation of MUS 4720.  Prerequisite: MUS 4720. Reserve time for clinical participation.  2 hours

MUS 4790 Influence of Music on Behavior  Justification for the use of music to change human behaviors through analysis of historical evidence, theoretical assumptions, and published research. Description of the therapeutic process with the intervention of music from assessment to community transfer.  Prerequisite: MUS 4720. Reserve time for clinical participation. Liability insurance required.  3 hours
MUS 4800 Music Therapy Methods and Materials  Study of phenomenological, cognitive, and behavioral orientation to treatment as applied to the music therapy setting. Review of contemporary issues affecting the clinical practice of music therapy. Prerequisite: MUS 4720. Reserve time for clinical participation. Liability insurance required. 3 hours

MUS 4810 Music Therapy Internship  A music therapy internship involving in-depth, supervised clinical training at the professional level. The internship must be at an approved facility and consist of a minimum of 900 training hours. This is required by the American Music Therapy Association for board-certification as a music therapist. Students enrolled in this course will be classified as having full-time student status for the purpose of international student visas, loan deferments, and insurance eligibility. May be repeated for credit. This course is restricted to the following majors: Music Therapy (MUYJ) and Music Therapy (MUYM). Prerequisite: Department approval. 1 to 2 hours

MUS 4900 Undergraduate Workshop in Special Problems  Designed for students interested in some special field of music not formally listed for instruction. All special problems must be approved by the Director of the School of Music, but may be under the direct guidance of any member of the Music faculty. This course may be elected as many as three times. 1 to 3 hours

MUS 4940 Advanced Recording II  Advanced Recording II is the fourth course in the sequence of audio engineering classes in the School of Music. The goal of the course is for students to learn how to combine their technical knowledge with assessments of a client's goals and budgets, session planning, set-ups, etc., in order to deliver professional quality recording services. Students will also learn how to properly synchronize multiple audio recorders and how to appropriately prepare mixes for mastering or replication. Close listening skills will also be developed through demonstrations of microphone and pre-amp selection. Students are required to complete two recording projects. Prerequisite: MUS 3940 with a grade of "C" or better. 2 hours

MUS 5100 Symphonic Band  The University Symphonic Band is dedicated to the performance of outstanding literature, including original works for band, compositions for wind ensemble and orchestral transcriptions. An emphasis is placed on understanding the pieces performed from an aesthetic and stylistic basis as well as from a technical point of view. This ensemble maintains an active performance schedule on campus and in the community, as well as throughout Michigan and the surrounding states. Membership by audition. Open to upperclass and graduate students. 1 hour

MUS 5110 University Orchestra  The orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and played during the year, and the orchestra joins with other campus organizations in joint programs. Instruments are available for the use of students. Membership is by audition. Open to upperclass and graduate students. 1 hour

MUS 5120 University Chorale  An advanced choral ensemble which maintains a very active performance schedule on campus and in the community as well as throughout Michigan and surrounding states. Membership by audition. Open to upperclass and graduate students. 1 hour

MUS 5130 Jazz Orchestra  The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus. Membership is by audition. Open to upperclass and graduate students. 1 hour

MUS 5140 Instrumental Chamber Music  Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants. Open to upperclass and graduate students. 1 hour

MUS 5150 Advanced Jazz Combo  The Advanced Jazz Combo is a select ensemble that affords students the opportunity to perform literature that is arranged and composed by ensemble members. Arranging, composition and improvisation skills are required. Frequent performances and touring are expected. Membership is by audition. Open to upperclass and graduate students. 1 hour
MUS 5160 Music Theatre Practicum  A production experience in music theatre. Each semester culminates in an opera or musical comedy production. Open to singers, actors, accompanists, instrumentalists, and persons interested in production techniques. Admission by audition or permission of the instructor. Open to upperclass and graduate students. May be repeated for credit. 1 hour

MUS 5170 Collegium Musicum  Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing and conducting of early music is required of Music History majors. Graduate students may count not more than two hours of this course for graduation. Membership by audition. Open to upperclass and graduate students. 1 hour

MUS 5190 Gold Company  A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental ensemble accompanies the group. A very active performance schedule is maintained on campus, in the community, in Michigan and out-of-state. Membership is open to all University students by audition. Open to upperclass and graduate students. 1 hour

MUS 5220 KLOrk: Kalamazoo Laptop Orchestra  KLOrk is a live performing ensemble using laptops and mobile devices as musical instruments. The course activities include the creation, rehearsal, and performance of original musical compositions and multimedia works. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: MUS 2220 or instructor approval. 1 hour

MUS 5240 Audio Programming II  Students in this course will learn how to program and control synthesizers and effect processing units in an object-oriented programming language. This course will also provide an introduction to programming for visual projects. Open to upperclass and graduate students. Prerequisite: MUS 4240 with a grade of "C" or better. 2 hours

MUS 5300 Advanced Choral Conducting  Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance. Open to upperclass and graduate students. Prerequisite: Audition required. 2 hours

MUS 5310 Advanced Instrumental Conducting  Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Open to upperclass and graduate students. Prerequisite: Audition required. 2 hours

MUS 5550 Jazz Arranging  Jazz Arranging is a study of the art of arranging for the jazz ensemble—both traditional and contemporary. The course will undertake a detailed study of instrument ranges, transpositions and sound potential, and will cover voicings, scoring practices, calligraphy and contemporary trends within the medium. Open to upperclass and graduate students. Prerequisites: MUS 1605 (or instructor approval) and MUS 1610, with a grade of "C" or better required in each course. 2 hours

MUS 5560 Advanced Jazz Arranging  A study and application of the art of arranging for the jazz ensemble, studio orchestra, and show orchestra. The course will undertake a detailed study of scoring for winds, brass, strings, voices and percussion in relation to traditional and contemporary trends within the medium. Open to upperclass and graduate students. Prerequisites: MUS 5550 and MUS 2640 or concurrently. 2 hours

MUS 5580 Jazz Improvisation I  A study and directed application of the fundamentals of jazz improvisation including basic chord and scale construction and recognition, harmonic function, chord-scale relationships and basic blues and popular song forms. All students will be required to develop aural and performance skills relative to those theory skills. Open to upperclass and graduate students. Prerequisites: MUS 1605 (or instructor approval) and MUS 1610, with a grade of "C" or better needed in each class. 2 hours

MUS 5590 Jazz Improvisation II  A study and directed application of advanced techniques of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions and complex scales and their applications. All students will be required to develop aural and performance skills relative to those theory skills. Open to upperclass and graduate students. Prerequisites: MUS 5580 and MUS 2180 Jazz Ensemble or concurrently. 2 hours
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<tr>
<td>MUS 5600</td>
<td>Counterpoint</td>
<td>A study of the contrapuntal techniques of the eighteenth, nineteenth and twentieth centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Open to upperclass and graduate students.</td>
<td>Prerequisite: MUS 1610 with grade of &quot;C&quot; or better.</td>
<td>2 hours</td>
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<tr>
<td>MUS 5610</td>
<td>Counterpoint</td>
<td>A continuation of MUS 5600. Open to upperclass and graduate students.</td>
<td>Prerequisite: MUS 5600.</td>
<td>2 hours</td>
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<tr>
<td>MUS 5620</td>
<td>Advanced Compositional Topics</td>
<td>This course will cover advanced techniques used by composers. Topics will vary and will be announced when the course is offered. May be repeated for credit. Open to upperclass and graduate students.</td>
<td>Prerequisite: Permission of instructor.</td>
<td>2 hours</td>
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<tr>
<td>MUS 5640</td>
<td>Seminar in Electronic Music Composition</td>
<td>Students will create original music compositions or other generative art works involving digital media. This variable topic seminar will rotate between subjects which include effects processing and synthesis, interactive performance systems, and electronic music for multimedia projects. The instructor and enrolled students will meet weekly in order to examine electronic music techniques, discuss works in-progress, and present works related to relevant technical and aesthetic concepts. May be repeated for credit. Open to upperclass and graduate students.</td>
<td>Prerequisite: MUS 5600.</td>
<td>2 hours</td>
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<tr>
<td>MUS 5645</td>
<td>Audio for Video</td>
<td>Audio for Video focuses on generative and sound design projects for video games, film, other commercial projects, installation art, and sonic art. Aesthetic, conceptual, and technological topics in relationship to creating such projects will be discussed at the beginning of the semester. The remainder of the semester will focus on facilitating and discussing student projects. Open to upperclass and graduate students.</td>
<td>Prerequisite: MUS 2240 or permission of the instructor.</td>
<td>2 – 3 hours</td>
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<tr>
<td>MUS 5650</td>
<td>Topics in Music Theory</td>
<td>Advanced study of a specialized topic in music theory. Topics will vary as announced each semester and might include analytical methods, theory pedagogy, technological applications, musical genres, or composer studies. Prerequisite: MUS 2610, MUS 2650 and MUS 2710 with a grade of “C” or better in all prerequisites. Instructor approval required for non-music majors. This course may be repeated for credit with different topics. Open to upperclass and graduate students.</td>
<td></td>
<td>3 hours</td>
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<tr>
<td>MUS 5655</td>
<td>Special Topics in Multimedia Arts Technology</td>
<td>A variable topic course focusing on more advanced topics relevant to the intersections between the arts and technology. Potential topics include: Business aspects of being an independent generative artist, working in the video game industry, working in the film industry, and working in the recording industry; aesthetic, historic, theoretical, and conceptual issues surrounding art and technology; advanced concepts of acoustics, sound reinforcement, and specialized recording projects, such as recording a large acoustic ensemble. Specific, relevant technological topics can be covered in this course as needed; examples could include computer programming for audiovisual art (Processing/Jitter), sensors and parametric mapping for multimedia projects, and advanced video filters and audio effect processing for audiovisual art (AfterEffects). May be repeated for credit. Open to upperclass and graduate students.</td>
<td>Prerequisites: MUS 1940, MUS 2240, and MUS 2220; with a grade of “C” or better; or instructor approval.</td>
<td>2 to 3 hours</td>
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<tr>
<td>MUS 5670</td>
<td>Orchestration</td>
<td>A study of the characteristics of instruments, and of arranging for the various individual choirs, for combinations of choirs, and for full orchestra. Open to upperclass and graduate students.</td>
<td>Prerequisite: MUS 2610</td>
<td>2 hours</td>
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<tr>
<td>MUS 5680</td>
<td>Orchestration</td>
<td>A continuation of MUS 5670. Open to upperclass and graduate students.</td>
<td>Prerequisite: MUS 5670</td>
<td>2 hours</td>
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<tr>
<td>MUS 5720</td>
<td>Baroque Music (1600-1750)</td>
<td>A survey of the choral and instrumental music of the Baroque masters such as J.S. Bach and G.F. Handel. Special attention to the development of style from monody through harmonic polyphony. Open to upperclass and graduate students.</td>
<td>Prerequisites: MUS 2700 and MUS 2710.</td>
<td>3 hours</td>
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<tr>
<td>MUS 5730</td>
<td>Classical Music (1750-1800)</td>
<td>Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classic opera. Open to upperclass and graduate students.</td>
<td>Prerequisites: MUS 2700 and MUS 2710.</td>
<td>2 hours</td>
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</table>
MUS 5740  Romantic Music (1800-1910)  Music of the important composers of the period beginning with Beethoven, along with the historical, cultural, and political background of the era. Special attention is given to the development of Nationalism. Open to upperclass and graduate students.  Prerequisites: MUS 2700 and MUS 2710.  3 hours

MUS 5790  Operatic Literature  A survey of opera from 1600 to the present. Open to upperclass and graduate students.  2 hours

MUS 5800  Solo Literature: (Topics)  Solo literature for a specific medium (voice, piano, violin, etc.) will be studied from a theoretical, historical, and performance point of view. Topics to be announced. May be repeated for credit. Open to upperclass and graduate students.  Prerequisites: MUS 2700 and MUS 2710.  2 hours

MUS 5810  Choral Music Literature  A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period. Open to upperclass and graduate students.  2 hours

MUS 5820  Wind Music Literature  A survey of windband ensembles and literature from the Renaissance period through the twentieth century. Open to upperclass and graduate students.  Prerequisites: MUS 2700 and MUS 2710.  2 hours

MUS 5830  Jazz History and Literature  A survey of the history of jazz including aspects of sociology and history as they relate to the art form of jazz. All periods in jazz history, from its earliest roots in Africa and the slave culture in the United States, up through the blues, dixieland, swing, bop, mainstream and the more eclectic period of jazz rock and free-form jazz will be explored. Important works will be examined from each period in order to grasp the essentials of a particular style. Open to upperclass and graduate students.  Prerequisite: MUS 5580 or department's consent.  3 hours

MUS 5840  Topics in Musicology and Ethnomusicology  A study of the music of various people, places, eras, and/or events. Attention will focus on the current research methodology in the disciplines of musicology and ethnomusicology and may draw upon related fields (e.g., anthropology, theatre, cultural studies, women’s studies, etc.). Topics will vary each semester and could include studies of world music and cultures, performance traditions, historical repertories, musicians, gender roles, political and sociological structures. May be repeated for credit with different topics. Open to upperclass and graduate students.  Prerequisite: MUS 2700 and MUS 2710 with grades of “C” or better, or instructor approval for non-majors.  2 to 3 hours

MUS 5850  Medieval Music  A survey of music in Western Europe from the end of Antiquity to the early fifteenth century. The major developments in style, theory, and notation will be explored within the context of the general cultural and political environment of the era. Problems of performance practice will receive special attention with emphasis on primary manuscript sources and scholarly performing editions. Open to upperclass and graduate students.  Prerequisites: MUS 2700 and MUS 2710.  2 hours

MUS 5860  Renaissance Music  A survey of music in Western Europe from the early fifteenth century to the early seventeenth century. Developments in the major musical genre of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be explored. Open to upperclass and graduate students.  Prerequisites: MUS 2700 and MUS 2710.  2 hours

MUS 5870  Contemporary Music  A survey of trends in European music and music of the Americans from about 1910 to the present day. Open to upperclass and graduate students.  3 hours

MUS 5900  Studies in Pedagogy  Topics to be announced. Selection will be made from the following: Keyboard Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit. Open to upperclass and graduate students.  Prerequisite: MUS 3000-level applied music or permission of instructor.  1 to 4 hours

MUS 5950  Workshops in Music Education  Intensive, short term courses that address the instructional and pedagogical issues found in today's schools, as well as issues of specific concern for current teachers in the field of music.
Topics will be from all areas of music education. Open to upperclass and graduate students. Prerequisite: advisor's consent. 1 to 4 hours

MUS 5965 Sound Reinforcement Practicum Provides students hands-on experience with audio system setup (e.g., microphones, speakers, mixers), control, and live sound reinforcement at School of Music and/or other events. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: MUS 1945 with a grade of "C" or better. 1 hour

MUS 5970 Projects in Music A program of independent study to provide the unusually qualified music student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the School of Music. The initiative for planning the project must come from the student and must be approved by the faculty member proposed to supervise the study. Open to upperclass and graduate students. Prerequisite: Application approved by music advisor. 1 to 4 hours

MUS 5990 Projects in Recording Technology An independent study allowing the unusually qualified student the opportunity to explore a topic or problem in recording technology. Open to upperclass and graduate students. Prerequisite: MUS 4940 with a grade of "C" or better. 1 to 4 hours

MUS 5995 Special Topics in Music Study of a specialized music or music-related topic. Examples could include topics in performance practice, entrepreneurship and multimedia production; thematic topics which are linked to special musical events or combine multiple sub-disciplines in music (e.g., history and theory); and interdisciplinary studies (e.g., music and communication, music and computer science, music and health sciences, etc.). Topics will vary and be announced each semester offered. May be repeated for credit with different topic or by instructor approval. Open to upperclass and graduate students. Prerequisite: Instructor approval. 1 to 4 hours

Nursing

NUR 1040 Introduction to the Health Disciplines and Inter-professional Practice This course is to offer an introduction to the interdisciplinary health professions for students in the business and health professions. This course will provide information about the history, roles, and responsibilities of professionals working in the health delivery systems. Students will gain an understanding of critical thinking, evidence based practice, and the influence of culture, illness, caring, and technology upon health care. Legal considerations, political trends, and theories associated with the delivery of health care will be introduced. 2 hours

NUR 2200 Foundations of Nursing and Critical Thinking This course socializes students to the profession of nursing. Theoretical foundations of the nursing process and critical thinking are introduced. This course satisfies General Education Proficiency 4: Critical Thinking. Restricted to majors in Nursing. Prerequisite: BIOS 2320 (may be taken concurrently). Co-requisites: NUR 2210 and NUR 2220. 3 hours

NUR 2210 Nursing Therapeutics This course will introduce the beginning nursing student to principles and languages of common nursing interventions and actions in the care of the individual in a modularized format. Communication in nursing with written, oral, and therapeutic components, as well as use of nursing medical terminology will be covered. Restricted to majors in Nursing. Prerequisite: BIOS 2320 (may be taken concurrently). Co-requisites: NUR 2200 and NUR 2220. 5 hours

NUR 2220 Health Assessment Throughout the Lifespan This course introduces the nursing student to the concepts and skills related to health assessment. The course is designed to provide the student with an overview of the knowledge and skills needed to assess the health status of the individual throughout the lifespan. Practice experience will provide students the opportunity for skill acquisition in history taking, assessment and documentation of assessment findings, focused on the adult client. Expected level of proficiency upon completion is basic competency in assessment of healthy adults. Restricted to majors in Nursing. Prerequisite: BIOS 2320 (may be taken concurrently). Co-requisites: NUR 2200 and NUR 2220. 3 hours

NUR 2300 Concepts of Health and Wellness in Nursing Practice This course focuses on the foundations critical to working with clients in all settings. Students will learn the nurse's role in promoting health and preventing illness. Students will be introduced to basic epidemiology concepts and bio-statistical data as they begin to
understand how the social context, culture, and demographics affect health and illness patterns. Restricted to majors in Nursing.

NUR 2310 Nursing Care of the Older Adult This course focuses on the care of the older adult. The course will provide students with content on the physical, mental, emotional, spiritual, and cultural needs of that population. Variations in the roles and abilities of older adults in the various stages of aging will be explored. Restricted to majors in Nursing.

NUR 2350 Special Topics in Nursing Emerging trends and issues in nursing are a reflection of the health care environment as it evolves. Each semester this course will focus on one of these issues or trends. May be repeated for credit.

NUR 3060 Nurses' Role in Facilitating Health and Self-Care I In the first semester of this two-semester sequence, students will focus on concepts of teaching and learning, self-care, wellness, multi-culturalism, and family and group care. Students will be paired with a child rearing/bearing family that they will follow throughout the remainder of their program. Restricted to majors in Nursing.

NUR 3070 Nurses' Role in Facilitating Health and Self-Care II In this second semester of a two-course sequence, students will focus on the concepts of health care systems, nursing as a profession, nursing case management, collaboration, and negotiation and research. Nursing practice will be provided in settings such as Housing and Urban Development (HUD) housing units, group homes and half-way houses, and senior centers. Restricted to majors in Nursing.

NUR 3200 Nursing Care of the Childbearing Family The concepts of health promotion and wellness are applied to childbearing families. This course focuses on nursing care of the childbearing family which includes: reproductive health and health and wellness during the childbearing cycle. Restricted to majors in Nursing.

NUR 3210 Nursing Care of Children and Families This course examines health promotion and wellness in children and adolescents as well as common childhood disease states. The effects of these conditions will be examined in the context of the family. Restricted to majors in Nursing.

NUR 3220 Health Care Ethics This course is a didactic course that introduces students to principles and issues underlying and surrounding health care ethics. Content includes basic ethical theories, values, moral development, moral reasoning, and day-to-day ethical concerns. These concerns include, but are not limited to: genetics, end-of-life care and decision-making, moral reasoning, moral principles, research ethics, the interface between law and ethics, patient decision-making, rights, duties and obligations of the professional nurse and other health workers, professional codes and standards, and allocation of scarce resources. The course offers the learner an opportunity to develop, implement, and evaluate a variety of approaches to ethical concerns in the 21st century. This course satisfies General Education Area II: Humanities.

NUR 3300 Nursing Therapeutics II This course addresses advanced concepts in nursing therapeutics and their application to the care of individuals with alterations in health status. Content includes advanced therapeutic nursing interventions including complementary modalities. Restricted to majors in Nursing.

NUR 3310 Care of Adults with Alterations in Health Status This course is an introduction to nursing care of adults with a focus on common health conditions within a culturally diverse global and societal context. Concepts of
nutrition, pharmacology, and pathophysiology as they relate to these conditions are discussed. Holistic nursing interventions and relationships based care are included. Restricted to majors in Nursing. Prerequisites: NUR 3200, NUR 3210, NUR 3220 (NUR 3220 may be taken concurrently), and STAT 3660. Co-requisites: NUR 3300 and NUR 3320. 6 hours

NUR 3320 Nursing Research This course is designed to provide a foundation for the use of research findings as a basis for practice. The course focuses on nursing research as it relates to the theoretical foundations of the discipline of nursing and to the development of a scientific basis for nursing practice. It prepares the learner to understand the language of science and the processes of scholarly inquiry. It also prepares the learner to read, interpret and evaluate selected nursing studies and appropriately determine the clinical relevance of study findings and their implications for practice. The primary goals of the course are to explore the impact of research upon the profession of nursing, and to examine the research process as it relates to the practice of nursing. Satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors in Nursing. Prerequisites: NUR 3200, NUR 3210, NUR 3220 (NUR 3220 may be taken concurrently), and STAT 3660. Co-requisites: NUR 3300 and NUR 3310. 3 hours

NUR 3330 Health Informatics This course is designed to familiarize the undergraduate student with the present and potential impact of information and its systems on the allied health disciplines. Additionally, this course will explore informatics processes, tools, and systems in terms of providing solutions to health care stakeholders in education and practice. An emphasis is placed upon the student's role as a leader and advocate for change in this rapidly emerging field. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. Prerequisites: Minimum of 42 credit hours completed with a grade of "C" or better in all courses; and (CIS 1020 or CIS 1100 or CS 1000 or FCS 2250) with a grade of “C” or better, or permission of instructor. 3 hours

NUR 3350 Pharmacotherapeutics in Nursing The course introduces the student to essentials of pharmacology including drug classifications, actions/interactions, purposes, dosages, and responses. Emphasis will be on application of therapeutic principles to clinical situations across the lifespan using evidence-based guidelines. May be repeated for credit. Restricted to majors in Nursing. 3 hours

NUR 3400 Transition to Professional Nursing This transition course introduces the associate degree or diploma nurse to Professional Practice. Theoretical foundations, concepts of evidence based practice and critical thinking are introduced and applied. Restricted to majors in Nursing: RN Progression Track. Prerequisite: Current Registered Nurse license in the state of Michigan and college level writing. 3 hours

NUR 3420 Health Assessment Throughout the Lifespan for RNs Introduces the nursing student to the concepts and skills related to health assessment. The course is designed to provide the student with an overview of the knowledge and skills needed to assess the health status of the individual from infancy through old age. Emphasis is placed on the assessment of physical, developmental, psychosocial, cultural, and spiritual dimensions of the individual. Emphasis is also placed on assessing the functional abilities of an individual and distinguishing normal from abnormal findings. The practice experience will provide students the opportunity for skill acquisition in history-taking, assessment, and documentation of assessment findings, focused on the adult client. An overview of the variation of assessment skills related to the mother-to-be, newborn, child, and elderly will be discussed. The expected level of proficiency is basic competency in assessment of the healthy adult. Prerequisite: Admission to the RN to BSN completion program. 3 hours

NUR 3430 Nursing Research-RN This course is designed to provide a foundation for the use of research findings as a basis for nursing practice. The course focuses on nursing research as it relates to the theoretical foundations of the discipline of nursing and the development of a scientific basis for nursing practice. It prepares the learner to understand the language of science and the processes of scholarly inquiry. It also prepares the learner to read, interpret and evaluate selected nursing studies and appropriately determine the clinical (nursing) relevance of study findings and their implications for practice. The primary goals of the course are to explore the impact of research upon the profession of nursing, and to examine the research process as it relates to the practice of nursing. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors in Nursing:RN Progression Track. Prerequisites: STAT 3660, NUR 3330, NUR 3400, and NUR 3420; with a grade of "C" or better in all prerequisites. 3 hours

NUR 3550 Perspectives in Women’s Health This course will provide a socio-cultural perspective on concepts and issues in women’s individual and aggregate health. Course will include definitions of women’s health, women’s
health concerns, and the influence of cultural, social, historical, and medical factors on women’s health. Students will be introduced to the concepts of inter-relationship and translational research. This course satisfies General Education Area III: The United States: Cultures and Issues.

NUR 4200 Psychiatric-Mental Health Nursing  This course focuses on the care of patients and families who experience acute and chronic psychiatric disorders. Emphasis is placed on promoting caring relationships and respect for patients’ dignity, integrity, and self-determination. Opportunities to participate in collaborative relationships between patients, families and health care team members will be provided. Restricted to major in Nursing. Prerequisites: NUR 3300, NUR 3310, NUR 3320 and NUR 3330; with a grade of “C” or better in any prerequisite. Co-requisite: NUR 4210. 5 hours

NUR 4210 Nursing Care of Patients with Complex Conditions  This course examines the nursing care needs of adult patients and families with complex or critical conditions. Advanced assessment skills and evidence based therapies will be applied and evaluated in a clinical setting. Restricted to majors in Nursing. Prerequisites: NUR 3300, NUR 3310, NUR 3320 and NUR 3330; with a grade of “C” or better in any prerequisite. Co-requisite: NUR 4200. 6 hours

NUR 4300 Special Topics in Nursing  Emerging trends and issues in nursing are a reflection of the health care environment as it evolves. Each semester this course will focus on one of these issues or trends. May be repeated for credit. Restricted to majors in Nursing: RN Progression Track. Prerequisite: Admission to the Professional Nursing curriculum. 1 to 6 hours

NUR 4310 Community Based Nursing  This course focuses on nursing roles and interventions for vulnerable populations emphasizing primary, secondary and tertiary levels of prevention. Students will examine determinants of health, apply theories of health behavior change, and evaluate outcomes of care for a vulnerable population. Health policies and health economics and their effects on the delivery of health services will be discussed from a local to global perspective. Nursing practice takes place in a variety of community settings. Restricted to majors in Nursing. Prerequisites: NUR 4200 and NUR 4210. Co-requisite: NUR 4320. 6 hours

NUR 4320 Nursing Leadership & Management  This course introduces the leadership roles and management functions expected of a beginning professional nurse with an emphasis on patient safety and quality improvement. Restricted to majors in Nursing. Prerequisites: NUR 4200 and NUR 4210. Co-requisite: NUR 4310. 6 hours

NUR 4330 Population Based Nursing-RN  This course focuses on at-risk/vulnerable populations with emphasis on primary, secondary and tertiary prevention in the community. Students will focus on the mutuality level of relationship-based care by cultivating caring relationships with teams and other practitioners and valuing diversity. Students will use epidemiology to examine significant disease trends and to ascertain significant disparities of care between various groups. Health policies and health economics and their effects on the delivery of community health services will be discussed from a global perspective. Students will focus on health education/aggregate care in each site, with particular attention to the current Healthy People Initiative. The professional nurse's role in influencing health policy, health care, telehealth, health law, public policy, and the health of a community will be examined. Restricted to majors in Nursing:RN Progression Track. Prerequisite: NUR 3430 with a grade of "C" or better. 6 hours

NUR 4340 Nursing Leadership and Management-RN  This course introduces the leadership roles and management functions expected of a beginning professional nurse within the structure of an organization. Students learn basic organizational assessment, leadership, and health care management from the perspectives of voluntary agencies, health care provider organizations, and service delivery. Topics for discussion include principles of delegation, conflict resolution, peer review and evaluation, change theories, measurement of quality of care, and professional model of nursing care. Restricted to majors in Nursing: RN Progression Track. Prerequisite: NUR 3430 with a grade of "C" or better. 6 hours

NUR 5300 Theoretical Foundations of Nursing Practice  This course focuses on the theoretical foundations of nursing practice. The relationship of nursing practice and relevant theories is considered within historical and social context. Students will develop the foundation of a personal philosophy of nursing and health care. Open to graduate students only. Prerequisites: Admission to the Master of Science in Nursing program or instructor approval. 3 hours
Occupational Therapy

OT 2000 Human Functional Anatomy
This course involves a detailed study of the human neuro-musculo-skeletal anatomy of the head, neck, upper limbs, back, and lower limbs. Students will apply anatomical principles to analyze common physical activities which will include analyzing individual functional performance. Course may be repeated for credit. This course satisfies General Education Area VI: Natural Science with Laboratory if taken with OT 2010. Corequisite: OT 2010. 3 hours

OT 2010 Human Functional Anatomy Lab
This course is a companion lab for OT 2000. This course satisfies General Education Area VI: Natural Science with Laboratory if taken with OT 2000. Corequisite: OT 2000. 1 hour

OT 2020 Orientation to Occupational Therapy
This course is an orientation to the profession of occupational therapy. The course will include the history of the profession, current professional roles, issues and trends in the field. 3 hours

OT 3360 Independent Practicum
Participation in a health service or agency to provide experience with hospital procedure and an orientation to patient groups. A daily log is required. Student must submit a proposal for the course for departmental approval prior to registration. Prerequisite: OCTJ or OCTM. 2 hours

OT 3700 Occupational Therapy Process in Physical Dysfunction
Practice in selection, analysis, and intervention using occupations and therapeutic strategies appropriate to persons with physical disabilities. Selected knowledge bases, frames of reference, and practice models related to human occupations, occupational performance, and occupational adaptation in the human system and related contexts of age, life role, disability, and environment will be emphasized. Corequisites: OT 3740, 3750, 3760. 3 hours

OT 3740 Conditions in Occupational Therapy
This course will introduce issues in health and illness, as well as pathologic processes and their impact on the total individual. Selected conditions related to the following pathologic processes will be discussed: developmental, traumatic, degenerative, infectious, neoplastic, immunologic, metabolic, psychiatric, and circulatory/respiratory. Prerequisite: Admission to the professional Occupational Therapy program. Corequisites: OT 3700 and OT 3740 and OT 3760. 4 hours

OT 3750 Applied Neurology
An applied study of human neurologic function. Emphasis will be placed on the development of normal occupational performance and the conditions that affect occupation. Course may be repeated for credit. Prerequisite: Admission to the professional Occupational Therapy program. Corequisites: OT 3700 and OT 3740 and OT 3760. 4 hours

OT 3760 Functional Assessment
This course develops competence in the use of professional assessments which measures the performance components that underlay human function, including neuro-muscular, neuro-motor, sensori-motor, and cognitive function. Corequisites: OT 3700 and OT 3740 and OT 3750. 3 hours

OT 3810 Occupational Therapy Practice I
Utilizing structured instruction and guided lab experiences, students will define and apply the occupational therapy process to health maintenance and rehabilitation. Students will consider the interrelationship between occupational therapy performance components, occupational performance areas, and performance contexts. Emphasis on birth to young adulthood. Course may be repeated for credit. Prerequisites: OT 3700 and OT 3740 and OT 3750 with a grade of “C” or better. Corequisite: OT 3820 and OT 3830 and OT 3840. 3 hours

OT 3820 Occupational Therapy Practice II
Utilizing structured instruction and guided lab experiences, students will define and apply the occupational therapy process to health maintenance and rehabilitation. Students will consider the interrelationship between occupational therapy performance components, occupational performance areas, and performance contexts. Emphasis on middle and older adulthood. Course may be repeated for credit. Prerequisites: OT 3700 and OT 3740 and OT 3750 with a grade of “C” or better. Corequisite: OT 3810. 3 hours

OT 3830 OT Practice Cases Through the Lifecourse
This course will provide students with an opportunity to develop self-directed learning skills through a series of client cases by researching information needed to evaluate and plan
treatment for people receiving occupational therapy services. Students will participate in small groups to share learning issues and practice talking to patients, clients, family members and other professionals. Course may be repeated for credit. Credit/No Credit only. Prerequisites: OT 3700 and OT 3740 and OT 3750 with a grade of “C” or better. Corequisites: OT 3810 and OT 3820 and OT 3840.

OT 3840 OT Practice and Therapeutic Interaction Skills  This course teaches basic group and individual client-therapist interaction skills including: selecting a theory base, designing groups, writing group protocols, analyzing group activities, implementing specific group techniques, and evaluating progress of group members. Methods of establishing rapport, giving feedback, and employing therapeutic use of self are emphasized. May be repeated for credit. Prerequisites: OT 3700 and OT 3740 and OT 3750 with a grade of “C” or better. Corequisites: OT 3810 and OT 3820 and OT 3830.

OT 3840 3 hours

OT 4360 Independent Study in Occupational Therapy  This course teaches basic group and individual client-therapist interaction skills including: selecting a theory base, designing groups, writing group protocols, analyzing group activities, implementing specific group techniques, and evaluating progress of group members. Methods of establishing rapport, giving feedback, and employing therapeutic use of self are emphasized. May be repeated for credit. Prerequisites: OT 3700 and OT 3740 and OT 3750 with a grade of “C” or better. Corequisites: OT 3810 and OT 3820 and OT 3830.

OT 4360 3 hours

OT 4540 Special Topics in Occupational Therapy  This course explores current and emerging practice topics and special interest areas in occupational therapy. Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit with different topics. Restricted to majors in Interdisciplinary Health Services: Occupational Therapy.

OT 4540 1 to 4 hours

OT 4700 Functioning of the Older Adult  The objective of this course is to provide understanding of the basic psychological and physiological changes characteristic of human aging and pathological conditions which have consequences for function and behavior.

OT 4700 3 hours

OT 4720 Occupational Analysis and Adaptation  This course provides students with experience in activity analysis and adaptation. Breaking down activities into subtasks for individuals with disabilities and then creating or providing adaptations or accommodations is a primary role. In addition, this course introduces students to basic technology related to adaptation for mobility, communication, splinting, vocation, and leisure. Prerequisites: OT 3810 and 3820.

OT 4720 3 hours

OT 4750 Occupational Therapy Practicum I  In this course, students will provide Occupational Therapy evaluation and treatment in a supervised community-based setting. Prerequisites: OT 3810 and 3820. Corequisite: OT 4720.

OT 4750 4 hours

OT 4790 Occupational Therapy in Mental Health  This course explores current Occupational Therapy practice in mental health. Students will define Frames of Reference and their application to a variety of practice settings. Students will learn treatment techniques appropriate for groups and individuals. Prerequisites: OT 2020, 2250, 3700, 3740, 3750, and PSY 2500.

OT 4790 3 hours

OT 4820 Occupational Therapy Practicum II  This course is designed to provide in-depth clinical experience in order to develop skill in the utilization of assessment, the development of treatment plans, the implementation of treatment, and the evaluation of patient's progress related to the treatment plan. Prerequisites: OT 4720 and 4750.

OT 4820 4 hours

OT 5300 Sensory Integration and The Child  Study of theoretical principles and their application to evaluation and treatment of the child with sensory integration dysfunction. Students will observe and participate in screening and evaluation of children, and they will design treatment plans for selected clients. Prerequisites: OT 4750 or concurrent; or OTR, RPT, or consent.

OT 5300 3 hours

OT 5730 Therapeutic Use of Technology  This course explores how a professional goes about evaluating, designing, and adapting technology to improve people's participation in activities of their choice. The course also explores current commercially available technology and available community-based services for people with impairments and/or activity limitations. Prerequisites: Senior standing or permission of instructor.

OT 5730 3 hours
OT 5735 Cognition and Visual Perception in Occupational Therapy  This course will include concepts of vision, visual perception and cognitive evaluation and treatment carried out by occupational therapists in the clinical setting. The course will explore interventions to improve occupations with consideration for client factors, performance skills and patterns, context and environment, and activity demands. Underlying anatomy and neuroanatomy will be revealed. Open to upperclass and graduate students. Prerequisites: OT 3810, OT 3820, OT 3830, and OT 3840. 3 hours

OT 5800 Advanced Clinical Application of OT Clinical Reasoning  This course will provide advanced knowledge of clinical evaluation tools and techniques. Students will be given additional training on the most commonly used and the state-of-the-art clinical evaluation tools. Advanced use of guidelines for practice and the integration of knowledge for clinical reasoning will be emphasized. Students will develop treatment plans for people with a variety of conditions and diagnoses. Evidence-based practice in OT will be used for analysis of evaluation tools and guidelines for practice. Prerequisite: OT 4750 3 hours

Public Affairs and Administration

PADM 2000 Introduction to Nonprofit Leadership  An overview of American nonprofit organizations, including historical and philosophical foundations of nonprofit organizations, career development and exploration, attributes of successful nonprofit leaders, youth and adult development, and program planning. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

PADM 3000 Nonprofit Advancement  Study and practice of nonprofit advancement, including stakeholder assessment, development of nonprofit communication plans, project management, and fundraising. Prerequisite: PADM 2000 3 hours

PADM 3210 Nonprofit Leadership Student Association I  This is a practicum for students who are pursuing the credential from the Nonprofit Leadership Alliance (NLA) entitled, Certified Nonprofit Professional (CNP). This course allows students to run their own registered student association in a similar fashion to a nonprofit organization. The course focuses on business sponsorships and a celebration event and fulfills six of the competencies prescribed by the Nonprofit Leadership Alliance (NLA): communication, marketing, and public relations; governance, leadership and advocacy; legal and ethical decision making; financial resource development and management; personal and professional development; and cultural competency and diversity. May be repeated for credit. Graded on a Credit/No Credit basis. 1 hour

PADM 3220 Nonprofit Leadership Student Association II  This is a practicum for students who are pursuing the credential from the Nonprofit Leadership Alliance (NLA) entitled, Certified Nonprofit Professional (CNP). This course allows students to run their own registered student association in a similar fashion to a nonprofit organization. The course focuses primarily on fundraising and fulfills four competencies prescribed by the Nonprofit Leadership Alliance (NLA): communication, marketing, and public relations; financial resource development and management; personal and professional development; and governance, leadership and advocacy. May be repeated for credit. Graded on a Credit/No Credit basis. 1 hour

PADM 4000 Seminar in Nonprofit Leadership  An advanced seminar in nonprofit leadership. Topics include nonprofit financial management, human resource development, nonprofit board relations and development, risk management, and environmental assessment. Prerequisites: PADM 2000 and PADM 3000. 3 hours

PADM 4100 Internship in Nonprofit Leadership  The goal of the internship is to provide students with a work experience that will afford realistic exposure to nonprofit leadership. The internship also allows students to complete their core competencies for the National Certificate in Nonprofit Management and Leadership from the Nonprofit Alliance. Ideally, the internship will coincide with PADM 4000. May be repeated for credit. This course is graded on a Credit/No Credit basis. Prerequisites: PADM 2000 and PADM 3000. 1 to 8 hours

PADM 5830 Grant Writing for Nonprofit Organizations  This course focuses on the art and process of proactive grant writing. The course is conducted in a workshop format with emphasis on writing a grant proposal and on logical relationships between sections of a proposal. Emphasis is placed on integrating research into the proposal development process, writing effective goals and objectives, and incorporating summative and formative evaluation processes into the grant. Collaborative aspects of grant writing are emphasized. Open to upperclass and graduate students.
Prerequisite: Undergraduates with junior or senior status and 12 hours of course work in appropriate major fields may enroll in 5000-level courses with prior approval of the student’s advisor or the program director. 3 hours

**PADM 5840 Promoting Nonprofit Organizations**
This practicum applies marketing principles to nonprofit organizations. Emphasis will be placed on techniques for defining and identifying the organization’s contributor, volunteer, and client markets. Strategies for conducting a market assessment, measuring customer satisfaction, and using information to develop a marketing plan will be covered. These strategies will include the identification of marketing offers, communication messages and methods, cause related marketing, and the development of market budgets. Open to upperclass and graduate students.

Prerequisite: Undergraduates with junior or senior status and 12 hours of course work in appropriate major fields may enroll in 5000-level courses with prior approval of the student’s advisor or the program director. 3 hours

**PADM 5870 Fund Raising for Nonprofit Organizations**
This practicum enables students to develop fundraising and fund management skills. Emphasis is on understanding the various forms of fund raising, such as the annual fund; special events; deferred giving, major gifts; special project campaigns; corporate/foundation gifts; and direct mail. Students will also be provided with a working knowledge of permanent endowment funds. Students will learn to assess the fund raising readiness of organizations and develop fund raising plans unique to their organizations. Open to upperclass and graduate students.

Prerequisite: Undergraduates with junior or senior status and 12 hours of course work in appropriate major fields may enroll in 5000-level courses with prior approval of the student’s advisor or the program director. 3 hours

**PADM 5980 Readings in Public Administration**
This course offers a program of independent study to provide well qualified MPA candidates with an opportunity to explore in depth a topic or problem of interest under the guidance of a faculty member. Planning a topic for investigation is the joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits of the proposal. Approval of both the supervising faculty member and the School Director is required prior to enrolling in this course. May be repeated for credit. Open to upperclass and graduate students.

Prerequisite: Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student’s advisor or the program director. 3 hours

**PADM 5990 Topics in Public Administration**
This changing topics course deals with particular issues of interest and concern to students of public affairs and administration. Since content varies, students are advised to read course descriptions distributed by the School prior to enrollment. The course may vary in the number of credit hours awarded and may last more or less than a semester's or session's length. May be repeated for credit. Open to upperclass and graduate students.

Prerequisite: Undergraduates with senior status in appropriate major fields may enroll in 5000-level courses with prior approval of the student’s advisor or the program director. 1 to 4 hours

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**Paper Science and Paper Engineering**

**PAPR 1000 Introduction to Pulp and Paper Manufacture**
A lecture-laboratory consideration of the fundamentals of paper manufacturing processes and equipment. Some time will also be spent on coating, printing and other uses of paper. The student will acquire a basic understanding of the nature and scope of the paper industry.

Prerequisites: CHEM 1100 and CHEM 1110 (both may be taken concurrently), with grades of “C” or better. 3 hours (2 - 3)

**PAPR 1040 Introduction to Paper Industry and Technology**
A laboratory study of the fundamentals of papermaking and equipment. End-use processing, such as coating and printing will be included. From this course, the student should acquire a basic understanding of the nature and scope of the paper and printing industries, including job opportunities.

Prerequisites: High school chemistry; CHEM 1000 and CHEM 1110 (both may be taken concurrently), with grades of “C” or better. 1 hour (0 - 3)

**PAPR 1600 Introduction to Environmental Technology**
Designed for non-engineering majors, the course presents the major concepts and tools of environmental control applied to industrial as well as municipal emissions. The sources, behavior, effects and detection of pollutants are studied along with effluent management methods and regulations. The topics are covered in concert with public health, ethical, social, legal and economic concerns. 3 hours (3 - 0)
PAPR 2040 Stock Preparation and Papermaking  
An advanced study of the processes involved in the formation, consolidation, and drying of a web of paper. Areas covered include refining, fourdrinier and multi-ply operation, pressing and drying. Internal and surface treatments of paper are discussed along with the effects of additives and fiber types. Analysis is made using chemical, physical, and engineering principles. Lectures are augmented by laboratory exercises, pilot plant operation, and field trips. Prerequisite: PAPR 1000 or PAPR 1040, with grades of “C” or better. A minimum grade of "C" is required in PAPR prefixed prerequisites. 4 hours (3 - 3)

PAPR 2420 Coating  
A lecture-lab course dealing with the fundamentals of pigmented and functional coating of paper and board. Coating rheology, evaluation of coated paper, and the performance of paper in the graphic arts will also be covered. Prerequisite: PAPR 2040 or PAPR 2550 or GPS 2150. A minimum grade of "C" is required in GPS and PAPR prefixed prerequisites. 4 hours (3 - 3)

PAPR 2550 Paper Physics Fundamentals  
A lecture and laboratory study of wood fibers and their properties. Fundamentals of fiber and sheet strength properties are critically discussed, including the effect of paper-making operations. Both fracture and optical properties of paper are considered. Basics of paper testing and reclaimed fibers are also studied. The laboratory consists of fiber identification and a papermachine trial. Restricted to majors in Chemical Engineering, Pre-Chemical Engineering, and Pre-Paper Engineering. Prerequisites: PAPR 2040, and (IEE 2610 or STAT 3640), with a grade of “C” or better in all prerequisites. (IEE 2610 or STAT 3640 may be taken concurrently.) 4 hours (3 - 3)

PAPR 3030 Pulping and Bleaching  
Advanced study of the processes involved in the production of papermaking fibers. Wood anatomy, ultrastructure, and chemistry, wood yard operations, chemical, and high yield pulping, bleaching, alternate fiber sources, and pulping and bleaching chemistry. Process engineering perspective emphasizing mass and energy balances, process design and control. Lab work in wood characterization, pulping, and bleaching, and field trips. Prerequisites: CHEG 2960 and CHEM 3750. A minimum grade of "C" is required in CHEG prefixed prerequisites. 4 hours (3 - 3)

PAPR 3100 Work Experience / Co-op  
Full-time employment in a pulp, paper, printing, or related industry that provides first-hand experience in a job capacity directly related to the student's major. A written report is required. Students who will work full time (30 hours or more per week) may register for PAPR 3100 and will be granted full-time student status. May be repeated up to a maximum of three times. Prerequisite: Junior standing and department approval. 1 to 3 hours

PAPR 3140 Materials Characterization for Paper and Imaging  
This is a lecture and laboratory class in utilizing the instruments required to measure the physical and chemical properties of inks, coatings, and paints in both the liquid state and the solid state (after application). It includes the measurement of surface energy, surface tension, contact angle and wetting, rheological properties, densitometry, colorimetry, opacity, image analysis, and microscopy. Prerequisites: PAPR 1000 and (Papr 1030 or IMAG 1500). A minimum grade of "C" is required in PAPR prefixed prerequisites. 2 hours (1 - 3)

PAPR 3330 Carbohydrate and Lignin Chemistry  
Consideration of the chemistry of wood, pulp, and pulping by-products. Included topics are cellulose, lignin, accessory carbohydrates, extractives, and spent liquor utilization. Applied chemistry of pulping, bleaching processes, and basics of analytical chemistry of wood will be introduced. PAPR 3330 can be substituted by CHEM 3770. Prerequisite: PAPR 3030, a minimum grade of "C" and CHEM 3750 and CHEM 3760. 3 hours (3 – 0)

PAPR 3480 Water Quality and Regulations  
Physical, chemical and biological characteristics of water. Hydrology, governmental regulations, water and wastewater evaluation and treatment processes. Prerequisites: CHEM 1100 and 1110. 2 hours (2 - 0)

PAPR 3490 Water Quality and Regulations (Lab)  
Physical, chemical and biological characteristics of water and wastewater treatment processes. Prerequisites: CHEM 1100 and 1110; Corequisite: PAPR 3480. 1 hour (0 - 3)

PAPR 3510 Water Quality and Microbiology  
The physical, chemical, and biological characteristics of water. Topics stressed include hydrology, treatment of water, water quality, governmental regulations, evaluation, and the
microbiology of water. (This is a non-laboratory course offered for adult education. Credit will not be earned in PAPR 3510 by paper science or paper engineering majors.) 2 hours (2 - 0)

PAPR 3531 Wastewater Treatment Systems A study of the fundamental principles, design considerations, and use of unit processes and operations employed in wastewater treatment. Physical, physiochemical, and biological treatments are considered. A student may not get credit for PAPR 3530 and PAPR 3531. Prerequisites: CHEG 2610 or CHEG 2611. A minimum grade of "C" is required in CHEG prefixed prerequisites. 3 hours (3 - 0)

PAPR 4300 Surface and Wet End Science This course presents the important concepts of surface science, colloid chemistry and polymers. The concepts are illustrated by considering their application to operations in the paper industry. Subjects covered include surface tension, adsorption and wetting, colloids, foams and emulsions and wet end additives such as retention aids, strength resins, defoamers and drainage aids. Prerequisites: CHEM 3750 and CHEM 3760. Will be offered as honors courses for interested students. 3 hours (3 - 0)

PAPR 4400 Seminar A seminar course using guest speakers, university staff and field trips to add depth and breadth to the background of students. Prerequisite: Junior standing. 1 hour

PAPR 4521 Air Pollution and Solid Waste Management The practice, technology and economics of the treatment of air pollutants and solid wastes generated by private, municipal, commercial and industrial sources are studied. Discussions include generation, effects, treatment, process alternatives, conversion, beneficial use and disposal of by-product and waste effluents. Emissions ranging from noxious pollutants to hazardous materials will be included. A student may not get credit for PAPR 4520 and PAPR 4521. Prerequisites: CHEG 2610 or CHEG 2611. A minimum grade of "C" is required in CHEG prefixed prerequisites. 3 hours (3 - 0)

PAPR 4600 Plant Economics and Project Design A lecture and laboratory consideration of Process synthesis and operability characteristics; dynamics of chemical process industries; project evaluation and review; optimization in design and selection of process and/or equipment alternatives; environmental, health, and safety in the design of chemical processes; basis for cost estimation. Oral and written reports of individual and team efforts. PAPR 4600 is cross-listed with CHEG 4600. Will be offered as honors courses for interested students. Restricted to majors in Paper Engineering or Paper Science. Prerequisites: CHEG 3120 and PAPR 3030. A minimum grade of "C" is required in CHEG and PAPR prefixed prerequisites. 3 hours (2 - 3)

PAPR 4640 Modern Printing Practices Study, development, application of printing management/marketing production practices. Technical short courses offered by production and service industries may be utilized. May be elected in two hour blocks to a maximum of six hours. Prerequisite: Junior standing. 2 hours (2 – 3)

PAPR 4840 Process Control II The use of instrument systems, digital computers and programmable logic controllers to control pulping, papermaking and chemical recovery process. Design of control systems, principles of analog and digital systems, digital signal processing and architecture of programmable logic controllers. Prerequisite: CHEG 4830. 4 hours (4 - 0)

PAPR 4850 Research Design Research selection, planning, design, and writing. A research problem selected in consultation with faculty. Student will define and analyze the problem; do a critical review of the literature; and propose a documented research program to increase understanding and knowledge about the problem. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Senior standing in major. 3 hours

PAPR 4860 Independent Research Adds the laboratory research component to PAPR 4850. Student may continue the problem defined and analyzed in PAPR 485 or select a new topic. A detailed report which includes literature analysis, experimental design, results and conclusions is required. Will be offered as honors courses for interested students Prerequisite: PAPR 4850, a minimum grade of "C" is required in PAPR prefixed prerequisites. 3 hours

PAPR 4950 Topics in Paper and Printing A special course dealing in some particular subject of interest in Pulp and Paper and/or Printing. May be repeated for credit with different topics. Prerequisite: Permission of instructor. 1 to 4 hours
### PAPR 4990 Independent Studies
Offers paper science and engineering and printing majors with good scholastic records a program of independent study in an area arranged in consultation with the instructor. One to three hours credit per semester, cumulative to six hours. Prerequisite: Permission of instructor.
1 to 6 hours

### PAPR 5000 Introduction to Papermaking
Graduate students without sufficient background will learn paper science and paper engineering topics and laboratory techniques, including the basics of papermaking, paper properties, paper testing, and TAPPI standard testing procedures. Prerequisite: Enrollment by approval of PCI Graduate Advisor.
1 hour (0 – 3)

### PAPR 5301 Material Instrumental Analysis
Instrumental techniques for analysis of the physical and surface properties of materials used in the paper and printing industries. Training to operate instruments in preparation for graduate research, or for use in other graduate level courses, and development of laboratory measurement and computer usage skills. Prerequisite: One completed laboratory science course.
2 hours (1 – 3)

### PAPR 5501 Advanced Paper Processes
Advanced course in the paper manufacturing process, including paper chemistry theory, stock preparation, converting, and the role of recycled fibers. Particular emphasis on types of paper products and their applications, the relationship of laboratory measurements to paper properties, and the effect of process variables on paper product performance. Prerequisite: PAPR 5000 or equivalent.
3 hours (3 – 0)

### PAPR 5990 Pilot Plant Operations
Students will gain experience using the department’s papermaking, recycling, paper coating, and printing pilot plants to perform supervised projects or basic research, and be able to express project or research results in oral, written, and visual communication formats in an acceptable and professional manner. Course in repeatable to a maximum of three hours. Prerequisite: By arrangement with instructor.
1 hour

### General Physical Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEGN 1020</td>
<td>Badminton</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1030</td>
<td>Aerobic Exercise</td>
<td>Course consists of a broad spectrum of fitness exercises to music. Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1040</td>
<td>Basketball</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1050</td>
<td>Bowling</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1060</td>
<td>Canoe Camping</td>
<td>The course combines the fundamentals of camping with canoeing. Culminates with a weekend camping trip by canoe. Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1070</td>
<td>Canoeing</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1090</td>
<td>Cycling</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1220</td>
<td>Golf I &quot;Beginners Only&quot;</td>
<td>Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity should enroll in 2000/3000 level courses.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1280</td>
<td>Jogging</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1310</td>
<td>Beginning Karate &quot;Beginners Only&quot;</td>
<td>Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity should enroll in 2000/3000 level courses.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1320</td>
<td>Military Fitness</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
<tr>
<td>PEGN 1360</td>
<td>Physical Fitness</td>
<td>Open to all students and emphasize the beginning skills in the activity given.</td>
<td>1 hour</td>
</tr>
</tbody>
</table>
PEGN 1370  Racquetball  "Beginners Only"  Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity should enroll in 2000/3000 level courses.  1 hour

PEGN 1380  Rock Climbing  This course gives the student fundamentals of rock climbing and includes a weekend trip to cap off the experience. Open to all students and emphasize the beginning skills in the activity given.  1 hour

PEGN 1390  Relaxation  Open to all students and emphasize the beginning skills in the activity given.  1 hour

PEGN 1440  Skiing - Alpine  "Beginners Only"  Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity should enroll in 2000/3000 level courses.  1 hour

PEGN 1460  Soccer  Open to all students and emphasize the beginning skills in the activity given.  1 hour

PEGN 1470  Softball  Open to all students and emphasize the beginning skills in the activity given.  1 hour

PEGN 1490  Swimming - Unable to swim in deep water  "Beginners Only"  Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity should enroll in 2000/3000 level courses.  1 hour

PEGN 1500  Advanced Beginning Swimming  Students will build on skills learned in beginning swimming and develop deep water skills in order to progress to intermediate swimming. American Red Cross Water Safety program progression and certification. Prerequisite: PEGN 1490 or equal skills. Open to all students and emphasize the beginning skills in the activity given.  1 hour

PEGN 1600  Tennis I  "Beginners Only"  Open to all students and emphasize the beginning skills in the activity given. The student with some experience this activity should enroll in 2000/3000 level courses.  1 hour

PEGN 1630  Volleyball  Open to all students and emphasize the beginning skills in the activity given.  1 hour

PEGN 1660  Weight Training  Course consists of individualized weight training programs. Open to all students and emphasize the beginning skills in the activity given.  1 hour

PEGN 1700  Health and Wellness - Aerobics  Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.  2 hours

PEGN 1710  Health and Wellness - Water Aerobics  Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.  2 hours

PEGN 1720  Health and Wellness - Circuit Fitness  Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit.  2 hours
PEGN 1730 Health and Wellness - Jogging

Students are provided information and experience allowing them to (1) acquire knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1740 Health and Wellness - Walking

Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from physical, mental, personal-social and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1750 Special Activities

Various activity classes that are not a part of the regular curriculum are occasionally offered in this course section. Open to all students and emphasize the beginning skills in the activity given. 1 hour

PEGN 1760 Health and Wellness - Racquet Sports

Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, psychosocial, and spiritual perspectives, (2) develop physical fitness skills, and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1770 Health and Wellness - Climbing Techniques

Students are provided information and experience allowing them to (1) acquire knowledge about human wellness from physical, mental, psychosocial, and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which will facilitate a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1800 Health and Wellness - Beginning Swimming

Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1810 Health and Wellness - Intermediate Swimming

Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity which facilitates a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 1820 Health and Wellness - Swim Conditioning

Students are provided information and experiences which allow them to: (1) acquire knowledge about human wellness from physical, mental, personal-social and spiritual perspectives; (2) develop physical fitness skills; and (3) develop a positive attitude toward wellness and physical activity
which facilitates a healthy lifestyle. Open to all students and emphasize the beginning skills in the activity given. Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 1700-1830 courses offered in one semester is prohibited. Courses are not repeatable for credit. 2 hours

PEGN 2000 Physical Education Learning Lab Activities Guided individual instruction in a variety of physical education activities. Resources such as films, books and workshops are available to aid the student to learn in a manner and rate suitable to the individual skill and knowledge. Competency testing will be used to determine achievement and place individuals at beginning, intermediate or advanced levels. Course is repeatable for up to 8 hours credit (University limit) under 2000 number, with different course titles. Prerequisite: GPA of 3.0 overall. Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2080 Intermediate Backpacking Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2440 Intermediate Alpine Skiing Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2490 Swimming - Intermediate Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 2630 Volleyball Intermediate Open to all students who have completed a 1000-level course in the activity or the equivalent. 1 hour

PEGN 3490 Lifeguard Training To provide the necessary minimum skills training for a person to serve as a non-surf lifeguard. Prerequisite: PEGN 2510 or equal skills. Open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll. 2 hours

PEGN 3500 Water Safety Instructor American Red Cross revised course (1992) will prepare the student to be able to instruct all progressive levels of swimming, infant/preschool aquatics and emergency water safety. This course will not qualify a participant to be a lifeguard. Prerequisite: PEGN 2510 or equal skills. Current Life Saving Certificate required. Open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll. 2 hours

PEGN 3510 Lifeguard Training Instructor (LGI) American Red Cross Revised (1992) will prepare the student already certified as a lifeguard to instruct Basic Water Safety, Emergency Water Safety and Lifeguard Training. Prerequisite: PEGN 3490. Open to all students desiring additional experience in an activity and who have completed the 2000-level course or permission of instructor to enroll. 2 hours

PEGN 4000 Baseball A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4010 Basketball A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4050 Football A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4060 Golf A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4070 Gymnastics A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4080 Ice Hockey A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour
PEGN 4090 Soccer  A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4100 Softball  A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4130 Tennis  A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4140 Track/Field  A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

PEGN 4150 Volleyball  A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor. 1 hour

Public Health

PH 2310 Public Health Needs and Issues  This course is designed to lay the foundation for public health and the settings in which it occurs. Professionalization of health education and the role delineation project in multiple settings will be identified. The Healthy People model will be the basis for identifying and prioritizing public health issues. 3 hours

PH 2320 Global and Environmental Health Issues  This course is designed to equip students with current issues related to global and environmental health. Public health emphasis will be placed on knowledge and skills needed to address contemporary and emerging issues in the global environment. Skills related to planning and managing environmental and global health education and promotion issues will be addressed. 3 hours

PH 2330 Introduction to Epidemiology  Epidemiology is a combination of a subject matter science and a research methodology; this course focuses on the latter. Introduction to Epidemiology will describe the study designs and measures of effect used to study disease in human populations, and will introduce concepts of casual inference and threats to study validity. At the conclusion of the course, students should be able to critically evaluate the public health and medical literature based on the major criteria used to assess causality. 3 hours

PH 3300 Special topics in Public Health  The focus of this course can vary depending on the special topic or issue being presented, including potential travel study opportunities. 1 to 3 hours

PH 3310 Planning Public Health Programs  This course deals with the analysis of principles of program planning in public health education and promotion. Planning models will be used to introduce principles and methods of assessment and data collection, goal and objective writing, and implementation strategy indentification. Prerequisites: PH 2310, PH 2320 and PH 2330; with a grade of "C" or better required in all prerequisites. 3 hours

PH 3320 Applying Behavior Foundations in Public Health  The focus of this course is exploring the psychosocial determinants of behavioral risk factors that affect health and developing strategies for applying theories, models, and frameworks of health-related behavior within public health settings. Prerequisites: PH 2310, PH 2320 and PH 2330; with a grade of "C" or better required in all prerequisites. 3 hours

PH 3330 Grant Writing in Public Health  Designed to prepare students with skills necessary to secure external grant funding through grant proposal writing. Emphasis is placed on grant sources and resources, the grant proposal process, grant management, and continued funding. Prerequisites: PH 2310, PH 2320 and PH 2330; with a grade of "C" or better required in all prerequisites. 3 hours

PH 4300 Independent Study in Public Health  Designed to provide an opportunity for qualified students to explore special projects in public health. May be repeated for credit. Prerequisite: Instructor approval. 1 to 4 hours
PH 4310 Implementing and Administering Public Health Programs  This course is designed to prepare students with skills necessary to implement and administer programs within the context of community and public health settings. Emphasis will be placed on intervention strategies, community building, marketing, and program administration. Prerequisites: PH 3310 and PH 3320, with a grade of "C" or better required in all prerequisites. 3 hours

PH 4320 Public Health Intervention Strategies  Focus centers on health communication methods necessary to implement health education within public health programs and settings. Emphasis is placed on learning characteristics, educational material development, mass media interactions, message development, technology application, group facilitation, and effective presentations. Prerequisites: PH 3310 and PH 3320, with a grade of "C" or better required in all prerequisites. 3 hours

PH 4330 Advocating for Health Policies  This course is designed to focus on health policies and its definition and development, legislative structures and processes, and how to advocate for health related policies at the national, state, and local levels. Focus will be placed on establishing an advocacy plan that is both media and legislative in nature. Prerequisites: PH 3310 and PH 3320, with a grade of "C" or better required in all prerequisites. 3 hours

PH 4410 Evaluating Public Health Programs  Designed to develop assessment and evaluation skills in community and public health indicators. Focus will be on program evaluation models relevant for health education in the community. Measures of interest will include, process, impact and outcome. Design operations for measuring program effect, with the associated threats and external validity, are discussed, and several basic statistical techniques are reviewed and examined in terms of their applicability to program evaluation. Prerequisites: PH 4310 and PH 4320, with a grade of "C" or better required in all prerequisites. 3 hours

PH 4910 Public Health Capstone Proposal  This course introduces project proposal formation, development, and writing, resulting in the identification of an experiential capstone project. Prerequisites: PH 3310 and PH 3320, with a grade of "C" or better required in all prerequisites. 1 hour

PH 4920 Public Health Capstone Project  This course focuses on the implementation of the capstone proposal developed in PH 4910. Prerequisite: PH 4910, with a grade of "C" or better. 2 hours

PH 4930 Public Health Seminar  This course is designed to feature senior-level activities as a culmination of the skills and theory acquired in the public health curriculum as a means for preparing the candidate for a fulfilled professional career. Topics include credentialing exam preparation, professional conference engagement, portfolio development, job search and acquisition skills, leadership development, field experience placement, ethics, and professionalism. Prerequisites: PH 3330, PH 4310, PH 4320, and PH 4330; with a grade of "C" or better required in all prerequisites. 3 hours

PH 4940 Public Health Internship  Designed to prepare students with skills necessary to implement programs within the context of community and public health. Emphasis is placed on applying skills from the major responsibilities of a health education specialist, as defined by the National Commission on Health Education Credentialing. Prerequisites: PH 4410, PH 4920, and PH 4930, with a grade of "C" or better required in all prerequisites. 3 hours

Philosophy
PHIL 2000 Introduction to Philosophy  An introduction to the nature of philosophy by a consideration of major types of philosophical questions, such as the principles of rational belief, the existence of God, what is the good life, the nature of knowledge, the problem of truth and verification. Selected texts from representative philosophers are used to define the questions and to present typical answers. This course satisfies General Education Area II: Humanities. 4 hours

PHIL 2010 Introduction to Ethics  An introduction to the philosophic study of morality. Deals with questions such as: What is the good life? Why should I be moral? What is the meaning of right and wrong? This course satisfies General Education Area II: Humanities. 4 hours

PHIL 2200 Critical Thinking  A systematic study of extended arguments aimed at helping students develop the skills necessary for understanding, analyzing, and evaluating argumentative rhetoric. Topics included are argument
identification and argument structure, definitions and disputes, deduction and induction, premise verification and informal fallacies. This course satisfies General Education Proficiency 4: Critical Thinking. 3 hours

PHIL 2250 Deductive Logic A study of the rules and techniques of deductive reasoning, including truth tables and the propositional calculus. Applications to verbal reasoning and translation from ordinary language into the propositional calculus are emphasized. This course satisfies General Education Proficiency 4: Critical Thinking. 3 hours

PHIL 2550 Science, Technology, and Values A critical examination of the interactions between science, technology and society. The social implications of science and technology will be examined by placing them within the larger context of society, politics, ethics and economics. Issues and problems generally recognized as societal concerns will be emphasized. The detailed analysis of a case study will include teaching of the relevant science and technology. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

PHIL 3000 Ancient and Medieval Philosophy A study of the history of selected philosophical topics up to the sixteenth century. Great thinkers, such as Plato, Aristotle, Augustine, and Aquinas will be emphasized. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing and General Education Area II: Humanities. 4 hours

PHIL 3010 History of Modern Philosophy A survey of modern philosophy from the Renaissance through Kant, with particular attention to epistemological and metaphysical themes in the works of Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing and General Education Area II: Humanities. 4 hours

PHIL 3030 Existentialist Philosophies A concentrated study of leading thinkers in modern philosophical existentialism: Kierkegaard, Nietzsche, Jaspers, Sartre, and Camus. This course satisfies General Education Area II: Humanities. 3 hours

PHIL 3070 Philosophy in the American Context American philosophy from the 17th century to the present. Major schools, figures and tendencies will be considered. Included are early theology, the enlightenment, Transcendentalism, Darwinianism, Pragmatism, Idealism, realism and naturalism, liberalism, post-modernism, feminism, and the minority experience. Among the figures to be read are Jonathan Edwards, Jefferson, Emerson, Thoreau, Margaret Fuller, C.S. Peirce, Dewey, Morris Cohen, Richard Rorty, WVO Quine, Susan Haack, Cornell West, Carol Gilligan, Rawls, Robert Nozick. This course satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

PHIL 3110 Political Philosophy An examination of fundamental problems arising from political and social relationships. The main emphasis is on such political value concepts as liberty, equality, human rights and justice. Topics that might be considered include, but are not necessarily restricted to: the nature and basis of political authority and obligation; civil disobedience; tolerance and dissent; the aims of political institutions; law and morality. This course satisfies General Education Area II: Humanities. 3 hours

PHIL 3120 Philosophy of Art An analysis of the nature of art and esthetic experience, and its significance in human life. The course may cover all forms of art, or concentrate on a few, for instance, literature, drama and music. This course satisfies General Education Area I: Fine Arts. 3 hours

PHIL 3130 Philosophy of Law The nature of law and legal systems. Questions studied include: the relation between law and morality; theories of constitutional and statutory interpretation; basic rights including the rights to privacy and maximum liberty; the definition of criminality and the justification of punishment; excuses. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

PHIL 3140 Philosophy and Public Affairs A philosophical examination of principles and values underlying contemporary social issues. The course will focus on specific issues such as environmental concerns, animal rights, abortion, privacy, censorship, world hunger, economic justice, business ethics, violence, war, peace, and utopian ideals. Topics to be announced in the Schedule of Classes. May be repeated for credit when topics vary. This course satisfies General Education Area II: Humanities. 3 hours

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PHIL 3150  Race and Gender Issues  A philosophical examination of principles and values underlying contemporary social issues involving race, gender, and related concepts. Topics include: identity, equality/inequality, equity, harassment, prejudice, discrimination, affirmative action. This course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours

PHIL 3160  Ethics in Engineering and Technology  An examination of ethical issues in engineering. Topics include: engineering as a profession; codes of ethics; engineering in business, industry and government; responsibilities to employers, clients, and society; conflicts of interest; safety and risk; whistle blowing; environmental concerns; and choosing careers in engineering and technology. This course satisfies General Education Area II: Humanities.  3 hours

PHIL 3170  Environmental Ethics  This course will be an examination of ethical issues related to the environment. The main focus will be on current issues such as global warming, population growth, sustainability, and non-human welfare. We will consider environmental impacts of social and political activities from a moral perspective, placing emphasis on the relationship between human needs and environmental responsibility. Selected moral theories and moral principles will be developed in application to problems and issues like those mentioned above.  3 hours

PHIL 3200  Formal Logic  A study of formal deductive systems with a special emphasis on the first-order predicate calculus. Arguments expressed in everyday language are analyzed and translated into symbolic logic both to make meanings precise and explicit and to check the validity of arguments. This course satisfies General Education Proficiency 4: Critical Thinking.  4 hours

PHIL 3250  Inductive and Scientific Reasoning  The study of scientific reasoning and scientific methods. The focus is on probable inference, which is distinct from demonstrative or necessary inference. The course covers reasoning from particular cases, reasoning from analogy, and the Bayesian inference. The course covers enough deductive logic to introduce the basic notions need from probability theory. This course satisfies General Education Proficiency 4: Critical Thinking.  3 hours

PHIL 3310  Moral Philosophy  A study of some basic problems in moral philosophy. Special attention is given to the question of the relationship between the justification of actions, and motives, excuses, intentions, consequences. Contemporary works are emphasized. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  4 hours

PHIL 3320  Theory of Knowledge  An examination of basic problems concerning knowledge and belief, discussing traditional approaches but stressing recent analyses. Possible topics: skepticism and certainty, knowing and believing, perception, memory, "a priori" vs. "a posteriori" knowledge, self-knowledge, knowledge of others. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  4 hours

PHIL 3330  Metaphysics  A study of basic metaphysical questions, discussing traditional solutions but emphasizing recent approaches. Questions will be selected from such topics as: substances, qualities and relations, universals and particulars, identity, space and time, causation, mind and body, persons, free will. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  4 hours

PHIL 3340  Biomedical Ethics  In this course, the ethical principles (respect for autonomy, non-maleficence, beneficence justice) and other ethical concerns (e.g. privacy, confidentiality, compassion, relationships among patients and professionals) are studied and applied to contemporary problems in medicine and biomedical research. These problems include genetic testing and therapy; organ transplantation; decision-making regarding treatment and care at the end of life; research involving human subjects; and treatment issues in the AIDS epidemic. Case study methods are used. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications.  4 hours

PHIL 3350  Medical Humanities  Provides a philosophical exploration of the humanistic side of medicine and the related fields of health and illness, health care, death and dying, and so forth. Students will learn about how different disciplines within the humanities (art, history, literature, music etc.) study these topics. In so doing, students will focus their studies on fundamental elements of the human condition and also learn how this knowledge can help health providers and patients reach better outcomes. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications.  3 hours
PHIL 3500 Foundations of the Modern Worldview The study of some basic ideas with which today's knowledgeable people make sense of their world and themselves. Topics may vary from term to term, but will include a philosophical study of the physical, biological or social sciences and some areas in the humanities that reflect changes in values associated with the modern worldview. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 4 hours

PHIL 3550 Philosophy of Science A philosophical exploration of the basic concepts, methods, and aims of the natural sciences. The course explores issues such as confirmation, explanation, reduction, and the observation/theory dichotomy through philosophical analysis and case studies. The detailed analyses of historic and contemporary scientific practice will include teaching of the relevant science. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

PHIL 3710 History and Philosophy of Science I A philosophical and historical study of the growth of science from the Greeks to the Scientific Revolution. The course explores the development of science through primary source readings, with a particular focus on astronomy and dynamics, culminating with a close reading of Galileo’s Dialogue Concerning the Two Chief World Systems and a study of the trial of Galileo. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

PHIL 3720 History and Philosophy of Science II A philosophical and historical study of the development of modern science from Newton’s Principia through the twentieth century. The course traces the development of multiple modern physical ideas such as the theory of light, thermodynamics, relativity, quantum theory, and chaos theory as well as the parallel developments in methodology in thinkers such as Bacon, Locke, Herschel, Poincare, Duhem, and Einstein. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. 3 hours

PHIL 4100 Professional Ethics A philosophical examination of the foundations of ethics in the professions. Topics to be considered include the professions and professionalism, relationships between professional and ordinary ethics, social responsibilities of the professions, professional/client relationships, regulation of the professions, and codes of ethics. 3 hours

PHIL 4800 Senior Seminar A comprehensive and in depth examination of a central area or areas of philosophy. Topics may vary from term to term. The course may be about 1) the philosophy of one or more significant historical or 20th century thinkers; 2) a philosophical movement; or 3) a major philosophical issue that draws on a variety of sources. May be repeated for credit when topics vary. Prerequisites: Completion of 12 hours of philosophy, including either PHIL 3000 or 3010, and completion of the Baccalaureate level writing requirement. 4 hours

PHIL 4980 Independent Study Independent study is for those students who have attained a degree of competence in philosophy and wish to embark upon a project to be carried out without the usual close guidance of the instructor in the classroom. Independent study may not be elected as a substitute for a regularly scheduled course. May be repeated for credit. Prerequisite: Application and department approval 1 to 4 hours

PHIL 5120 Aesthetics An investigation of the many philosophical issues which arise from the study of the arts and aesthetic experience. Topics include such issues as the ontology and identity of works of art, whether art can be defined so as to distinguish art from non-art, the status of aesthetic values, the relation of ethics to aesthetics, the status of feminist perspectives in the arts, and significance of the arts in human life. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 credit hours in philosophy. 3 hours

PHIL 5200 Philosophical Applications of Symbolic Logic This course is designed to expose students to the range of philosophical applications of modern symbolic logic. Starting with the sentential and predicate calculi, the course explores various extensions which may include alethic model logic, deontic logic, tense logic, relevance logic and counterfactuals. In addition, the course will address salient issues in the philosophy of logic and may include an investigation of the logical paradoxes and/or the controversy surrounding quantified modal logic. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 credit hours in philosophy, including (PHIL 2250 or PHIL 3200). 3 hours
PHIL 5400 Philosophy of Mind  A study of the philosophical problems surrounding our understanding of the nature of mind, mental states, and consciousness, and their relation to matter, and states of the brain and/or central nervous system. Possible topics include cognitive science, artificial intelligence, the relation of mind to body and/or behavior, teleological and mechanistic explanations of human behavior, the philosophical foundations of psychology, behaviorism, functionalism, the nature of intentionality, the concept of a person, the privacy of mental states, knowledge of other minds, and questions regarding free will and determinism. Prerequisites: Junior standing and 12 credit hours in Philosophy, including PHIL 3010. 2 to 4 hours

PHIL 5440 Practical Ethics  This course will examine the relationships between ethical theory and practice, especially in the area of professional life. We will consider questions concerning moral imagination, deliberation, and justification, as well as how principles and norms guide our complex activities. Case illustrations from various professions (e.g., medicine, laws, government, science, psychiatry, etc.) will be used to highlight some of these issues. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 credit hours in philosophy. 3 hours

PHIL 5550 Advanced Philosophy of Science  A detailed examination of some of the central problems in contemporary philosophy of science. Topics may vary from term to term. Typical topics include: nature of scientific explanation, theory structure and change, scientific realism vs. various anti-realisms, or issues in the special sciences, e.g., the physical, biological or social sciences. Open to upperclass and graduate students. Prerequisites: Junior standing and 12 credit hours in Philosophy. 2 to 4 hours

PHIL 5700 Philosophical Topics  An examination of special philosophical topics. Topics to be listed in the Schedule of Classes. May be repeated for credit, with advisor's approval, when topics vary. May be offered in an accelerated format. Open to upperclass and graduate students. Prerequisite: Junior standing and 12 hours course work in philosophy, including PHIL 3010. Specific course prerequisites may be stipulated for specific topics and substitutions for philosophy may be allowed. 1 to 4 hours

PHIL 5980 Readings in Philosophy  Research on some selected period or topic under supervision of a member of the Philosophy faculty. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Junior standing and 12 hours of Philosophy. 1 to 4 hours

Physics

PHYS 1000 How Things Work  This is a course in the physics of everyday life employing a minimum of mathematics. It explores the principles of automobiles, ice skating, roller coasters, CD/DVD players, television receivers, electronic computers and other common devices and situations. The course emphasizes basic physical principles rather than details of operation. The laboratory shows students how to ask questions and how to collect and analyze data. This course satisfies General Education Area VI: Natural Science with Laboratory. 4 hours

PHYS 1020 Energy and the Environment  This course is a study of the interplay of energy production and use, advances in technology, and their effects on the environment. Topics covered include energy fundamentals, fossil fuels, generation of electricity, solar and other renewable energy sources, nuclear energy, energy conservation, transportation, air pollution, and their global effects. The course is intended to give students the tools to think critically and make informed decisions about energy use in their daily lives. Mathematical skills at the level of introductory algebra are required. This course satisfies General Education Area VII: Natural Science and Technology: Applications and Implications. This course may not be applied toward either a major or minor in Physics. Prerequisite: MATH 1100 or MATH 1110 or MATH 1140 or MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of "C" or better or equivalent; or ACT Math score in the range from 20 to 36 inclusive; or SAT Math score in the range from 490 to 800 inclusive. 3 hours

PHYS 1030 Sky and Solar System Laboratory  This is an astronomy laboratory course designed to illustrate and explore some of the topics covered in PHYS 1040 Introduction to the Sky and Solar System. This course should be taken concurrently with PHYS 1040, and students should satisfy the same prerequisites as PHYS 1040 before taking this course. The combination of PHYS 1030 and PHYS 1040 satisfies General Education Area VI: Natural Science with Laboratory. 1 hour
PHYS 1040  Introduction to the Sky and Solar System  This is an introduction to the night sky and our solar system. The student will learn about the cycles of the Sun, Moon, planets, and constellations; the historical development of astronomy; basic properties of light and telescopes; nature and properties of the planets and the Sun; asteroids, meteorites, and comets; and the origin and evolution of the solar system. When taken concurrently with PHYS 1030, this course satisfies General Education Area VI: Natural Science with Laboratory. Prerequisite: MATH 1100 or MATH 1110 or MATH 1140 or MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of “C” or better or equivalent; or ACT Math score in the range from 20 to 36 inclusive; or SAT Math score in the range from 490 to 800 inclusive. 3 hours

PHYS 1050  Stars and Galaxies Laboratory  This is an astronomy laboratory course designed to illustrate and explore some of the topics covered in PHYS 1060 Introduction to Stars and Galaxies. This course should be taken concurrently with PHYS 1060, and students should satisfy the same prerequisites as PHYS 1060 before taking this course. The combination of PHYS 1050 and PHYS 1060 satisfies General Education Area VI: Natural Science with Laboratory. 1 hour

PHYS 1060  Introduction to Stars and Galaxies  This course introduces the student to the origin and evolution of stars, galaxies, and the universe. Topics covered include the basic properties of stars; the birth, life, and death of stars; stellar explosions; the origin of the elements; white dwarf stars, neutron stars, and black holes; the interstellar medium; structure and evolution of the Milky Way and other galaxies; and the origin and fate of the Universe. When taken concurrently with PHYS 1050, this course satisfies General Education Area VI: Natural Science with Laboratory. Prerequisite: MATH 1100 or MATH 1110 or MATH 1140 or MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of “C” or better or equivalent; or ACT Math score in the range from 20 to 36 inclusive; or SAT Math score in the range from 490 to 800 inclusive. 3 hours

PHYS 1070  Elementary Physics  This course surveys physics from mechanics to modern physics in one semester. It is designed for students in curricula requiring a one-semester course at the level of general college physics. A student may elect to take this course as preparation if he/she wishes an introduction to physics before taking PHYS 1130 or PHYS 2050. The combination of PHYS 1070 and PHYS 1080 satisfies General Education Area VI: Natural Science with Laboratory. Prerequisite: MATH 1100 or MATH 1110 or MATH 1140 or MATH 1160 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of “C” or better or equivalent; or ACT Math score in the range from 20 to 36 inclusive; or SAT Math score in the range from 490 to 800 inclusive. 4 hours

PHYS 1080  Elementary Physics Laboratory  This is a laboratory course which includes exercises related to topics covered in PHYS 1070. This course should be taken concurrently with PHYS 1070, and students should satisfy the same prerequisites as PHYS 1070 before taking this course. The combination of PHYS 1070 and PHYS 1080 satisfies General Education Area VI: Natural Science with Laboratory. 1 hour

PHYS 1130  General Physics I  A general college physics course in the principles and practical application of mechanics, sound, and heat. Recommended for students in curricula other than science and students desiring a non-calculus course in physics. Many schools of engineering will not accept PHYS 1130 to 1160 for transfer credit. This course with PHYS 1140 satisfies General Education Area VI: Natural Science with Laboratory. A student can receive credit for only one of the following courses: PHYS 1130 or PHYS 2050. Prerequisite: MATH 1110 or MATH 1180 or MATH 1220 or MATH 1230 or MATH 1700 or MATH 1710 or MATH 2000, with a grade of “C” or better or equivalent; or ACT Math score in the range from 25 to 36 inclusive; or SAT Math score in the range from 580 to 800 inclusive. 4 hours

PHYS 1140  General Physics I Laboratory  This is a laboratory course which includes exercises related to topics covered in PHYS 1130. This course should be taken concurrently with PHYS 1130, and students should satisfy the same prerequisites as PHYS 1130 before taking this course. The combination of PHYS 1130 and PHYS 1140 satisfies General Education Area VI: Natural Science with Laboratory. A student can receive credit for only one of the following courses: PHYS 1140 or PHYS 2060. 1 hour

PHYS 1150  General Physics II  This course follows PHYS 1130 and consists of studies in electricity, magnetism, light, and atomic and nuclear physics. A student can receive credit for only one of the following courses: PHYS 1150 or PHYS 2070. Prerequisite: PHYS 1130 4 hours

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PHYS 1160 General Physics II Laboratory  
This is a laboratory course which includes exercises related to topics covered in PHYS 1150. This course should be taken concurrently with PHYS 1150, and students should satisfy the same prerequisites as PHYS 1150 before taking this course. A student can receive credit for only one of the following courses: PHYS 1160 and PHYS 2080. Prerequisites: PHYS 1130 or PHYS 2050 with a grade of "C" or better. 1 hour

PHYS 1800 Physics: Inquiry and Insights  
The ‘inquiry’ aspect of this physics course means that you will explore natural phenomena for yourself in the lab, and develop scientific concepts and principles to explain the observed behavior - just as scientists do. The ‘insights’ aspect reflects our emphasis on conceptual understanding and physical insight. The course is comprised of Light, Waves and Mechanics. The focus throughout is on fundamental physical principles and the ability to apply them in new situations, to explain, predict and solve problems. The approach promotes appreciation of the nature of science and builds confidence in how to learn and think in science. 3 hours

PHYS 1905 The Universe of Physics  
In this seminar, students will be introduced to the universe of physics in a non-quantitative way. Over the course of the semester, we will present and discuss many aspects of physics as a field of science and as a career. Topics may include: the definition and scope of the field, its applications in other fields of science, current exciting areas of research and recent discoveries and breakthroughs, the variety of career opportunities at various degree levels, and the particular experiences and opportunities available to its majors. Course enrollment is open to all interested students. 1 hour

PHYS 2050 University Physics I  
This is the first in a sequence of three in calculus-based physics courses and deals with the laws of motion, work and energy. PHYS 2050 is intended for physics majors, engineering students, and future physics teachers. It is recommended for majors in other sciences. This course with PHYS 2060 satisfies General Education Area VI: Natural Science with Laboratory. A student can receive credit for only one of the following courses: PHYS 2050 or PHYS 1130. Prerequisite: (MATH 1700 or Math 1220) and (MATH 1710 or MATH 1230). MATH 1710 or MATH 1230 may be taken concurrently. A grade of "C" or better is required to satisfy any course prerequisite. 4 hours

PHYS 2060 University Physics I Laboratory  
This is a laboratory course which includes exercises related to topics covered in PHYS 2050. This course should be taken concurrently with PHYS 2050, and students should satisfy the same prerequisites as PHYS 2050 before taking this course. The combination of PHYS 2050 and PHYS 2060 satisfies General Education Area VI: Natural Science with Laboratory. A student can receive credit for only one of the following courses: PHYS 2060 and PHYS 1140. 1 hour

PHYS 2070 University Physics II  
This course follows PHYS 2050 and consists of studies in electricity, magnetism, and electromagnetic radiation. A student can receive credit for only one of the following courses: PHYS 2070 or PHYS 1150. Prerequisites: PHYS 2050, and (MATH 1710 or MATH 1230), and (MATH 2720 or MATH 2300); either MATH 2720 or MATH 2300 may be taken concurrently. A grade of “C” or better is required to satisfy any course prerequisite. 4 hours

PHYS 2080 University Physics II Laboratory  
This is a laboratory course which includes exercises related to topics covered in PHYS 2070. This course should be taken concurrently with PHYS 2070, and students should satisfy the same prerequisites as PHYS 2070 before taking this course. A student can receive credit for only one of the following courses: PHYS 2080 or PHYS 1160. Prerequisite: PHYS 2050 with a grade of "C" or better. 1 hour

PHYS 2140 Mechanics and Heat Problems  
This course is intended for those who have had PHYS 1130 General Physics I, or its equivalent at another school, and who need to show credit in PHYS 2050: University Physics I. The emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 2050. This course plus PHYS 1130 is equivalent to PHYS 2050. Prerequisites: Department approval, PHYS 1130 or equivalent, and (MATH 1710 or MATH 1230); MATH 1710 or MATH 1230 may be taken concurrently. A grade of “C” or better is required to satisfy any course prerequisite. 1 hour

PHYS 2150 Electricity and Light Problems  
This course is intended for those who have had PHYS 1150 General Physics II, or its equivalent at another school, and who need to show credit in PHYS 2070: University Physics II. The
emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 2070. This course plus PHYS 1150 is equivalent to PHYS 2070. Prerequisites: Department approval, PHYS 1150 or equivalent, (MATH 1710 or MATH 1230), and (MATH 2300 or MATH 2720); MATH 2300 or MATH 2720 may be taken concurrently. A grade of “C” or better is required to satisfy any course prerequisite. 1 hour

PHYS 2500 Waves and Optics This course covers the basic properties of mechanical and electromagnetic waves including extensive laboratory experience. Topics include: waves and the wave equation, wave energy, sinusoidal waves, reflection and transmission, waves in two and three dimensions, refraction, geometrical optics, interference, diffraction, polarization and spectroscopy. Prerequisite: PHYS 2070 with a grade of “C” or better. 3 hours

PHYS 3090 Introductory Modern Physics This course, with PHYS 2050/2060 and PHYS 2070/2080, completes the sequence making up the introductory courses in physics with calculus. Topics include special relativity, quantum physics, and atomic, nuclear, and solid state physics. Prerequisites: PHYS 2070 and (MATH 2300 or MATH 2720). A grade of “C” or better is required to satisfy any course prerequisite. 4 hours

PHYS 3100 Introductory Modern Physics Lab This is a laboratory course which includes exercises related to topics covered in PHYS 3090. This course should be taken concurrently with PHYS 3090, and students should satisfy the same prerequisites as PHYS 3090 before taking this course. Prerequisites: PHYS 2060 and 2080 with a grade of "C" or better. 1 hour

PHYS 3250 Introduction to Astrophysics This course is an introduction to modern astrophysics, and covers topics such as the properties of light and matter as relevant to astronomy; analysis of spectra; the properties, structure, and evolution of stars; binary stars; nucleosynthesis and supernovae; physics of white dwarf stars, neutron stars, and black holes; and basic cosmology. Prerequisite: PHYS 3090 and (PHYS 1060 recommended). A grade of “C” or better is required to satisfy any course prerequisite. 3 hours

PHYS 3300 Thermodynamics Classical equilibrium thermodynamics is developed from the macroscopic viewpoint. Postulates, empirically founded, are put forth and the consequences are developed and applied to systems of interest in physics and chemistry. Introductory kinetic theory with selected topics is also included, as is an introduction to quantum statistics. Prerequisite: PHYS 3090 with a grade of “C” or better. 3 hours

PHYS 3420 Electronics This course deals with analyses of transistor and integrated circuits and includes practical experience in the laboratory. There are three lectures and one 3-hour laboratory per week. A student cannot receive credit for both PHYS 3420 and ECE 2100. Prerequisite: PHYS 3090 with a grade of “C” or better (may be taken concurrently). 4 hours

PHYS 4200 Analytical Mechanics The topics studied include the dynamics of single particles and the motion of systems of interacting particles. Techniques of vector analysis are used frequently, and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisites: PHYS 2070 and MATH 3740 (MATH 3740 may be taken concurrently). A grade of “C” or better is required to satisfy any course prerequisite. 3 hours

PHYS 4220 Teaching and Learning of Physics This course is designed for future secondary school teachers of physics. Course content includes: physics problem solving and interactive and inquiry-based instruction. Students will also improve their understanding of physics topics relevant to the high school setting. The 4 credit hours course meets 6 hours each week, including demonstrations/lab work relevant to instruction in a high school setting. Prerequisite: PHYS 2070 with a grade of “C” or better. 4 hours

PHYS 4400 Electromagnetism This course provides an upper-level theoretical treatment of electromagnetic phenomena, using methods of vector calculus. Electro- and magneto-statics, induction, Maxwell's equations, and electromagnetic radiation are treated. Prerequisites: PHYS 3090 and MATH 5720 (MATH 5720 may be taken concurrently). A grade of “C” or better is required to satisfy any course prerequisite. 4 hours

PHYS 4600 Quantum Mechanics This is a first course in quantum theory. It treats the historical basis of the quantum concept in the theory of cavity radiation and the photoelectric effect. Topics include the Schroedinger wave equation, hydrogenic atoms, two-electron atoms, angular momentum coupling, and perturbation theory. Prerequisites:
PHYS 4660 Advanced Laboratory The objectives of this course are to provide the student with experience in the use of laboratory equipment and with an understanding of several important physical phenomena. The student will perform experiments in these three areas: atomic, solid state, and nuclear physics. A portion of the semester may be devoted to studying a problem in depth. The course consists of two three-hour laboratory periods each week. This course requires the student to complete several assignments which will demonstrate skills in technical writing. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: PHYS 3420 and PHYS 4600 (PHYS 4600 may be taken concurrently). A grade of “C” or better is required to satisfy any course prerequisite. 3 hours

PHYS 4980 Special Problems In this course a student works on a laboratory project or a reading project under the direction of a faculty member. May be repeated for credit. Prerequisite: Instructor approval. 1 to 3 hours

PHYS 5620 Atomic and Molecular Physics This course continues the study of the applications of quantum mechanics. Topics covered include the helium atom, multielectron atoms, the Raman, Zeeman, and Stark effects, stimulated emission, transition rates, selection rules, the diatomic molecule, and molecular physics. Open to upperclass and graduate students. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in these courses have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640. Prerequisite: PHYS 4600 or instructor approval. 3 hours

PHYS 5630 Solid State Physics After an initial study of symmetry and crystal structure, quantum mechanics is used to describe the cohesion of solids, x-ray and neutron diffraction, the elasticity of solids, lattice vibrations, and the thermal and electrical properties of solids, with particular emphasis on metals. Open to upperclass and graduate students. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in this course have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640. Prerequisite: PHYS 4600 or instructor approval. 3 hours

PHYS 5640 Nuclear and Particle Physics This course covers such topics as properties of nuclei, collision theory, nuclear reactions, nuclear models, fundamental interactions, and classification techniques used in particle physics. Discussions of experimental methods as well as theoretical treatments using quantum mechanics are included. Open to upperclass and graduate students. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in this course have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640. Prerequisite: PHYS 4600 or instructor approval. 3 hours

PHYS 5980 Selected Topics This course affords an opportunity for advanced students with good scholastic records in physics to pursue independently the study of some subject of interest to them. Open to upperclass and graduate students. This course is offered only to advanced physics majors. Department policy requires that undergraduates enrolling in this course have successfully completed all prerequisite studies prior to enrollment. The department recommends that physics majors who plan to enter a graduate college complete two of the following courses: PHYS 5620, PHYS 5630, or PHYS 5640. Prerequisite: Department approval. 1 to 4 hours

Political Science

PSCI 1050 Critical Thinking About Politics The application of critical thinking to the analysis of politics. The basic components of logical argumentation will be applied to the examination of a variety of political, social, economic and ideological issues. The course is designed to develop analytical reasoning and critical thinking skills necessary to process information about politics and policy so students can make decisions as informed citizens. This course satisfies General Education Proficiency 4: Critical Thinking. 3 hours

PSCI 2000 National Government An introductory survey of American national government. This course introduces the basic principles and theories of American government, explores the political process, describes the structure,
and illustrates its functions. Consideration is given to the relationships of government to the ethnic, religious, and cultural diversity of the American society. This course satisfies General Education Area III: The United States: Cultures and Issues.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>PSCI 2020</td>
<td>State and Local Government</td>
<td>A study of the institutions, the problems and the politics of policy making at the state and local levels in the United States. Consideration is given to the changing relations of state and local government to the total framework of government in the United States.</td>
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<tr>
<td>PSCI 2400</td>
<td>Comparative Politics</td>
<td>This course introduces students to the field of comparative politics, covering both its key substantive concepts and major theoretical and methodological approaches. The emphasis is on developing systematic comparisons of the political regimes, formal and informal institutions, political culture, and structure of power relations in different countries. This course satisfies General Education Area V: Social and Behavioral Sciences.</td>
</tr>
<tr>
<td>PSCI 2500</td>
<td>International Relations</td>
<td>A study of the nature of the international community and the forces which produce cooperation and conflict. Particular attention is given to analyzing power in terms of its acquisition and uses. This course satisfies General Education Area V: Social and Behavioral Sciences.</td>
</tr>
<tr>
<td>PSCI 2700</td>
<td>Political Topics</td>
<td>A specifically focused course dealing with a political topic of general student interest. The course will be primarily substantive rather than theoretical to accommodate students with no previous training in political science. The topic will be announced in advance. May be repeated for credit with a different topic.</td>
</tr>
<tr>
<td>PSCI 3000</td>
<td>Urban Politics in the United States</td>
<td>A study of those factors having an impact on the governing of American cities, including social and economic conditions in the cities, the organization of local political systems, and the actions of the state and federal governments. The principal focus will be on the city as a center of economic problems and social tensions that are largely the product of ethnic and cultural diversity. This course satisfies General Education Area III: The United States: Cultures and Issues.</td>
</tr>
<tr>
<td>PSCI 3040</td>
<td>Introduction to Public Policy</td>
<td>An introduction to the U.S. public policy process through the use of general models and case studies. Various inputs of power and influence are analyzed as proposals are considered in policy-making institutions. The roles of public officials, interest groups, lobbyists, opinion leaders, experts and others are analyzed. Evaluations of policies are made with respect to their perceived need, appropriateness and effectiveness. Prerequisite: PSCI 2000</td>
</tr>
<tr>
<td>PSCI 3060</td>
<td>Environmental Politics</td>
<td>An examination of the major legal, political, and bureaucratic forces influencing the development and implementation of environmental policy. Interactions between levels and units of government are analyzed. Effective modes of citizen participation and action, especially at the local level, are discussed throughout.</td>
</tr>
<tr>
<td>PSCI 3100</td>
<td>Political Parties and Elections</td>
<td>A study of the nature of politics, the organization and function of political parties and elections, and the elective process in the U.S.</td>
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<tr>
<td>PSCI 3110</td>
<td>American Politics and the Media</td>
<td>An examination and analysis of the basic features of the mass media and their relationship to American politics from both a political and historical perspective. Specific topics include the mass media as institutions in the American political system, media influence on politics, regulation of the media, private and concentrated ownership, and the growth of new media technologies such as cable, satellite and Internet. This course satisfies General Education Area V: Social and Behavioral Sciences.</td>
</tr>
<tr>
<td>PSCI 3140</td>
<td>The Presidency</td>
<td>A study of the presidency, including the White House staff and cabinet, the institutional and policy leadership of the president, and the politics of presidential selection.</td>
</tr>
<tr>
<td>PSCI 3150</td>
<td>The Politics of Congress</td>
<td>Examines the internal arrangements and the outside forces that impact upon the operations of the U.S. Congress. Emphasis is placed on explaining why Congress behaves as it does.</td>
</tr>
</tbody>
</table>
PSCI 3200 The American Judicial Process  An introduction to the politics of the American judicial process. The course will examine the judicial function generally with particular attention on the decisional processes, process participants, state and federal court structures, recruitment and selection of judges, bases of judicial behavior, policy making, and impact of judicial decisions. This course satisfies General Education Area III: The United States: Cultures and Issues.  4 hours

PSCI 3250 Criminal Justice Policy  An examination of various judicial, legislative and executive policy decisions which govern the criminal justice processes. The course will include extensive discussion of the political dynamics of the policy making processes.  3 hours

PSCI 3400 European Politics  This course provides a general survey of the political systems of the major European democracies. After a brief introduction to the history of modern Europe, the course examines the political development, institutions, and policies of the European Union and its member nations. This course satisfies General Education Area V: Social and Behavioral Sciences.  4 hours

PSCI 3410 The Politics of Sub-Saharan Africa  A systematic survey of the social, economic and political characteristics of the area. Political culture, institutions and processes, including both traditional and modern forms, are examined in detail. Major political problems dealing with political development are analyzed. This course satisfies General Education Area IV: Other Cultures and Civilizations.  4 hours

PSCI 3440 Russian and Central Asian Politics  Russia, a country encompassing eleven time zones, emerged from seven decades of Soviet Communism to pursue market economics and democratic transition. Central Asia, a sizable land mass in the heart of the Asian continent, has grown increasingly visible because of both its resources and its geo-strategic importance. This course will examine the emergence of these countries from communist authoritarianism and the institution, policies, and goals they have charted. This course satisfies General Education Area IV: Other Cultures and Civilizations.  4 hours

PSCI 3450 Latin American Politics  An introduction to the development and current context of politics in Latin America. Focuses on the effects of historical, cultural, economic, and political-institutional forces on present-day Latin American politics. Issues examined include patterns of economic and political development, revolution, dictatorship, and democracy, the politics of race and religion, women's movements, and globalization. This course satisfies General Education Area IV: Other Cultures and Civilizations.  4 hours

PSCI 3460 Women in Developing Countries  Women's socioeconomic and political role and status will be examined in relation to the impact of colonialism, forces of modernity, and developmental issues. This course satisfies General Education Area IV: Other Cultures and Civilizations.  4 hours

PSCI 3490 Chinese Politics  An introduction to China's domestic politics, political institutions, and foreign policy. Topics include the organization of political power, the party-state, authoritarianism, major political events, politics of economic reforms, and foreign policy.  3 hours

PSCI 3500 American Foreign Policy  An analysis of the institutions and processes by which the American people and their government determine and seek to achieve the national interest of the United States in the international community. This course satisfies General Education Area V: Social and Behavioral Sciences.  4 hours

PSCI 3510 Terrorism and Political Violence  An examination of the roots, tactics and types of terrorism, including both insurgent and state terrorism. Students will investigate terrorism as both a national and transnational phenomenon and examine a variety of counter-terrorist strategies ranging from addressing root causes to military responses.  3 hours

PSCI 3520 International Conflict  An introduction to the causes of war and the conditions of peace. Topics include theories of conflict, levels of analysis, origins of war, and case study.  3 hours

PSCI 3530 Women and Politics  This course examines how women's political mobilization and access to power varies across countries and why these differences exist. Few aspects of political life are as consistent across countries
as the numerical advantage men have over women in the halls of power. Students will study the institutional, cultural and economic sources and remedies to this inequality. 3 hours

PSCI 3600 Ancient Political Thought A survey of political philosophy as it developed in Classical Greece, Rome, Medieval Europe, the Reformation and the Renaissance. Emphasis placed on comparative analysis of political philosophies as they reflect the richly diverse sociocultural conditions of these periods. This course satisfies General Education Area II: Humanities. 3 hours

PSCI 3610 Modern Political Thought A survey of political philosophy from the seventeenth century to the middle of the nineteenth. Emphasis upon the great individual philosophers of this period and the early development of the major ideological systems of the modern period: conservatism, liberalism and socialism. This course satisfies General Education Area II: Humanities. 3 hours

PSCI 3620 Contemporary Political Ideologies A survey of influential political ideologies, focusing on their historical roots as well as their contemporary manifestations. Liberalism, conservatism, socialism, anarchism, fascism and feminism are among the ideologies surveyed. This course satisfies General Education Area II: Humanities. 3 hours

PSCI 3630 American Political Theory An exposition and critical analysis of American political thought from the Puritans to the contemporary period, with primary emphasis on concepts of democracy, liberty, and property, and on varieties of liberalism and conservatism. This course satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

PSCI 3700 Issues in Contemporary Politics This course is designed for the study of contemporary political problems. It is intended to provide opportunity for the study of political phenomena normally beyond the scope of regular departmental offerings. Essentially the course relates the theory and principles of political science to practical politics. The course may be applied to the appropriate field distribution requirement. Topics will vary from semester to semester. May be repeated for credit. 3 to 4 hours

PSCI 3900 Field Work in Political Science An opportunity for students of Political Science or Public Administration to test theoretical and practical knowledge in an internship situation under the supervision of a faculty sponsor and a public or public-related official. May be repeated for credit. Graded on a Credit/No Credit basis. Prerequisites: Students wishing to apply must have a minimum of fifteen hours in Political Science and department approval before registering. Approved application required. 1 to 12 hours

PSCI 3910 Internship Seminar An undergraduate seminar taken in conjunction with Field Work in Political Science (PSCI 3900). An emphasis will be placed on readings that analyze the administrative realm and also focus on recent political, economic, and social developments. Interns also will discuss their field experiences. Prerequisite: Department approval. 3 hours

PSCI 3950 Data in Politics and Policy This course provides an introduction to the basic computer skills and statistical methods employed by political scientists involved in empirical research; it provides students with the working ability to read, understand and correctly interpret empirical analyses which employ these methods; and it provides a better appreciation for political science as a science, i.e., the limitations and achievements inherent in the attempt to study political phenomenon through the process of quantification. Basic univariate and bivariate analyses with computer applications will be covered. Prerequisite: One of the following: MATH 1140, MATH 1160, MATH 1180, MATH 1500, MATH 1900, MATH 2000, STAT 1600 or STAT 3660. 3 hours

PSCI 4050 Public Policy and the Economy This seminar focuses on the practices and institutions that make up the political economy of the United States. Topics include several of the following: measuring and monitoring economic performance; monetary policy and the Federal Reserve; taxes, spending and the national debt; trade policy; financial services regulation; the distribution of income and wealth; assessing the performance of public programs; and the condition of the public service. Writing, analysis and presentation skills are emphasized. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: PSCI 3040 with a grade of "C" or better, or instructor approval. 3 hours
PSCI 4200 Constitutional Law  Study of leading American constitutional principles as they have evolved through major decisions of the U.S. Supreme Court. Emphasis on judicial review, federalism, separation of powers, commerce and taxation. Course is designed to expose students to judicial cases so they understand the legal analyses employed by the Supreme Court within different political contexts.  Prerequisite: Sophomore status. 3 hours

PSCI 4210 Gender and Law  An analysis and description of the law and women (as well as other groups). Specific topics include coverture, the Equal Protection clause, the Civil Rights Act, affirmative action, sexual harassment and discrimination, Title IX and abortion. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  Prerequisites: Twelve hours in Political Science courses. 3 hours

PSCI 4220 Civil Rights and Liberties  Use selected Supreme Court rulings to enable students to understand how individual rights are protected under the U.S. Constitution, particularly based on due process and equal protection. Course is designed to expose students to cases on civil liberties so they understand the legal analyses employed within particular contexts by the judiciary.  Prerequisite: Sophomore status. 3 hours

PSCI 4230 The First Amendment  Course will use selected Supreme Court rulings to enable students to understand how individual rights guaranteed in the First Amendment, including the right to freedom of speech, press, and religion are protected under the U.S. Constitution. Course is designed to expose students to cases on the First Amendment so they understand the legal analyses employed within particular contexts by the judiciary. 3 hours

PSCI 4240 Environmental Law  Surveys the major federal statutes and regulatory schemes relating to environmental quality; analyzes and compares the contrasting approaches to regulation with focus on the interaction of Congress, the regulatory agencies, and the courts in defining and implementing environmental mandates. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.  Prerequisite: Twelve hours in political science courses. Cross-listed with ENVS 4150. 3 hours

PSCI 4400 The European Union  This course introduces students to the history, institutions, and policies of the European Union (EU). It surveys European integration since 1945 and examines the structure and functioning of the major institutions of the EU. Selected EU policies, such as economic, monetary, and foreign policy, will be analyzed in case studies. The class concludes with a discussion of possible futures of the European Union and the importance of European political integration for global politics. 3 hours

PSCI 4410 Issues in International Politics  The variable topics course will treat an issue or theme central to the study of international and/or comparative politics. The actual topic of the course will be announced in the Schedule of Course Offerings. The issue will be cross-cultural and be examined on a global scale. May be repeated for credit when topics vary. 3 hours

PSCI 4420 Studies in International Politics  This variable topics course will be a case study of a single country or region that illustrates broader themes in the study of international and comparative politics. The actual case study (or studies) will be announced in the Schedule of Course Offerings. May be repeated for credit when topics vary. 3 hours

PSCI 4500 Seminar in International and Comparative Politics  Designed to be a capstone to the concentration in International and Comparative Politics, this seminar will examine in detail a theme in cross-national or international politics. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: PSCI 2400 and PSCI 2500; and at least one course in the 3400, 3500, or 4400 series. 3 hours

PSCI 4920 Political Science Honors Research  Honor students, with the guidance of a faculty advisor, conduct research and write the Honors Paper on a topic of individual interest. May be repeated for credit. Prerequisite: Membership in the Political Science Department Honors Program and approved application required. 2 to 3 hours

PSCI 4940 Seminar in Political Science  An undergraduate seminar for Political Science majors seeking to fulfill the baccalaureate-level writing requirement. The topic of the seminar varies and will be announced in advance. At least one-third of the final grade will be determined on the basis of writing performance. This course satisfies
General Education Proficiency 2: Baccalaureate-Level Writing. May be repeated for credit under different topics. Restricted to students majoring in Political Science. Prerequisite: Twenty-one hours in Political Science courses. 3 hours

PSCI 5060 Topics in American Politics A critical examination of selected issues facing national, state, or local government with emphasis upon contemporary theoretical and applied perspectives on the question. May be repeated for credit when topics vary. Open to upperclass and graduate students. Prerequisite: Junior standing, PSCI 2000, either (PSCI 2400 or PSCI 2500), and two additional courses in Political Science. 3 hours

PSCI 5320 Administration in Developing Countries This course compares public administration systems in a development context. It analyzes the role of the administrator in middle- and low-income countries, notably the administrator's varied responsibilities as a career public official, and as an agent of change. The course will cover administration of development projects in both rural and urban settings and discuss different strategies that have worked. Open to upperclass and graduate students. Prerequisites: Junior standing, PSCI 2000, either (PSCI 2400 or PSCI 2500), and two additional courses in Political Science. 3 to 4 hours

PSCI 5490 Gender and Development This course examines the role of gender in the development process. A theoretical and empirical perspective will be used to analyze gender inequalities in the developing world. Open to upperclass and graduate students. 3 hours

PSCI 5530 United Nations A study of the United Nations in action. Attention is focused on significant political problems confronting world organization, i.e. functional and dysfunctional aspects of the UN Charter; nationalism vs. internationalism within the UN; conflict resolution and UN peace-keeping efforts; specific UN accomplishments in maintaining a dynamic international equilibrium; UN weakness and the future of world organization. Open to upperclass and graduate students. Prerequisites: Junior standing, PSCI 2000, either (PSCI 2400 or PSCI 2500), and two additional courses in Political Science. 3 hours

PSCI 5980 Studies in Political Science An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Approved application, approval of department chairperson and instructor. 1 to 4 hours

Psychology

PSY 1000 General Psychology An eclectic approach to a social and behavioral survey of major topics in psychology, including learning, motivation, intelligence, personality, mental illness, and social relations. This course satisfies General Education Area V: Social and Behavioral Sciences. 3 hours

PSY 1100 Operant Conditioning Laboratory An introductory lab for Honors College Students taking PSY 1000. Students will participate in lab exercises that illustrate operant and respondent principles of behavior. Co-requisite: PSY 1000, Honors College Section. 1 hour

PSY 1400 Introduction to Behavior Analysis Provides the foundation for many of the other courses in the Psychology major, by introducing students to the principles of conditioning and learning, and behavior analysis concepts that can be applied to clinical, counseling, school, experimental, child, sports, community, and industrial psychology, as well as autism, psychoses, anorexia, phobia, ethics, religion, gender, procrastination, sexual behavior, drug use, speech pathology, developmental disabilities, social work, special education, behavioral medicine, animal training, juvenile corrections, and everyday life. 4 hours

PSY 1401 Introductory Operant Conditioning Laboratory This course is designed as a companion laboratory for students enrolled in PSY 1400. It is also intended for transfer students who have completed an equivalent of PSY 1400 at another institution. Students will participate in hands-on exercises to illustrate operant conditioning principles of behavior. Restricted to majors and minors in psychology. Prerequisite: PSY 1400 (may be taken concurrently). 1 hour
PSY 1402 Preliminary Autism Practicum
Supervised experience in the application of principles of behavior analysis to the behavioral and educational problems of children with developmental delays. Students serve as tutors in behavior change and training programs. Prerequisite: Instructor approval. 1 to 3 hours

PSY 1403 Autism Practicum
Supervised experience in the application of behavior analysis and behavior management principles to improve the social, academic and adaptive behavior of children diagnosed with developmental delays. Restricted to majors and minors in psychology. May be repeated for credit. Prerequisite: PSY 1400 and PSY 1402 (with a grade of "B" or higher in all prerequisites); or instructor approval. 3 hours

PSY 1600 Child Psychology
An introduction to behavior principles in the analysis of complex behavior with an emphasis upon early childhood learning and the techniques for enhancing children's development. Topics include mental retardation, behavioral problems in childhood, emotional development and language learning. Prerequisite: PSY 1000 with a grade of "C" or better. 3 hours

PSY 2500 Abnormal Psychology
An introduction to the description, classification and interpretation of human behavior labeled by society as "abnormal" with an emphasis on the social variables and environmental conditions related to the acquisition and persistence of such behavior. Prerequisites: PSY 1000 with a grade of "C" or better. 3 hours

PSY 2517 Applied Behavior Analysis in Autism and Developmental Disabilities
A survey of the behavioral approaches for working with individuals with autism and developmental disabilities. Topics will include historical background, diagnosis, assessment, and evidence-based interventions. Restricted to majors in psychology. Prerequisites: PSY 1400 (with a grade of "B" or better) or PSY 3600. 3 hours

PSY 3000 Research Methods and Statistics
An introduction to quantitative methods and analytical techniques utilized in behavior research, including design of research, data analysis, and interpretation of inferential statistics. Major topics include selection of target behavior, generation of research questions, experimental variables, basic between-subject and within-subject designs, measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory, hypothesis testing, the t-test, and ANOVA. Restricted to majors in psychology. Prerequisites: PSY 1000, PSY 1400, and MATH 1090 (or equivalent) or current listed test scores in Banner or MATH 1100 or MATH 1140 or MATH 1160 or STAT 1600 or STAT 2160 or STAT 3660, with a grade of "C" or better in all prerequisites. (PSY 1400 may be taken concurrently.) 3 hours

PSY 3240 Abnormal Child Psychology
This is a course for psychology majors and minors. The course provides a topical survey of the area of abnormal child psychology. The lectures introduce description, classification, and treatment of behaviors considered "abnormal" or atypical for children and adolescents. Topics include common childhood problems like ADHD, oppositional behavior, eating disorders, and depression. Prerequisites: PSY 1000 and PSY 1600, with a grade of "C" or better in all prerequisites. 3 hours

PSY 3260 Forensic Psychology
Course will provide an introductory overview of the field of forensic psychology. Forensic psychology is the overlap between the field of psychology and the legal profession. Areas of interest to the forensic psychologist include but are not limited to: expert witnesses' for child custody disputes, domestic violence, sexual assault, and insanity defenses; competency to stand trial evaluations, police officer selection and training, eyewitness testimony, sentencing recommendations, and jury consultation. Material will be covered through lecture and class discussions, guest lectures, and by viewing selected audio-visual materials. The material is intended to introduce the roles and responsibilities of a forensic psychologist. Prerequisites: PSY 1000 and PSY 2500. 3 hours

PSY 3300 Advanced Research Methods
An extended examination of advanced quantitative methods utilized in behavioral research. Topics include interobserver agreement, social validity, causal inference, quasi-experimental and experimental group designs, within-subject designs (e.g., reversal, multiple-baseline), and professional research formatting. A strong emphasis will be placed on writing research papers for professional audiences. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors in Psychology. Prerequisite: PSY 3000 with a grade of "B" or better. 3 hours

PSY 3440 Organizational Psychology
This course focuses on performance management and improvement techniques that are based on the principles of behavioral psychology. Environmental change strategies are
emphasized. While the course focuses on behavioral applications in the work environment, other theoretical orientations are surveyed. Topics covered include personnel management, employee motivation, job satisfaction, the effects of compensation practices on employee behavior, and leadership. Prerequisite: PSY 1000 with a grade of "C" or better.

3 hours

PSY 3456 Behavioral Approaches to Sustainability  An introduction to sustainability from a behavioral science perspective. Contributions made by psychologists to sustainability and the general well-being of the community will be emphasized. Major topics include behavioral change at the community level, community health & safety, recycling, conservation, and strategies for promoting community involvement. Prerequisite: PSY 1000 with a grade of "B" or better.

3 hours

PSY 3517 Educational Psychology  This course will provide an overview of the applications of psychology in the field of education. Topics that will be addressed include an overview of the school system, educational theory, Response to Intervention (RtI), evidence-based educational programs and techniques (e.g., Direct Instruction, Precision Teaching), components of effective instruction, assessing for academic performance and learning difficulties, School Wide Positive Behavioral Interventions and Supports (SWPBIS), and classroom management strategies. Prerequisite: PSY 1400 with a grade of "B" or better.

3 hours

PSY 3550 Teaching Apprenticeship in Psychology  A laboratory course in the instructional methods of teaching psychology. May be repeated for credit, but does not fulfill major/minor requirements. Prerequisite: Instructor approval.

1 to 4 hours

PSY 3600 Advanced Concepts and Principles of Behavior Analysis  In this course students will learn advanced concepts and principles of behavior analysis derived from basic human and non-human research. Topics will include empirical and theoretical issues related to operant and respondent conditioning, stimulus control, schedules of reinforcement, choice and behavioral economics, motivational and emotional variables, evolutionary bases of behavior, applications of basic principles, and complex behavioral processes. Restricted to majors in Behavioral Science. Prerequisite: PSY 3300 with a grade of "B" or better.

3 hours

PSY 3601 Advanced Operant Conditioning Laboratory  This course is designed as an advanced laboratory course examining the application of operant conditioning procedures. Students will participate in advanced hands-on exercises to illustrate operant conditioning principles of behavior. Restricted to majors in Behavioral Science. Prerequisite: PSY 1401 and PSY 3600 (may be taken concurrently), with a grade of "B" or better in all prerequisites.

3 hours

PSY 3621 Self-Management  Provides supervised practice in the application of behavioral self-management strategies to improve performance in academic, health or social aspects of a student’s life. May be repeated for credit. Prerequisite: Instructor approval.

1 hour

PSY 3655 Behaviorism and Psychology  Familiarize students with B.F. Skinner's conceptual model of behavior known as “behaviorism”. Students will learn about recent advances and refinements in this conceptual model. Students will also contrast this conceptual model with other conceptual models (e.g., cognitive psychology, trait based psychology) as applied to important psychology concepts such as perception, language and thinking, self-control, private events, feelings and emotions. Restricted to majors in Psychology, Behavioral Science and General Psychology; or instructor approval. Prerequisite: PSY 1400

3 hours

PSY 3720 Behavioral Neuroscience  An introduction to physiology and its relationship to behavior, including brain behavior interactions, behaviorally induced chemical changes and behavioral changes induced by chemical alterations. May be taken concurrently with PSY 3780. Restricted to majors in psychology or instructor approval. Prerequisites: PSY 3000 with a grade of "C" or better. A previous course in biology or chemistry is helpful but not required.

3 hours

PSY 3780 Behavioral Neuroscience Research Practicum  An intermediate laboratory and companion to PSY 372 emphasizing the acquisition of laboratory techniques, surgical skills and research methodology in physiological psychology and brain behavior interactions. Laboratory procedures, research methodology, data analysis and professional
writing are stressed. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisite: PSY 3720 with a grade of “C” or better (may be taken concurrently).

PSY 3844 Professional and Career Development  
Course will familiarize students with tools and techniques that will aid them in career development and professional success in psychology (and other related fields). Major topics include career specializations in psychology, active exploration of career and educational options, professional resume and portfolio creation, steps for connecting with employers and other professionals, proper interviewing etiquette, the development of self-regulatory skills, successful goal setting, comprehensive strategies for self-change, and problem-solving obstacles. Course coverage is designed to assist the student in achieving their immediate goals for academic success while in college, and will ultimately prepare them for achieving their long-term goals for securing employment or attending graduate school after graduation. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors in psychology, or instructor approval. Prerequisite: PSY 1000 with a grade of "B" or better (may be taken concurrently). 3 hours

PSY 3960 Topical Studies in Psychology  
A course on selected topics in psychology. Topics may include basic science and applied aspects of the discipline. May be repeated for credit. Prerequisite: PSY 1000 and instructor approval. 1 to 3 hours

PSY 3970 Practicum in Psychology  
Supervised experience at a community based mental health site as announced in the Schedule of Course Offerings or as approved by the undergraduate advisor. Corresponding seminar sessions provide structure and integration of the experience with other practicum experience. This course may be repeated for credit with different experiences. Prerequisites: Application and department approval; see undergraduate advisor. 1 to 5 hours

PSY 3980 Independent Study  
This course provides the undergraduate student with the opportunity for independent reading and/or research under the direction of a Department staff member. May be repeated for credit up to 12 hours. Prerequisites: Application and department approval; see UG advisor. 1 to 5 hours

PSY 3990 Research Apprenticeship: Psychology  
A laboratory course in the methods of conducting psychological research. May be repeated for credit, but does not fulfill major/minor requirements. Prerequisite: PSY 1000 with a grade of “C” or better and instructor approval. 1 to 4 hours

PSY 4010 Graduate School Preparation  
This course provides supervised guidance in researching and selecting Psychology Graduate Training Programs. Students will receive coaching on preparing application materials, meeting application deadlines, preparing vitas and resumes and personal statements, and studying for advances tests such as the Graduate Record Exam (GRE). Prerequisite: Junior standing. 1 hour

PSY 4240 The Psychology of Human Sexuality  
This is a course for non-majors and for minors in Psychology only. It cannot be applied towards the requirements for the Psychology major. The course provides a topical survey of the area of human sexual functioning. Lectures are supplemented by directed discussions, invited guest presenters, and exercises designed to prompt students to explore their own assumptions and experiences with this aspect of human behavior. Topics include sex, sexuality, and reproduction. Restricted to non-majors only. Prerequisites: PSY 1000 and PSY 2500. 3 hours

PSY 4280 Psychology of Aging  
This is a course for psychology majors and minors. The course provides a topical survey of the area of human aging. Lectures are supplemented by course projects, invited speakers, and homework exercises that are designed to increase student familiarity with social, physical, and psychological issues associated with human aging. Topics include physical health, mental health, and dementia. Restricted to declared major or minor in psychology. Prerequisites: PSY 1000, PSY 1600, and PSY 2500. 3 hours

PSY 4526 Human Drug Use and Abuse  
This course provides a general overview of basic pharmacological principles, discusses the behavioral and physiological mechanisms of action of several classes of medicinal and recreational drugs, and surveys the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, non-human research findings will be emphasizes where appropriate. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Cross-listed with PSY 5260. Open to upperclass students only. Restricted to majors in General Psychology or Behavioral Science.
Prerequisite: PSY 3000 with a grade of "C" or better. 3 hours

PSY 4574 Cross Cultural Psychology This course is designed to introduce the psychology major to the general area and basic concepts of Cross Cultural Psychology. Through readings and lectures, the students will become familiar with the role culture plays in various indigenous psychologies including those commonly found in Western, Japanese, Chinese, Arabic, and African cultures. This course is specifically not a course in American ethnicity. It will instead explore a variety of world cultures in search of an understanding of how human behavior is interpreted according to cultural tenets that are unique to a region's history and evolution. The course will also examine the importance, especially in contemporary Western society, of professional psychologists developing more than casual familiarity with predominant indigenous psychologies. The plight of persons undergoing increasingly forced and voluntary migration in today's world provides one foundation for exploring the need for such understanding. The course will prepare the student to read and interpret the psychological literature from several cultures, to conduct library research addressing the influence of culture on the interpretation of human behavior, and to appreciate the importance of cultural considerations in the wide variety of psychological specialties. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Cross-listed with PSY 5740. Open to upperclass students only. Restricted to majors in General Psychology or Behavioral Science. Prerequisite: PSY 3000 with a grade of "C" or better, or instructor approval. 3 hours

PSY 4595 History of Psychology The historical and philosophical foundations of contemporary American psychology. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Cross-listed with PSY 5950. Open to upperclass students only. Restricted to majors in General Psychology or Behavioral Science. Prerequisite: PSY 3000 with a grade of "C" or better. 3 hours

PSY 4600 Survey of Behavior Analysis Research An overview of diverse topics of behavior analysis research and applications. Topics include: clinical psychology, child psychology, behavioral medicine, environmental quality, developmental disability, education and geriatrics. Restricted to majors in psychology: behavioral science. Prerequisites: PSY 3600 with a grade of "B" or better. 3 hours

PSY 4630 Health Psychology A behavior analysis approach to the management of behaviors directly and indirectly affecting health. Emphasis will be placed on out-patient, public health applications and preventive approaches in health maintenance. Restricted to majors or minors in psychology, or instructor approval. Prerequisites: PSY 1000 and PSY 1600. 3 hours

PSY 4990 Honors Projects in Psychology Independent study and research projects completed under the supervision of a faculty member and coordinated with the Department Honors Program. The course requires completion of a project, including a written report and oral presentation of the project. See Undergraduate catalog for requirements for graduation with Honors in Psychology. Course may be repeated for up to 9 hours. Prerequisite: Overall GPA of 3.0 or higher and instructor approval. 1 to 5 hours

PSY 5100 Advanced General Psychology Readings, lecture and discussion designed to introduce non-majors in psychology to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes. Open to upperclass and graduate students. Prerequisite: Instructor approval. 3 hours

PSY 5170 Psychology in the Schools Provides an overview of psychology in the schools, with an emphasis on interventions for children or adolescents presenting difficulties with learning or behavior. This course will provide an overview of how to design, implement, and evaluate interventions in schools for individual and groups of children. An overview of the role of the school psychologist will be provided. Open to upperclass and graduate students. Restricted to majors in Pre-Psychology, General Psychology or Behavioral Science; masters or doctoral students in psychology; or instructor approval. 3 hours

PSY 5240 Human Sexuality In this course students will learn about the range of human sexual behaviors. Topics covered will include anatomical and physiological functioning as well as psychological aspects of sexual behavior. Class time will involve lectures, discussions, in-class activities, videos, and guest speakers. The course is not intended to provide therapy training. Open to upperclass and graduate students. Restricted to majors in General Psychology or Behavioral Science; masters or doctoral students in psychology; or instructor approval. 3 hours
PSY 5260 Human Drug Use and Abuse  This course provides a general overview of basic pharmacological principles, discusses the behavioral and physiological mechanisms of action of several classes of medicinal and recreational drugs, and surveys the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, non-human research findings will be emphasized where appropriate. Open to upperclass and graduate students. Restricted to masters or doctoral students in psychology. Prerequisite: PSY 3300 3 hours

PSY 5400 Psychology of Safety  The purpose of this course is to teach students about current research and trends in the psychology of safety. Students review, critically analyze and discuss current trends in safety research, including behavior-based safety, injury/illness prevention and other relevant topics. Students receive training in the application of behavioral principles to solve specific safety problems in organizations through changing behavior and improving performance. Open to upperclass and graduate students. Restricted to majors in Pre-Psychology or Behavioral Science; masters or doctoral students in psychology; or instructor approval. Prerequisite: PSY 3440 with a grade of "B" or better. 3 hours

PSY 5470 Practicum: Organizational Performance Improvement  Training in the application of principles of behavior to solve specific organizational problems through changing behavior and improving performance. Students conduct a performance improvement project in a local organization and empirically evaluate the results. The practicum site is obtained by the student, and with the assistance of the instructor. Practicum students meet as a group frequently with the instructor to discuss and troubleshoot the projects. Open to upperclass and graduate students. Prerequisite: Instructor approval. 3 hours

PSY 5480 E-Learning Practicum  This course covers the application of behavioral and learning principles to the design and evaluation of education and training programs via computer or over the web. Open to upperclass and graduate students. Prerequisites: Instructor approval. 3 hours

PSY 5490 Instructional Design  Will cover the basic principles and techniques of effective instruction and training as applied to a wide variety of settings, including K-12 education, higher education and personnel training. Open to upperclass and graduate students. Restricted to majors in Behavioral Science; masters or doctoral students in psychology. 3 hours

PSY 5610 Introduction to Clinical Psychology  This course addresses the subdiscipline of clinical psychology in a manner that provides the psychology major with useful information regarding it as a potential specialty. In addition to coverage of contemporary professional activity engaged in by specialists in this field, like practice and research, it addresses career development issues such as selecting graduate schools, training models used by universities and private schools, internship training, licensure and the types of degrees granted. It is a course appropriate for mid to upper level undergraduates and graduate students who are returning to study after having been away from the field for some time. Open to upperclass and graduate students. Restricted to majors in Pre-Psychology, General Psychology or Behavioral Science; masters or doctoral students in psychology. Prerequisite: PSY 3300 or instructor approval. 3 hours

PSY 5740 Cross Cultural Psychology  This course is designed to introduce the psychology major to the general area and basic concepts of Cross Cultural Psychology. Through readings and lectures, the students will become familiar with the role culture plays in various indigenous psychologies including those commonly found in Western, Japanese, Chinese, Arabic, and African cultures. This course is specifically not a course in American ethnicity. It will instead explore a variety of world cultures in search of an understanding of how human behavior is interpreted according to cultural tenets that are unique to a region's history and evolution. The course will also examine the importance, especially in contemporary Western society, of professional psychologists developing more than casual familiarity with predominant indigenous psychologies. The plight of persons undergoing increasingly forced and voluntary migration in today's world provides one foundation for exploring the need for such understanding. The course will prepare the student to read and interpret the psychological literature from several cultures, to conduct library research addressing the influence of culture on the interpretation of human behavior, and to appreciate the importance of cultural considerations in the wide variety of psychological specialties. Open to upperclass and graduate students. Restricted to masters or doctoral students in psychology; or instructor approval. Prerequisite: PSY 3300 or instructor approval. 3 hours

PSY 5950 History of Psychology  The historical and philosophical foundations of contemporary American psychology. May be repeated for credit. Open to upperclass and graduate students. Restricted to masters or
doctoral students in psychology; or instructor approval. Prerequisite: PSY 3300 with a grade of “C” or better.

3 hours

PSY 5970 Topical Studies in Psychology A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. Course may be repeated for credit although the total number of credits may be limited by the degree program. Students should consult the program advisor. Open to upperclass and graduate students. Restricted to Psychology majors. Prerequisite: Junior standing, PSY 3600 (Concepts and Principles of Behavior Analysis), and PSY 3300 (Behavioral Research Methods). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis. 1 to 4 hours

PSY 5980 Special Projects in Psychology This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member. May be repeated for credit, although the total number of hours in a degree program may not exceed 5 hours. Open to upperclass and graduate students. Prerequisite: Application and instructor approval. 1 to 5 hours

PSY 5990 Practicum in Psychology In-depth training in the application of the principles of behavior to a specific and restricted problem area in the discipline. The practicum application is often identified by the location of the research site or professional service agency published in the Schedule of Course Offerings. Each hour of credit requires 100 clock hours. May be repeated for credit, although number of credits may be limited by program requirements. Open to upperclass and graduate students. Restricted to majors in General Psychology or Behavioral Science; masters or doctoral students in psychology. Prerequisite: PSY 3300 with a grade of “C” or better and instructor approval. 1 to 4 hours

Comparative Religion

REL 1000 Religions of the World An approach to the religions of the world which surveys themes in various religious traditions (such as Judaism, Christianity, Islam, Hinduism, Buddhism and primitive religions). The course studies how these religious traditions conceive of gods and world order, founders and saviors, religious experience and practice, and religious communities. The course will pay attention to the contemporary status and significance of these themes. This course satisfies General Education Area II: Humanities. 4 hours

REL 2000 Thinking About Religion An introduction to some of the ways in which both academics and the people they study have thought about and used "religion" and related concepts. Students will compare and evaluate scholars' efforts to define, describe, interpret, and explain religion(s), as well as analyze case studies illustrating the roles that religion has played in human history and culture. Much of the assessment for this course involves writing. This course satisfies General Education Proficiency 4a: Advanced Writing. Prerequisite: ENGL 1050 or equivalent. 4 hours

REL 2010 Buddhism An introduction to the panorama of Buddhist traditions in South, Southeast, Central and East Asia, as well as in the United States. We will study the history of Buddhism, its characteristic doctrines and teachings, and try to assess the impact it has had on Asian civilizations and elsewhere. We will read scholarly studies on the traditions as well as original Buddhist texts in translation. This course satisfies General Education Area IV: Other Cultures and Civilizations. 4 hours

REL 2020 Religion in China Compared to the relatively recent appearance of China as a nation state, its written history started over three millennia ago. Many different peoples have dwelled in the geographical area that today is called China, the ethno-political borders of which have long been fluid. These peoples have produced and preserved a rich repertoire of diverse ideas and practices that may be categorized as religious. This course traces the history of the major religious traditions, including Confucianism, Daoism, and Buddhism, that have developed in and adapted to China. The emphasis of the class is on the way that these traditions have been perceived and received in different historical contexts. By introducing how these traditions affected past people’s lives, this class aims to lead students to a historically better-informed understanding of the religious aspect of people’s life in contemporary China. This course satisfies General Education Area IV: Other Cultures and Civilizations. 4 hours

REL 2030 Religion in Japan A study of the historical continuity and overall unity in the Japanese religious tradition. The major organized religions of Shinto and Japanese Buddhism, and also the influence of Taoism, Confucianism, and Christianity are discussed. Also taken up are the informal religious movements of “ancestor worship,”
family religion, and state religion. An attempt is made to assess the role and significance of religion in Japanese culture. This course satisfies General Education Area IV: Other Cultures and Civilizations.  

REL 2040 Religion in India  Provides a survey of religion in India, focusing mainly on the major religious traditions native to India, i.e., Hinduism, Buddhism, Jainism, and Sikhism. Examines social and political contexts in which these traditions have arisen and developed, and examines examples of religious literature, art, architecture, music, ritual, and spiritual discipline. This course satisfies General Education Area IV: Other Cultures and Civilizations.  

REL 2050 Christianity  Provides a selective but wide-ranging survey of Christianity, tracing developments in Christian thought, practices, institutions, and expression, and emphasizing study of primary sources within their social and cultural contexts. Aims to enhance students’ knowledge of persons, groups, events, texts, and ideas that have contributed significantly to Christian history, and their appreciation for the diversity of forms that Christian discourses and practices have taken. This course satisfies General Education Area II: Humanities.  

REL 2065 Islam in America  Explores the histories of the creation and engagement of Muslim communities in the United States. Investigates trends in immigration and conversion, life styles, rituals, beliefs, and the diverse roles of women in American Islam. The aim of the course is to examine deeper questions about the relationship between religion and politics, pluralism, and representations of Islam in the media. This course satisfies General Education Area III: The United States: Cultures and Issues.  

REL 2070 Judaism  Traces the development of Judaism from its roots in the Ancient Near East to the present, and examines the role of this religion and its practitioners in world history. Particular attention is given to periods of social, political, and cultural change in Jewish history and hence to the problem of Jewish identity. Attention is given to Jewish writings, customs, and institutions from many periods and places, as well as social movements and political revolutions that have significantly impacted the history of Judaism. This course satisfies General Education Area II: Humanities.  

REL 2080 Religion in Europe  Selective yet thorough historical and topical survey of religion on the continent of Europe. Topics covered include ancient “tribal” religions such as the Roman, Celtic, and German/Norse; the intertwined history of forms of Christianity, Islam, and Judaism in the Middle Ages; the redefinitions of religion and its place in society marked by the Reformation and the Enlightenment; and major events and movements of modern European history that have impacted or involved religion, such as the French Revolution, World Wars, and Cold War. This course satisfies General Education Area V: Social and Behavioral Sciences.  

REL 3015 Christianity in the United States  Since its founding, the United States has been dominated by the Christian tradition, although at no time has the tradition been monolithic. The goal of this course therefore is to introduce students to the wide range of Christian groups in the United States from the colonial period to the present. We will explore the process of Protestant denominationalism in this country, the rise of Evangelicalism, and the growth of the Roman Catholic Church. We will also be exploring some broad themes that cut across confessional boundaries: ethnicity, race, and religion; issues of church and state; and the tensions between religious conservatives, religious liberals, and secularists. This course satisfies General Education Area III: The United States: Cultures and Issues.  

REL 3025 The Qur’an  An overview of the central religious text in Muslim societies, the Qur’an. In it the major Qur’anic themes are outlined and the historical and cultural context of its creation is described. It provides a close look into the multiple interpretations that have brought the Qur’an to life in social action. The course also goes beyond the text itself to look at the Qur’an as it is utilized in ritual and practice as well as in art and architecture. This course satisfies General Education Area IV: Other Cultures and Civilizations.  

REL 3111 Superhero Comic Book Religion  This course examines themes pertaining to religion, gods, and myths as they relate to mainstream superhero comic books. Questions we will explore include: How do superheroes resemble and function like gods of traditional religions and mythologies? What does it mean to refer (as many do) to superhero narratives as modern mythology? What are the explicit and implicit theologies and cosmologies of comic book universes? How are gods and other super-powered figures from real-world religions incorporated into superhero stories? How are religious themes and specific religions depicted in superhero comics? What meanings and significance do religious readers of superhero comics find in these stories? Do superhero comics serve as media of religious expression, or even as sources of
religious identity? How do fan cultures, in their organizations, practices, and discourses, compare with religious ones? To explore such questions, we will look at sources for the perspectives not only of comic book producers (graphic novels, comic collections, interviews, press releases), but also of consumers (fan letters, fanzines, reviews, blogs, discussion forums) and scholars (academic histories, analysis, and criticism). This course satisfies General Education Area II: Humanities.

4 hours

REL 3115 Myth and its Study Provides students with the opportunity to study and compare a selection of myths and mythological systems from throughout the world and history, and to consider a variety of academic and other sorts of discourses about myth, its nature, forms, functions, and value. This course satisfies General Education Area II: Humanities. 4 hours

REL 3145 New Religious Movements New Religious Movements (NRMs) are those religious movements such as Mormonism and Soka Gakkai that have arisen during the modern period (roughly from the 17th century on). This course will explore a wide range of NRMs in order to ask the question, in what ways do NRMs reflect modern themes and concerns? To this end, the course will begin with a discussion of theories of modernity and the sociology of NRMs, and then apply these theories to detailed case studies of particular NSMs. The specific case studies will vary depending on the professor. This course satisfies General Education Area V: Social and Behavioral Sciences.

4 hours

REL 3155 Religion and Conflict Explores the “contact zones” between religion, culture, and politics to understand the dynamics of social tensions, collaborations, conflicts, integrations, and conversions. Particular attention will be given to the pivotal role religious communities play in debates on democracy, justice, ethnicity, gender, education, and identity. It examines the impact of religion on secular spheres within specific historical contexts that test understandings of the relationship between religion and society. This course satisfies General Education Area V: Social and Behavioral Sciences. 4 hours

REL 3160 Religion and State Explores the complex relationship between religion and state (broadly understood to include government, politics, law). Materials will focus on one or more religions and regions. Each week the question of religion and state will be examined from a new angle. What does it mean to allow prayer in public schools? How has ritual been used to support state goals? Why do many religions seek a voice in governance? How do laws affect religious institutions? Can something so mundane as taxes tell us about how we view religion? Can or should religion be separated from politics? Finally, should we even understand these terms as separate? 4 hours

REL 3165 Religion and Globalization In this class we will analyze intersections between religion and globalization by focusing on recent social scientific studies accounts. Beginning with a preliminary definition of globalization as the increasing flows of people, money, technology, media and services across borders, we will deepen our understanding of this complex phenomenon by studying how global forces influence the formulation of religious subjectivities, communities, and practices. In order to gain a contextualized perspective on how macro-level processes impact the everyday lives of people and communities, we will emphasize the work of researchers who base their studies on long-term engagements and qualitative research techniques. Through these means, we will gain a set of grounded insights into the historical and cultural determinants of why and how certain religious individuals or religious groups support, resist, or become swept up in globalizing trends and the long and short term effects these dynamics bring to their moral, communal, and spiritual senses of self. This course satisfies General Education Area V: Social and Behavioral Sciences. 4 hours

REL 3170 Religion and Gender Considers questions of gender as they relate to religion and its study. Particular attention is given to the ways in which gender roles and relations between the genders are constructed, defined, articulated, justified, supported, contested, and reformulated in various religious traditions, both throughout history and in contemporary contexts, and in interaction with other social, cultural, and political systems and institutions. 4 hours

REL 3180 Death, Dying, and Beyond Focuses on death, dying, and the afterlife in the religious traditions of the world. Traditions and regions covered may vary by year and could include the religious traditions of Japan, China, India, and the United States as well as the religious traditions of Christianity or Islam. How one dies, how others view that death, how the body is disposed of, what role the death plays in the life and times of others, the history that develops from it, and what the common beliefs are regarding life beyond death are some of the questions that this course will address. Discussion each week may focus on burial customs, views of the afterlife, the grieving process, hospice, suicide, pollution, ritual,
abortion, and other topics. Readings will be drawn from a variety of sources. This course satisfies General Education Area II: Humanities. 4 hours

REL 3190 Religion and Health This course will look at how human beings over time have conceptualized their bodies, the experience of good health and illness, and the causes of good health and illness. Human beings throughout history, and in all cultures, have sought explanatory models for the nature of the body and how our actions and environment affect health and illness. Religious and spiritual beliefs and practices often play a significant role in these explanatory models. In this course, we will cover how different cultures incorporate religious or spiritual principles for achieving a healthy lifestyle as a part of these explanatory models. This course satisfies General Education Area VIII: Health and Well-Being. 4 hours

REL 3220 Spirituality and the Environment Since 1990, people of faith have become increasingly active in efforts to address climate change. They are developing programs to "care for creation", greening houses of worship, and marching for climate justice. These efforts are not, however, without precedent. Religion and spirituality, which affects cultural perceptions of the relationship between human and nature, have long played a role in efforts to address environmental issues. This course will explore interactions between the environment and spirituality (both formal religion and less formal personal spiritual experiences) in both the past and present, with particular attention to ways people adapt religious ideas to their experiences with the natural environment in response to specific issues. 4 hours

REL 3230 Religion and Revolution This course will explore, investigate and compare different religions in different cultures as driving forces of social and cultural change. The course will examine the conservative and progressive roles the religions of the world play in familial, social, economic, and political stability and change. Different approaches to analyzing these forces and roles will be examined, but particular emphasis will be placed upon the contribution of critical theory and its dialectical method of thinking. The course will stress communicative ethics and discourse theory of rights and of the democratic constitutional state. This course satisfies General Education Area V: Social and Behavioral Sciences. 4 hours

REL 3240 Psychological Elements in Religion This course offers students a survey of theories and approaches to the study of religion from the perspective of psychology, with an emphasis on psychoanalytical, analytical, humanistic, behavioral, and cognitive psychology as well as on other theorists and trends emerging out of or relating to these traditions in psychology. The seminal texts of such classical theorists as Freud, Jung, James, Otto, Fromm, Skinner, and Erickson will be considered, as well as more contemporary psychological approaches to religion. This course satisfies General Education Area II: Humanities. 4 hours

REL 3320 Religion and Social Ethics This course will compare different forms of religious and secular ethics from ancient moral codes to contemporary ethical systems. It will deal with the creative ideas, problems and attitudes toward the social world intrinsic to these different ethical norms. While the course will emphasize the variety of ethical responses to social problems provided by the religions of the world as well as to secular approaches it will pay particular attention to problems raised and solutions proposed by critical theorists about issues such as abortion, euthanasia, artificial insemination, race, gender, class, war and peace, poverty and ecological catastrophes. The course will stress communicative ethics, the discourse theory of rights, and of the democratic constitutional state. This course satisfies General Education Area II: Humanities. 4 hours

REL 3325 Muslim Cultures and Societies Explores various expressions of religious identity across global Muslim societies. With an eye to religion in specific contexts focus is given to major topics from the Qur’an, Muhammad, rituals, religious and political authority, Islamic mysticism, colonialism, modernity, gender, and representation. To highlight broader questions in the study of Islam, particular examples range from the classical Islamic period in the Middle East to the contemporary United States. The overall approach of the course is grounded in an understanding of the relationship between religion, history, and cultural context. This course satisfies General Education Area IV: Other Cultures and Civilizations. 4 hours

REL 3340 Religion in Modern Society Whereas a major focus of the systematic study of religion is upon religious traditions, or aspects of them, it is important that attention also be paid to the questions raised by the various contexts in which religion occurs as well as to questions raised by the methods developed in studying religion in such contexts. The specific context of religion to be studied in this course is that of industrial society. For religion to be understood...
in more than historical terms it is important that attention be paid to this kind of context. As a consequence of such a focus questions also are raised about the methods developed to specify and delineate such contexts and the role that religion plays in them. This provides an occasion for raising questions about the assumptions underlying such methods and about their relationship to the systematic study of religion.

REL 3360 Zen and Buddhist Meditation This course examines the development and adaptation of Buddhist meditation traditions across cultures. It highlights a central issue in Buddhism and Zen: does meditation cause enlightenment or is it an expression of enlightenment? These challenging philosophic questions and the extensive integration of meditation with culture provide students with the opportunity to analyze an interpret several different manifestations of the Buddhist experience and to investigate the role of contemplative practices within society. This course satisfies General Education Area II: Humanities. Prerequisite: ENGL 1050 or equivalent. 4 hours

REL 4000 Topics in Religion The topic to be announced in the Schedule of Course Offerings. The content of the course will vary from semester to semester. Topics will include religious traditions, forms of religion and current issues in method and theory. May be repeated for credit as long as the subject matter is different. 4 hours

REL 4500 Capstone Seminar in Religion Designed as a culminating experience for Comparative Religion majors completing or nearing completion of their degree. Focuses readings and discussions on a theme or problem identified by the instructor, and requires students to engage in original research that explores this theme or problem through comparison and application of theory. A significant portion of the work assigned in this course involves writing. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing for Comparative Religion majors. Prerequisites: Completion of REL 2000, with a grade of "C" or better; completion of or concurrent enrollment in at least four total Comparative Religion courses. 4 hours

REL 4980 Independent Study Research on some selected problem under supervision of a member of the Religion faculty. May be repeated for credit. Prerequisite: Application and department approval. 1 to 6 hours

REL 5000 Historical Studies in Religion The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Zen Buddhism; Buddhism; Taoism; Shinto; New Religions of Japan; Religion in Japanese Literature; Islam in the Modern World; Christian Theology to 1500; Renaissance and Reformation Theology; Mystical Dimensions of Islam. May be repeated for credit. Open to upperclass and graduate students. 2 to 4 hours

REL 5100 Comparative Studies in Religion The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat course for credit as long as the subject matter is different. Topics such as the following will be studied: Millenium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas; the Occult Tradition. May be repeated for credit. Open to upperclass and graduate students. 2 to 4 hours

REL 5980 Readings in Religion Research on some selected period or topic under supervision of a member of the Religion faculty. Prerequisite: Completion of two previous courses in religion; approval of the instructor involved and Chairperson of the Department must be secured in advance of registration. 1 to 4 hours

Russian
RUSS 1000 Basic Russian I Fundamentals of Russian with emphasis on oral proficiency. This course satisfies General Education Proficiency 4: Foreign Languages. 4 hours

RUSS 1010 Basic Russian II Continuation of RUSS 1000. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: RUSS 1000 or equivalent. 4 hours

RUSS 2000 Intermediate Russian I Level two Russian. Review and furthering of oral and reading skills based upon increasingly advanced oral and written exercises. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: RUSS 1010 or equivalent. 4 hours
RUSS 2010 Intermediate Russian II  Continuation of RUSS 2000 with a focus on development of spoken and written expression in the Russian language through readings and discussion of civilization and cultural materials. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: RUSS 2000 or equivalent. 4 hours

RUSS 3160 Russian Composition  Emphasis on increasing the student's command of written Russian. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: RUSS 2010 or equivalent. 4 hours

RUSS 3170 Russian Conversation  The course includes exercises to develop ease and accuracy in the use of everyday Russian. Emphasis on oral aspects of the language. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: RUSS 2010 or equivalent. 4 hours

RUSS 4760 Foreign Study – non WMU  Student participation in pre-approved program of study abroad that is not through Western Michigan University. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson. 1 to 16 hours

RUSS 4770 Foreign Study  Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior approval of departmental advisor and chairperson. 1 to 16 hours

RUSS 5020 Russian for Graduate Study  Russian instruction for graduate students enrolled in a degree program who need knowledge of Russian for their field of study. Students will sit in appropriate level course for their learning. May be repeated for credit. May not be taken by undergraduate students in any field. Prerequisites: Approval of department of student's graduate program and approval of Department of World Languages and Literatures. 3 to 4 hours

RUSS 5030 Russian – English Translation Practicum  This is a practical course to teach the skills for translating texts from Russian into English. The objective of this course is to develop further language proficiency and to introduce students to the nuts and bolts of translation. Students will produce English translations from different sorts of Russian texts, such as news, essays, documents, poetry, and short fiction. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: RUSS 2010 or instructor approval. 1 to 4 hours

RUSS 5500 Independent Study in Russian  Directed individual study of a specific topic in Russian language, literature, or culture. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: Completion of four courses in Russian, or equivalent; minimum grade point average of 3.0 in Russian; department approval required. 1 to 3 hours

Science Education

SCI 3030 Teaching About Scientific Inquiry and Nature of Science  The goal of SCI 3030 is to explore connections between authentic scientific research and classroom science learning experiences that are appropriate for middle and secondary students. The course emphasizes the themes of nature of science and scientific inquiry as essential contexts for gaining meaningful understanding of science subject matter. Students develop knowledge and skills to engage learners in inquiry-based experiences that also teach about the nature of science. They consider ways in which laboratory activities can incorporate higher levels of inquiry and foster student engagement and critical thinking. Prerequisite: Instructor approval. 3 hours

SCI 4040 Teaching of Secondary Science  This course addresses the topics of teaching and learning of science at the secondary level. It is designed for those in secondary education who intend to be certified to teach the earth, life, or physical sciences (physics and chemistry) and focuses on the issue of how students learn science concepts and problem-solving skills in meaningful ways. The course develops models of effective instructional strategies designed to promote student learning and understanding of science concepts and processes. Practical methods for demonstrating, using models, planning laboratory experiences, managing science equipment, and safety concerns are developed and discussed. Students also work in discipline-specific groups to address issues unique to that area of science and the science classroom. Restricted to Secondary Education majors/minors in Biology, Chemistry, Earth Science, or Physics. Prerequisites: 15
hours of science in a certifiable science discipline and ED 4060 or CTE 5130 or HPHE 4120 or HPHE 4470 (any prerequisite may be taken concurrently).

**SCI 5600 Science for School Science Education**  This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of science. The course is designed and taught to address the needs of K-12 teachers. This is a variable topics course and may be repeated for credit if different topics are involved. Open to upperclass and graduate students.  3 hours

**SCI 5700 Biology for School Science**  This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of biology. The course is designed and taught to address the needs of K-12 teachers. This is a variable topics course and may be repeated for credit if different topics are involved. Open to upperclass and graduate students.  3 hours

**SCI 5800 Chemistry for School Teachers**  This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of chemistry. The course is designed and taught to address the needs of K-12 teachers. This is a variable topics course and may be repeated for credit if different topics are involved. Open to upperclass and graduate students.  3 hours

**SCI 5850 Physics for School Science**  This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of physics. The course is designed and taught to address the needs of K-12 teachers. This is a variable topics course and may be repeated for credit if different topics are involved. Open to upperclass and graduate students.  3 hours

**SCI 5900 Earth Sciences for School Science Education**  This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of earth science. The course is designed and taught to address the needs of K-12 teachers. This is a variable topics course and may be repeated for credit if different topics are involved. Open to upperclass and graduate students.  3 hours

**SCI 5980 Readings in Science**  To be used by students seeking work in topics not otherwise available. The student is limited to not more than four hours in all reading courses and work must be completed under a member of the graduate faculty. May be repeated for credit. Open to upperclass and graduate students.  1 to 4 hours

**American Sign Language**

**SIGN 1010 American Sign Language I**  In this course students will develop and demonstrate knowledge of fingerspelling, basic vocabulary, basic grammar, phonological structure, history of American Sign Language, and features of the American Deaf community, including Deaf culture values and behaviors.  3 hours

**SIGN 1020 American Sign Language II**  In this course students will develop and demonstrate advanced knowledge and fluency in fingerspelling, vocabulary, grammar, phonological structure of American Sign Language, in addition to advanced knowledge of the history of American Sign Language, and features of the American Deaf community, including Deaf culture values and behaviors. Prerequisite: SIGN 1010 with a grade of “C” or better.  3 hours

**SIGN 2010 American Sign Language III**  Students will continue to develop more advanced knowledge of and increased fluency in American Sign Language vocabulary, American Sign Language grammatical structures, fingerspelling and features of the American Deaf community, including Deaf cultural values and behaviors. Emphasis will be on improving expressive and receptive conversational skills and exploring topics of interest to the Deaf community in more depth. Prerequisite: SIGN 1020 with a grade of “C” or better.  3 hours

**SIGN 2020 American Sign Language IV**  Students will continue to develop more advanced knowledge of and increased fluency in ASL vocabulary, ASL grammatical structures, fingerspelling, and features of the American Deaf community, including Deaf cultural values and behaviors. Emphasis will be on improving expressive and receptive conversation skills and exploring topics of interest to the Deaf community in more depth. Prerequisite: SIGN 2010  3 hours
SIGN 2030 Deaf Culture and History  This course will present an in-depth consideration of Deaf history and the cultural, political, educational, and social aspects of the community as a cohesive American co-culture. Students will examine the history of Deaf people in the Western World, with emphasis on American Deaf culture and the unique perspectives, norms and values within such communities. Students will explore the nature of American Sign Language and its varieties, the education of Deaf people, the historical treatment of Deafness, and the sociological and cultural make-up of Deaf individuals. The nature of Deaf art in various forms, ASL Literature and poetry will also be discussed. This course is taught in American Sign Language. Prerequisite: SIGN 2010 and SIGN 2020 (may be taken concurrently), or approval of instructor.  3 hours

Sociology
SOC 2000 Principles of Sociology  An introduction to, and survey of, the discipline of Sociology and its major fields of study. A scientific study and analysis of human behavior and interaction, our social nature and the social world (groups, cultures, religions, institutions, communities and societies) in which we live. Selected concepts, theories and research findings pertaining to social life at both the national and international level are presented and explored. This course satisfies General Education Area V: Social and Behavioral Sciences.  3 hours

SOC 2100 Modern Social Problems  The course aims to develop a theoretical framework for understanding selected social problems in American society in such areas as: intergroup conflict, race, poverty, juvenile delinquency and crime, population changes, and mass communication. Problems selected for emphasis may vary with the instructor.  3 hours

SOC 2600 Introduction to Criminal Justice  An overview of the criminal justice system as it currently operates in its three major components: police, courts, corrections. A broad-based interdisciplinary perspective is employed to introduce the beginning student to the process of criminal justice in modern America. Particular attention is placed in the discretionary authority of officials who are engaged in the decision making roles required to process suspects from arrest to release.  3 hours

SOC 2610 Law Enforcement Certification - Variable Topics  The following topics allow Criminal Justice majors to become certifiable as police officers: safety and first aid; police physical skills; criminal investigation; firearms; traffic; patrol procedures; precision driving; and police practical problems. May be repeated for credit. Prerequisite: Approval of Criminal Justice Program advisor.  1 to 8 hours

SOC 2820 Methods of Data Collection  This course is an introduction to the quantitative and qualitative methods of data collection in the social sciences. Major topics include ethical issues in social research, library usage and report style, problem formulation, measurement, causation, sampling, survey research, and field research and other observational techniques.  3 hours

SOC 2830 Methods of Data Analysis  This course is an examination of data analytic methods in the social sciences. Major topics include frequency distributions, graphic presentation of data, measures of central tendency, measures of variability, cross-tabulation, statistical inference (significance tests), and bivariate regression and correlation. Prerequisite: SOC 2820  3 hours

SOC 3000 Sociological Theory  A study of major theoretical viewpoints in contemporary sociology. The course is oriented toward the understanding, application, and extension of these major perspectives. Prerequisite: SOC 2000  3 hours

SOC 3040 Nonwestern World  This course uses the evolution of modes of production as a key to gaining a meaningful understanding of the cultures of Africa and Asia. Its conceptual framework is the ageless struggle of humankind to (1) come to terms with nature (cultural evolution), (2) come to terms with one another (social evolution), and (3) raise consciousness (the evolution of "universalizing" values). This enables the student to compare and contrast African, Asian, and "Western" cultures; to analyze the impact of these cultures on one another; and to understand the "indivisible nature of the human condition". This course satisfies General Education Area IV: Other Cultures and Civilizations.  4 hours
SOC 3050 Sociology of Religion  An overview of major theoretical perspectives and empirical studies of the sociology of religion. The course explores the interplay of religion and society across faiths, cultures, civilizations, historical epochs, and countries. It offers comparative perspectives on religions' role in the formation of social identities, cultures, and social institutions in the context of modern societies and globalization. Prerequisite: SOC 2000 3 hours

SOC 3140 Ethnic Relations  A study of race and ethnic relations, stressing a global perspective on social relations among varied peoples at different levels of development, and in different parts of the world. 3 hours

SOC 3200 Introduction to Social Psychology  An introduction to social psychological theory and research, covering the interaction of individuals and the relationships of individuals to groups. Includes such topics as social influence, attitudes, socialization, and personality. 3 hours

SOC 3210 Behavior and Meaning  This course is an introduction to how human behavior and thought is framed by social institutions and cultural practices. Topics may include early socialization, examining the verbal and non-verbal codes for understanding the world, variations in gender roles, expectations and performance, how race and ethnicity influence identity, the damaged self and the impacts of global processes. Emphasis will be placed on a comparative perspective. Restricted to majors/minors in sociology or social psychology. 3 hours

SOC 3340 East Asia and the World  An introduction to East Asian societies, focusing on international relations, conflict and cooperation, and the role of the United States. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

SOC 3350 Modern Latin American Societies  An introduction to contemporary Latin American societies focusing on their developmental problems and processes. Topics may include rural-urban migration, land reform, and governmental development policies in the urban industrial sector. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

SOC 3620 Criminology  An overview of the field of criminology. The areas considered range from the definitions, origins, and extent of crime and law, to causal theories of criminal behavior, to types of crimes and victims. Particularly stressed is an analysis of the relationship between law and society and social structure to crime. 3 hours

SOC 3630 Criminal Justice Process  This course describes and explains the criminal justice process from a sociological perspective. An analysis of the substantive and procedural criminal law as it relates to criminal justice is presented. The major focus is on the explanation of discretionary criminal justice decision making from arrest to sentencing. Prerequisite: SOC 3620 3 hours

SOC 3640 Sociology of Law Enforcement  A sociological analysis of the process of law enforcement as it involves municipal, state, and federal agencies. Includes analysis of the police "working personality," social role, isolation from other social groups, vulnerability to corruption through politics and/or organized crime, and abuses of authority. The development and comparison of the police role will be traced from its roots in England to the present American position. Prerequisite: SOC 3620 3 hours

SOC 3650 Correctional Process  An overview of the correctional process as a function of the criminal justice system in contemporary society. A broad perspective is employed based on existing criminological theory and accumulated knowledge of the social, political, and economic influences on the phenomenon of crime and delinquency. The uses of institutional placements, intermediate sanctions, and community-based programming to fulfill the formal and informal goals of corrections are critically assessed. Prerequisite: SOC 3620 3 hours

SOC 4120 Child Abuse  This course is an examination of child abuse in American society. Medical, psychological, educational, psychiatric, legal, and treatment perspectives are combined in a social analysis. The origins, family context, nature, extent, and social consequences of child abuse are discussed. Currently practiced social and legal solutions are presented, as well as possible social change required to respond to this phenomenon. 3 hours

SOC 4420 Technology and Society  This course explores various topics relating to the connections between technology and society and modern issues and debates surrounding technology and its uses. The perspective in examining
these topics is interdisciplinary, incorporating sociology, criminology, political science, and computer science. Emphasis is on critical analysis of the approaches taken to technology by individuals, groups, corporations, and governments.

SOC 4440 Technologies and Controversies in Criminal Justice This course explores various topics relating to the modern controversies in criminal justice, especially those involving the application of technology to the criminal justice system. The perspective in examining these topics is interdisciplinary, incorporating sociology, criminology, political science, and computer science. Emphasis is on critical analysis of the arguments in the debates surrounding criminal justice technology and controversies.

SOC 4540 Juvenile Delinquency A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment, and programs of prevention and control are covered. When feasible, students visit community programs.

SOC 4590 Juvenile Justice This course deals with the processing of offenders through the juvenile justice system with concentration on the philosophy and functioning of juvenile courts. Personal and organizational factors that are associated with, or that determine offenders' passage through, the juvenile court are examined.

SOC 4660 Advanced Criminology This is the capstone course for the criminal justice major. The course examines the intersection of criminological theory, public policies on crime, and political ideology. A number of important crime control policies are analyzed. Students are asked to examine the political philosophy and theoretical ideas which underlie these policies, the research evidence on their effectiveness, and their political implications. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.

SOC 4670 The Police and Community Dynamics Study of the role of the police in the community by looking at the public's perceptions, knowledge, and expectations, and the police's responsibilities in community relations. This course stresses the practical application of knowledge to contemporary issues facing police such as the use of deadly force, police performance, neighborhood patrols, politics of law enforcement, minority relations, victimless crime, and the resolution of police/community differences.

SOC 4800 Advanced Sociology This is the capstone course for Sociology majors. It locates the various theories and methods used in sociology to examine the social world in which we live. The students are expected to critically examine the social world in which we live, the theoretical underpinnings, and the relevant research evidence dealing with several illustrations of social institutions and social processes. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing.

SOC 4920 The Family as a Social Institution The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family institution and the relationship between the social structure of society and the family system. Emphasis is placed on change and comparative analysis.

SOC 4930 Family Violence The family, as a social institution, is a common place for interpersonal victimization. This course examines the ways people are harmed by family members from childhood through old age. Topics will include child abuse and neglect, sibling abuse and bullying, intimate partner violence/domestic violence, and elder abuse and neglect.

SOC 4950 Special Topics in Sociology or Criminal Justice: Variable Topics A specialized course dealing, each time it is scheduled, with some particular aspect of sociology or criminal justice not usually included in other course offerings. May be repeated for credit with a different topic.

SOC 4960 Criminal Justice Internship Opportunity is provided through the Criminal Justice Program for supervised experiences in state and local criminal justice agencies. May be repeated for credit.
SOC 4980 Sociology Internship  Opportunity is provided for supervised experiences in local organizations or activities in such areas as criminal justice, gerontology, and urban studies. May be repeated for credit. Prerequisite: Approved application. 2 to 8 hours

SOC 5200 Studies in Social Psychology: Variable Topics  Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled. May be repeated for credit with a different topic. Open to upperclass and graduate students. Prerequisite: SOC 3200 and nine hours of other upper-level (3000- or 4000-level) sociology courses. 3 hours

SOC 5210 Social Psychology of Emotions  An examination of human emotions as they relate to thinking, motivation, and social action. Emphasis will be given to the ways in which emotions signal the importance of social events for the individual self, the role of group norms in defining situationally appropriate emotional feeling and expression, the management of emotions, and the ways that emotions function as both determinants and consequences of patterns of interpersonal activity. Open to upperclass and graduate students. Prerequisite: SOC 3200 and nine hours of other upper-level (3000- or 4000-level) sociology courses. 3 hours

SOC 5235 Self and Social identities  This course discusses how micro-level identities and interactions illustrate macro-level social inequalities. Students will learn how varied structural and contextual factors affect individuals' perceptions of themselves, their behaviors, their interactions with others, and how they are perceived in society based on their structural positions such as gender, class, race, nationality, religion, and mental illness. Open to upperclass and graduate students. Prerequisites: SOC 3200 with a grade of "B" or higher and nine hours of upper-level (3000-4000) sociology courses. 3 hours

SOC 5420 Medicine, Culture and Society  This course explores theoretical and practical issues in how to approach the study of illness and medical system. This is an interdisciplinary and internationally focused class that will examine the classic literature that grounds the study of medicine and society as well as recent theoretical literature that demonstrates the breadth of approaches today. The class focuses on an examination of the work of interdisciplinary medical social scientists with several thematic topics including medicalization, the history of health disparities, the structure of health systems and global marketing of health products and the consequences of medical interventions. Our focus is on qualitative research that theoretically explores the ways in which cultural and social knowledge (including class, race and gender) influences health, illness and health outcomes. Open to upperclass and graduate students. Prerequisite: Junior standing or 9 hours of upper-level (3000, 4000) classes and an overall GPA of 3.0. 3 hours

SOC 5600 Corporate and Governmental Crime  An examination of the crimes committed by business corporations and government agencies. The course describes the nature, extent, and costs of these organizational crimes, explains the structural and organizational force which give rise to such crimes and analyzes the problem of controlling organizational offenders. The course also examines the political process whereby corporations and governments come to be defined as deviant or criminal. Prerequisites: (SOC 2000 or SOC 2100), SOC 2600, SOC 3620 and one other upper-level (3000- or 4000-level) sociology course. 3 hours

SOC 5620 Victimology  The study of crime victims, the probabilities of victimization, victim-offender relationships, the treatment of victims by the criminal justice system, and the economic, social, and psychological impact of victimization. An analysis of coping strategies is discussed and the role of the victim in the criminal justice system is analyzed. Open to upperclass and graduate students. Prerequisite: (SOC 2000 or SOC 2100), SOC 2600, SOC 3620 and one other upper-level (3000- or 4000-level) sociology course. 3 hours

SOC 5630 Gender and Justice  This course provides an overview of the relatively recent field of women, crime and justice, with particular direction guided by an issues approach. A wide variety of current research and theory in this realm are critically examined. The specific subtopics covered in this course encompass gender and discrimination in society at large, within the sociological/criminological academy, and within the criminal justice system. Broad feminist theoretical and methodological perspectives are drawn upon to contour the examination of women as criminal offenders, as victims of crimes such as rape and intimate violence, and as professional workers within the criminal justice system. Open to upperclass and graduate students. Prerequisites: (SOC 2000 or SOC 2100), SOC 2600, SOC 3620 and one other upper-level (3000- or 4000-level) sociology course. 3 hours
SOC 5680 Race, Ethnicity, and Justice  This course addresses the multicultural dynamics that effect the definition(s) and distribution of justice in the United States. The primary focus is the differential treatment of African Americans, American Indians, Latinos, and Asian Americans throughout the major institutions of society, particularly the legal institution. A critical analysis of the social, political, and economic forces that support the current social structure will direct the inquiry. Prerequisites: (SOC 2000 or SOC 2100), SOC 2600, SOC 3620 and one other upper-level (3000- or 4000-level) sociology course. SOC 3140 is encouraged.  3 hours

SOC 5780 Sociology of Law  An examination of legal organizations, the legal profession, and legal norms in the United States and other western societies. Emphasis will be placed upon the relationship between the legal system and the society in which it functions. Open to upperclass and graduate students. Prerequisite: SOC 2000 and nine hours other upper-level (3000- or 4000-level) sociology courses.  3 hours

SOC 5900 Variable Topics in Sociology  An examination of a selected topic in the field of sociology. The focus of the course may be theoretical, methodological, or substantive. Possible topics could include feminist theory, sampling and survey design, poverty, and cultural studies. May be repeated for credit with a different topic. Open to upperclass and graduate students. Prerequisites: SOC 2000 and nine hours of other upper-level (3000- or 4000-level) sociology courses.  3 hours

SOC 5980 Directed Individual Study  A program of independent study (reading or research) to provide the unusually qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The initiative for planning the topic for investigation must come from the student. Approval is contingent upon the merit of the proposal. Two or three hours credit per semester, cumulative to six hours. Enrollment beyond the first semester may be either for the same topic or for a new topic. Open to upperclass and graduate students. Prerequisite: Approval of instructor and the department chairperson.  2 to 6 hours

Spanish

SPAN 1000 Basic Spanish I  Fundamentals of Spanish. A four-skills approach (speaking, listening, reading, writing) with emphasis on communication. This course satisfies General Education Proficiency 4: Foreign Languages.  4 hours

SPAN 1010 Basic Spanish II  Continuation of SPAN 1000. Prerequisite: SPAN 1000 or equivalent. This course satisfies General Education Proficiency 4: Foreign Languages.  4 hours

SPAN 2000 Intermediate Spanish I  The development of spoken and written expression in the Spanish language with an emphasis on communication. Grammar review. Prerequisite: SPAN 1010 or equivalent.  4 hours

SPAN 2010 Intermediate Spanish II  The continued development of spoken and written expression in the Spanish language through readings and discussions of civilization and culture materials. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: SPAN 2000 or equivalent.  4 hours

SPAN 2650 Hispanic Culture in the U.S.  This course, taught in English, will study the establishment and development in the U.S. of the culture of large groups of Hispanics, such as those of Cuban, Mexican, and Puerto Rican origin, as well as numerous others. Attention will be given to current manifestations of Hispanic culture in the arts, the media, education, and public life. This course does not count toward a Spanish major or minor. The course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours

SPAN 2750 Latino Writing/Latino Culture  This course, taught in English, emphasizes the diverse nature of Latino writing and Latino culture by focusing on representative literary texts illustrative of the Hispanic role within contemporary United States society. It seeks to explain not only the relevance of this presence, but also the complexities inherent to biculturalism and bilingualism as experienced by those communities depicted in the works of prominent authors. This course does not count toward a Spanish major or minor. The course satisfies General Education Area III: The United States: Cultures and Issues.  3 hours
SPAN 3080 Spanish for Heritage Srs For students who have grown up in a Spanish-speaking environment and understand and speak Spanish but have had limited or no formal study of the language. Attention is given to all four language skills (listening, speaking, reading, and writing); however, the main focus is on reading and writing. Prerequisite: Departmental placement or instructor approval. 3 hours

SPAN 3160 Spanish Composition Emphasis upon increasing the student's command of written Spanish. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: SPAN 2010 or equivalent. 3 hours

SPAN 3170 Spanish Conversation Emphasis upon increasing the student's command of spoken Spanish. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisite: SPAN 2010 or equivalent. 3 hours

SPAN 3180 Spanish for Professions A practical course focused on career-specific Spanish vocabulary, language skills, and content for a variety of professions. Attention is placed on using Spanish in the global economy and understanding the work values and practices of Hispanic cultures and communities. Prerequisites: SPAN 3160 and SPAN 3170, with a grade of “C” or better in all prerequisites. 3 hours

SPAN 3210 Life and Culture of Hispanics in U.S. A study of the life and culture of people of Hispanic origin who live in the United States. This course will examine the establishment and development in the U.S. of the culture of large groups of Hispanics, such as those of Cuban, Mexican, and Puerto Rican origin, as well as numerous others. Attention will be given to current manifestations of Hispanic culture in the arts, the media, education, and public life. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: SPAN 3160 and SPAN 3170. 3 hours

SPAN 3220 Life and Culture of Spain A study of Spanish civilization in terms of its geography, history and art, and how these factors illuminate the character and tradition of the Spanish people. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: SPAN 3160 and SPAN 3170. 3 hours

SPAN 3230 Life and Culture of Spanish America A study of Spanish-American life and culture based on ethnic, historical, social, religious and literary considerations. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: SPAN 3160 and 3170. 3 hours

SPAN 3240 Introduction to the Study of Spanish Linguistics A general survey of the different fields of Spanish linguistics, both theoretical (e.g., phonetics/phonology, syntax, and semantics) and applied (e.g., pragmatics, discourse analysis, sociolinguistics, and bilingualism). Prepares students for more specialized studies. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: SPAN 3160 and 3170. 3 hours

SPAN 3250 Introduction to the Study of Spanish Literature An appreciation of Spanish literature through reading and critical interpretation of selected works of various literary types. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: SPAN 3160 and 3170, or equivalent. 3 hours

SPAN 3390 Contemporary Latin America This course, taught in English, offers an introduction to contemporary life in Latin America through the lenses of cinema, literature and ethnolinguistics. Films will be viewed with subtitles. All literature to be read in this course will be in English translation. Representative topics which may be treated in this course include:
I. Survey of Contemporary Latin American Cinema. In this version of the course, by examining key films from Argentina, Brazil, Cuba and Mexico, the discussion will touch on essential issues such as the formation of national and post-national identities and the interplay of cinematographic canons and forms of representation between Latin American film makers and their European and U.S. counterparts.
II. A survey of twentieth and twenty-first century Latin American Fiction. This course will introduce students to the politics and aesthetics of the "new Novel" in Latin America, the so-called "Boom" and "post Boom" literature, as well as debates surrounding twenty-first century writings.

IV. An incursion on Indigenous Cultures of Latin America through their language and stories. This course will introduce students to some of the myths, trickster stories, cosmology and the sociopolitical tradition of the indigenous peoples of Latin America stressing the importance of syncretism and the role of indigenous culture in contemporary Latin American society, culture and identity. This course satisfies General Education Area IV: Other Cultures and Civilizations. 3 hours

SPAN 4100 Studies in Hispanic Culture An intensive study of various aspects of Spanish and Spanish American culture. Emphasis is on cultural understanding as an avenue to increased proficiency in the Spanish language. Since specific topics will vary each semester, this course may be repeated for credit. Prerequisites: SPAN 3160, SPAN 3170, and two of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250. 3 hours

SPAN 4400 Internship or Service with Spanish An opportunity for students to utilize and improve their Spanish language skills in an internship or volunteer work in business, schools, government, hospitals, churches, and various types of service organizations. Prerequisites: Student must have completed a minimum of 15 hours of Spanish in courses at the 3000-level or above; students also must have approval of instructor before registering. 2 to 3 hours

SPAN 4520 Advanced Spanish Grammar and Composition An advanced study of the intricacies and problems of Spanish grammar, syntax, and style with attention to improving written expression in Spanish at an advanced level. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: SPAN 3160, SPAN 3170, and one of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250. 3 hours

SPAN 4530 Advanced Spanish Conversation Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: SPAN 3160, SPAN 3170, and one of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250. 3 hours

SPAN 4540 Spanish Phonetics An alternative or complement to SPAN 4530, Advanced Spanish Conversation. Particularly recommended for future teachers of Spanish. Provides a practical approach to the improvement of non-native pronunciation and "accent". Emphasizes the sound system of Spanish through aural/oral practice, written transcription, and contrastive analysis with English. This course satisfies General Education Proficiency 4: Foreign Languages. Prerequisites: SPAN 3160, SPAN 3170, and one of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250. SPAN 3240 is recommended. 3 hours

SPAN 4550 Conversation for the Professions Intensive practice to reinforce and expand basic oral communication skills and develop flexible and idiomatic oral expression. Topics vary to focus on professional fields (such as health care, business, or criminal justice) and cover the vocabulary, topics, and situations specific to those fields. May be repeated for credit. Prerequisites: SPAN 3160 and SPAN 3170 with a minimum grade of "C" or departmental approval, and one of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240 or SPAN 3250. 3 hours

SPAN 4760 Foreign Study - Non WMU Student participation in a pre-approved program of study abroad that is not through Western Michigan University. May be repeated for credit up to 32 credit hours. Prerequisite: Department approval. 1 to 16 hours

SPAN 4770 Foreign Study Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Departmental approval. 1 to 16 hours

SPAN 5020 Spanish for Graduate Study Spanish instruction for graduate students enrolled in a degree program who need knowledge of Spanish for their field of study. Students will sit in appropriate level course for learning. May be repeated for credit. May not be taken by undergraduate students in any field nor by graduate students of Spanish. Prerequisites: Approval of department of student's graduate program and approval of Department of Spanish. 3 to 4 hours
SPAN 5260 Survey of Spanish Literature to the 18th Century
A survey of Spanish literature from its origin to, and including, the seventeenth century. Open to upperclass and graduate students. Prerequisites: SPAN 3160, SPAN 3170 and SPAN 3250. 3 hours

SPAN 5270 Survey of Spanish Literature from the 18th Century to the Present
A survey of Spanish literature from the eighteenth century to the present. Open to upperclass and graduate students. Prerequisites: SPAN 3160, SPAN 3170, and SPAN 3250. 3 hours

SPAN 5280 Survey of Spanish American Literature to Modernismo
A survey of Spanish American literature from its origin to the era of Modernismo (late 19th century). Open to upperclass and graduate students. Prerequisites: SPAN 3160, SPAN 3170 and SPAN 3250. 3 hours

SPAN 5290 Survey of Spanish American Literature from Modernismo to the Present
A survey of Spanish American literature from late 19th century to the present. Open to upperclass and graduate students. Prerequisites: SPAN 3160, 3170, and 3250. 3 hours

SPAN 5400 Studies in Spanish Linguistics
Topics vary according to area and will be announced. Each of these courses carries separate credit, although all are listed under 5400. Topics include: Old Spanish - Evolution of the Spanish language from Latin. Spanish Language and Contemporary Society - The relationship between the Spanish language and modern Spanish culture. Spanish Word Formation - The creation of nouns, verbs, and adjectives in Spanish. Spanish Sound Systems - The organization of sound patterns and stress in Spanish. Spanish Dialectology - Differences in Spanish pronunciation, vocabulary, and grammar in different regions of the Spanish-speaking world. Spanish in Contact - How exposure to other languages affects the Spanish spoken by bilinguals. Structure of Spanish Language - Word order and principles of grammatical organization in Spanish. May be repeated for credit when topics vary. Open to upperclass and graduate students. Prerequisites: SPAN 3160, SPAN 3170 and SPAN 3240. 3 hours

SPAN 5500 Independent Study in Spanish
Directed, individual study of a specific topic in a Spanish literary or linguistic area. May be repeated for credit. Open to upperclass and graduate students. Not open to minors. Prerequisite: One of the following: SPAN 5260, SPAN 5270, SPAN 5280, SPAN 5290 or SPAN 5600; and department approval. 1 to 3 hours

SPAN 5570 Modern Language Instruction I
This course informs prospective teachers about the principles and practices of modern language instruction. Students study second language acquisition theory and approaches to teaching the four skills of listening, speaking, reading, and writing as well as grammar and culture. Students must complete this course and achieve a minimum score of Advanced Low on the OPI exam prior to their directed teaching internship. Open to upperclass and graduate students. Prerequisites: One semester abroad in a Spanish-speaking country or a minimum score of Advanced Low on the OPI exam, and a minimum GPA of 3.0 in Spanish courses for the major, and prior approval of the instructor before registering. 3 hours

SPAN 5580 Modern Language Instruction II
This course further educates prospective teachers about the principles and practices of modern language instruction. Students engage in hands-on practice in various realms such as lesson planning, materials development, the delivery of lessons and comprehensible Spanish input in the classroom, and testing. Students must complete this course and achieve a minimum score of Advanced Low on the OPI exam prior to their directed-teaching internship. Open to upperclass and graduate students. Prerequisites: SPAN 3160, SPAN 3170 and two of the following: SPAN 3210, SPAN 3220, SPAN 3230, SPAN 3240, SPAN 3250, or instructor approval. Additionally, one semester abroad in a Spanish-speaking country or a minimum score of Advanced Low on the OPI exam, and SPAN 5570 (which may be taken concurrently). 3 hours

SPAN 5600 Studies in Spanish Literatures
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 5600. Thus, a student may take any or all of the offerings at various times. Representative topics which may be treated in this area include: Modern Spanish Women Writers; Modern Spanish Theatre; Modern Spanish-American Theatre; Fable and Fantasy in Early Spain; Spanish-American Literature and Film; Humor in Spanish Theatre; Sex, Lies, and Manuscripts in the Spanish Middle Ages; The Spanish-American Short Story; Spanish Short Story and Poetry; Literature of the Spanish Civil War. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: SPAN 3160, SPAN 3170 and SPAN 3250. 3 hours
**Special Education**

**SPED 3150 Introduction to Early Childhood Special Education**  
This course will introduce information about children with special needs from ages birth through eight. Content will include laws specific to the education of young children with disabilities, discussion of early developmental milestones, the impact of early development on later functioning, the role of the family in early intervention, and recommended practices for assessment of and intervention with young children with disabilities. Restricted to majors in Special Education: Mentally Impaired, Special Education: Learning Disabilities, and Special Education: Emotionally Impaired.  
Prerequisite: Department approval.  
1 hour

**SPED 3250 Introduction to Transition Issues for Learners with Disabilities**  
This course provides an introduction to transition issues for learners with disabilities. The purpose of the course is to increase the student's awareness of effective transition practices in grades K-12 and to help the student identify strategies for implementing such. Course topics include transition-related assessment, self-determination, curriculum for transition, and support services. Restricted to majors in Special Education: Mentally Impaired, Special Education: Learning Disabilities, and Special Education: Emotionally Impaired.  
Prerequisite: Department approval.  
2 hours

**SPED 3300 Foundations of Special Education**  
What makes special education special? This course provides an overview of special education, describing current best practices and their historical foundations. Topics include learning and behavioral characteristics of students with disabilities, major legislation and policies, Council for Exceptional Children (CCE) ethical principles, the over-representation of underrepresented groups, and the roles, rights and responsibilities of students, parents, teachers, and school administrators. Program requires a grade of "CB" or better. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments and Learning Disabilities/Cognitive Impairments.  
Prerequisite: Department approval and concurrent enrollment with SPED 3380 and SPED 3310.  
3 hours

**SPED 3310 Field Experience in Special Education I: Effective Instruction**  
This field experience exposes students to diverse classroom settings. Students will observe and practice explicit instructional skills, including gaining attention, pacing, offering specific praise, and providing corrective feedback. Students will observe and apply information and skills gained in co-requisite courses. Graded on a credit/no credit basis. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.  
Prerequisites: Department approval and concurrent enrollment in SPED 3300 and SPED 3380.  
3 hour

**SPED 3380 Prevention and Intervention Techniques for Establishing Positive School Environments**  
This course provides an overview of applied behavior analysis and their application in schools for establishing positive classrooms and facilitating positive student behavior. Topics include basic classroom management strategies, positive teacher-student relationships, classroom rules, procedures, consequences, prevention of problem behavior through effective teaching, specific intervention techniques, functional assessments to develop behavior plans and medications. Program requires a grade of "CB" or better. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.  
Prerequisite: Department approval and concurrent enrollment with SPED 3300 and SPED 3310.  
3 hours

**SPED 3390 Collaboration and Communication in Special Education**  
This course will provide an introduction to collaboration and communication skills needed by special educators as they work with other professionals and parents. Restricted to majors in Special Education: Learning Disabilities and Special Education: Exceptional Child.  
Prerequisite: Department approval.  
3 hours

**SPED 3400 Introduction to Cognitive Impairments**  
This course provides an introduction to the field of cognitive impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Restricted to majors in Special Education: Learning Disabilities & Cognitive Impairments; and Special Education: Mentally Impaired.  
Prerequisites: Department approval and concurrent enrollment in SPED 3410 and SPED 3450.  
3 hours

**SPED 3410 Classroom Practicum with Learners with Cognitive Impairments**  
This course provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle school, or secondary classroom with learners with cognitive impairments. It is intended to build upon experiences from SPED 3310 and allow students to more fully participate in classroom teaching activities. Graded on a credit/no credit basis. Restricted to
majors in Special Education: Learning Disabilities & Cognitive Impairments; and Special Education: Mentally Impaired.  Prerequisites: Department approval and concurrent enrollment in SPED 3400 and 3450.  1 hour

SPED 3450 Education of Learners with Cognitive Impairments  This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with cognitive impairments. Restricted to majors in Special Education: Learning Disabilities & Cognitive Impairments; and Special Education: Mentally Impaired.  Prerequisites: Department approval and concurrent enrollment in SPED 3400 and SPED 3410.  3 hours

SPED 3700 Introduction to Emotional Impairments  This course provides an introduction to the field of emotional impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Restricted to majors in Special Education: Learning Disabilities & Emotional Impairments; and Special Education: Emotionally Impaired.  Prerequisites: Department approval and concurrent enrollment in SPED 3710 and SPED 3750.  3 hours

SPED 3710 Field Experience in Emotional Impairments  This field experience provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle, or high school classroom with learners with emotional impairments. It is intended to build upon experiences from SPED 3310 and allow students to more fully participate in classroom teaching activities. Graded on a credit/no credit basis. Restricted to majors in Special Education and Elementary Education: Learning Disabilities and Emotional Impairments.  Prerequisites: Department approval and concurrent enrollment in SPED 3700 and 3750.  3 hour

SPED 3750 Strategic Interventions for Social and Academic Behaviors  This course focuses on the development and delivery of evidence-based practices to meet the instructional and curricular goals of students with documented behavioral and/or learning problems within one-to-one, small group, or large group settings. Program requires a grade of "CB" or better. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments.  Prerequisites: SPED 3300 and SPED 3310 and SPED 3380; Corequisites: Department approval and concurrent enrollment in SPED 4350, SPED 4800 and SPED 4810.  3 hours

SPED 3960 Topical Studies in Special Education  A course on a variety of selected topics in the field of special education. Each offering of SPED 3960 will be given an appropriate subtitle which will be listed on the student's official transcript. May be repeated for credit.  1 to 3 hours

SPED 4040 Field Experience in Special Education II: Data-Based Decision Making and Effective Instruction  This field experience provides students with practice in individualized decision-making and instruction in the Common Core area of English Language Arts, and Content Areas in K-5 setting. Individualized instruction plans emphasize explicit modeling and efficient guided practice to assure acquisition and fluency through maintenance and generalization. Students will observe and apply information and skills gained in co-requisite courses. Graded on a credit/no credit basis. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairment.  Prerequisites: Department approval and concurrent enrollment in SPED 4330 and SPED 4340.  1 hour

SPED 4100 Seminar in Special Education: Learning Disabilities and Emotional Impairments  This seminar is taken concurrently with SPED 4750 and is open for only special education undergraduate students who have completed all of their special education professional sequence requirements. It will consist of weekly meetings to discuss issues related to their full-time intern teaching (SPED 4750). Restricted to majors in Special Education: Learning Disabilities and Emotional Impairments.  Prerequisite: Department approval. Corequisite: SPED 4750 and SPED 4760.  2 hours

SPED 4270 Learners with Disabilities in Elementary and Middle School Programs  This course is designed for prospective and practicing elementary and middle school teachers. Emphasis is placed on meeting the needs of learners with disabilities in elementary and middle school programs. Required curriculum adaptation and modification as well as identification and development of resources and services for these learners are stressed. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to majors in Early Childhood; Elementary and Pre-Elementary Professional; Elementary Group Minors; Physical Education: Exceptional Child; and Speech Pathology and Audiology. Not acceptable for Special Education majors.  3 hours
SPED 4290 Learners with Disabilities in Secondary Education Programs
This course is designed for prospective and practicing secondary education teachers. Emphasis is placed on meeting the needs of learners with disabilities in general education secondary programs. Required curriculum adaptation and modification as well as identification and development of resources and services for these learners are stressed. Program requires a grade of "CB" or better. May repeat course one time only. Restricted to Secondary Education majors in Biology, Chemistry, English, Earth Science, French, Geography, German, History, Latin, Math, Physics, Political Science, Social Studies, Spanish; and Elementary Education majors in French, German; and Health Education: School majors; and Speech Pathology and Audiology majors. Not acceptable for Special Education majors. Prerequisites: Department approval and concurrent enrollment in SPED 4040 and SPED 4330. 3 hours

SPED 4330 Assessment and Data-Based Decision Making in Special Education
The purpose of this course is to introduce students to assessment within a multi-tiered system of support emphasizing progress monitoring and data-based decision making for screening, classification, instructional planning, and evaluation. Topics will include principles of measurements, informal and formal assessment procedures, use and limitations of assessments, legal and ethical issues in assessments, and using technology to conduct assessments. Program requires a grade of "CB" or better. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. 3 hours

SPED 4340 Evidence-Based Instruction I: Focus on K-5 Foundations of Reading, Written Language, and Content Areas
This course will focus on theories and research that form the basis of curriculum development and instructional practices within the Common Core of English Language Arts, and Content Areas for K-5 learners including students with high incidence disabilities and those students academically at-risk. The course will emphasize application of ethical principles and practices in planning and delivering explicit differentiated instruction using universal design for learning (UDL) principles, evidence-based instructional strategies, collaborative strategies, assistive technology, and development of self-determination skills within the context of assigned professional learning communities that ensure access to general education curriculum for students with high incidence disabilities and those academically at risk. Program requires a grade of "CB" or better. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. Prerequisites: Consent of department and concurrent enrollment in SPED 4040 and SPED 4340. 3 hours

SPED 4350 Evidence-Based Instruction II: Focus on 6-12 Language Arts, Math, Science and Social Studies
This course will focus on theories and research that form the basis of the Common Core in the areas of language arts, mathematics, science and social studies. The course will emphasize application of ethical principles and practices in planning and delivering differentiated instruction using universal design for learning (UDL) principles, evidence-based instructional strategies, collaborative strategies, assistive technology, and development of self-determination skills within the context of assigned professional learning communities that ensure access to general education curriculum for students with high incidence disabilities and those academically at risk leading to successful transition beyond high school. Program requires a grade of "CB" or better. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. Prerequisites: Department approval and concurrent enrollment in SPED 4800 and SPED 4810. 3 hours

SPED 4360 Evidence-Based Instruction III: Focus on Core Content Grades 6-12
This course will focus on the Common Core in the areas of English/language arts with attention given to the emphasis on content literacy in science and social studies, as well as mathematics. Furthermore, we will review the Next Generation Science Standards for middle and secondary students. The course will emphasize universal design for learning (UDL) principles, use of evidence-based instructional strategies, including assistive technology and development of self-determination skills that ensure access to general curriculum for students with high incidence disabilities and those academically at-risk. Attention will be given to Michigan Merit Curriculum and high school graduation requirements, including the use of a Personal Curriculum to earn a high school diploma. Program requires a grade of "CB" or better. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. Prerequisites: Department approval and concurrent enrollment in SPED 4390 and SPED 4910. 3 hours

SPED 4390 Professional Practice Through Collaboration – Transition Services PreK-Post-Secondary, Para-Educators, Ethics, Collaboration
This course will provide students with information and skills needed for effective collaboration and teaming in schools with families, school personnel, and community members. Emphasis is placed on effective communication skills and the various direct and indirect service options that facilitate the success of all students as they access the general curriculum. Program requires a grade of "CB" or better. Restricted to majors in Special Education:
Learning Disabilities/Emotional Impairments. Prerequisites: Department approval and concurrent enrollment in SPED 4360 and SPED 4910. 3 hours

SPED 4740 Intern Teaching in Special Education: Cognitive Impairments This intern teaching experience is open only to special education undergraduate students who have completed all of their Special Education-Cognitive Impairments professional sequence requirements. It will consist of full-time intern teaching in an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned. Credit/No Credit only. Prerequisites: Department approval and concurrent enrollment in SPED 4100. 8 hours

SPED 4750 Intern Teaching in Special Education: Emotional Impairments This intern teaching experience is open only for special education undergraduate students who have completed all of their special education professional sequence requirements. It will consist of full-time intern teaching in an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned. Credit/No Credit only. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. Prerequisites: Department approval and concurrent enrollment in SPED 4100 LD and EI and SPED 4760. 6 hours

SPED 4760 Intern Teaching in Special Education: Learning Disabilities This intern teaching experience is taken concurrently with SPED 4100 and SPED 5725 and is open only for special education undergraduate students who have completed all of their special education professional sequence requirements. It will consist of full-time intern teaching in an appropriate educational setting serving students with disabilities. Students will participate in all phases of the school program to which they are assigned. Credit/No Credit only. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. Prerequisites: Department approval and concurrent enrollment in SPED 4100 and SPED 5725. 6 hours

SPED 4800 Development and Characteristics of High Incidence Disabilities This course provides an overview of the etiology, development and characteristics of students with high incidence disabilities including learning disabilities. Various direct and indirect service options that facilitate the success of all students as they access general curriculum will be emphasized. Additionally, this course covers the laws that affect students with learning disabilities, history, assessment, medical aspects, teaching of young children and adolescents, and teaching strategies for pre-academic learning, oral language, reading, writing, mathematics, and social-emotional development. Current topics relevant to the education of students with high incidence disabilities including learning disabilities (i.e., response to intervention, collaboration, co-teaching, UDL, and technology integration) will be explored as well as the identification of research-based instructional practices. Program requires a grade of "CB" or better. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. Prerequisites: Department approval and concurrent enrollment in SPED 4350 and SPED 4810. 3 hours

SPED 4810 Field Experience in Special Education III: Strategic Interventions for Learners with High Incidence Disabilities The field experience emphasizes the use of data-based decision making and functional assessment to design, implement, and evaluate interventions that address the academic or social behaviors of learners. Students will observe and apply information and skills gained in co-requisite courses. Graded on a credit/non-credit basis. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. Prerequisites: Department approval and concurrent enrollment in SPED 4350 and SPED 4800. 3 hours

SPED 4850 Education of Learners with Learning Disabilities This course examines several theoretical perspectives which attempt to explain why students with learning disabilities fail to learn. Within each perspective, the application of selected theories to the Clinical Teaching Model is addressed. Emphasis is placed on the validity of interventions derived from each theory. Restricted to majors in Special Education: Learning Disabilities. Prerequisites: Department approval and concurrent enrollment in SPED 4800 and SPED 4810. 3 hours

SPED 4910 Field Experience in Special Education IV: Secondary This field experience provides students with practice in individualized decision-making and instruction in the Common Core area of English Language Arts for grades 6-12. Individualized instruction plans emphasize explicit modeling and efficient guided practice to assure acquisition and fluency through maintenance and generalization. Students will observe and apply information and skills gained in co-requisite courses. Graded on a Credit/No Credit basis. Restricted to majors in Special Education: Learning
Disabilities/Emotional Impairments. Prerequisites: Department approval and concurrent enrollment in SPED 4360 and SPED 4390. 3 hours

SPED 5000 Topical Issues in Educating Learners with Disabilities This course provides a survey or in-depth coverage of current issues directly related to the education of learners with disabilities. Restricted to majors in Special Education: Learning Disabilities; Special Education: Cognitively Impaired; and Special Education: Emotionally Impaired. The course may be repeated for credit. Prerequisite: Department approval. 1 to 4 hours

SPED 5040 Teaching Practicum in Special Education This course provides the student with a structured assignment working with a learner who is at-risk or has a disability. It is intended to enable the students to demonstrate skills in assessment and prescription and in the implementation and evaluation of a tutorial plan of instruction for a specific learner in a mainstreamed or self-contained setting. Graded on a Credit/No Credit basis. Restricted to graduate students only. Prerequisites: SPED 5300 and SPED 5330; and concurrent enrollment in SPED 5340. 1 to 2 hours

SPED 5070 Seminar in Special Education: Focus on Emotional Impairments This seminar provides a review of key concepts in the field of emotional impairments with emphasis on content from the Michigan Test for Teacher Certification and the PRAXIS tests in emotional impairments or severe behavior disorders. May be repeated for credit. Open to upperclass and graduate students. 2 hours

SPED 5080 Seminar in Special Education: Focus on Learning Disabilities This seminar provides a review of key concepts in the field of learning disabilities with emphasis on content from the Michigan Test for Teacher Certification and the PRAXIS tests in learning disabilities. May be repeated for credit. Open to upperclass and graduate students. 2 hours

SPED 5300 Introduction to Special Education This course introduces students to the characteristics and needs of learners with sensory, physical, cognitive, emotional, and learning disabilities. Students develop an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of disability. Prerequisite: Department approval. 3 hours

SPED 5330 Introduction to Assessment and Data-Based Decision Making in Special Education This course introduces students to assessment within a multi-tiered system of support emphasizing progress monitoring and data-based decision making for screening, classification, instructional planning, and evaluation. Topics will include principles of measurement, informal and formal assessment procedures, use and limitations of assessments, legal and ethical issues in assessments, and using technology to conduct assessments. Program requires a grade of "C" or better. Restricted to graduate students only. 3 hours

SPED 5340 Evidence Based Interventions I: Foundations of Reading, Written Language and Content Areas This course will focus on theories and research that form the basis of curriculum development and instructional practices within the Common Core of English Language Arts, and Content Areas for K5 learners including students with high incidence disabilities and those students academically at-risk. The course will emphasize application of ethical principles and practices in planning and delivering explicit differentiated instruction using universal design for learning (UDL) principles, evidence-based instructional strategies, collaborative strategies, assistive technology, and development of self-determination skills that ensure access to general education curriculum for students with high incidence disabilities and those academically at risk. Open to upperclass and graduate students. Prerequisite: SPED 5330 (may be taken concurrently); Corequisite: SPED 5040. 3 hours

SPED 5400 Introduction to Cognitive Impairments This course provides an introduction to the field of cognitive impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Corequisite: SPED 5450 3 hours

SPED 5450 Education of Learners with Mild and Moderate Cognitive Impairments This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with mild and moderate cognitive impairments. Corequisite: SPED 5400 3 hours

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SPED 5700 Introduction to Emotional Impairments This course provides an introduction to the field of emotional impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Corequisite: SPED 5750 3 hours

SPED 5725 Preventing Problem Behavior through Effective Teaching This course is an advanced skill-building experience designed to scaffold university book-learned knowledge into effective classroom behavior management and teaching practice. The course is taught using a format focused on the development of problem solving and behavior intervention skills within a reflective teacher model. Course content will be directly related to problems and challenges experienced by class participants within their own elementary, middle, or high school classrooms. Emphasis in this seminar is on the direct application of behavioral principles and techniques to increase, decrease, and maintain academic and social behaviors within a public school classroom. The format of the class will be project based with each student completing and implementing Functional Behavior Assessment leading to an individual Positive Behavior Support Plan for either social/emotional or academic behavior. Open to upperclass and graduate students. Restricted to majors in Special Education: Learning Disabilities/Emotional Impairments. Corequisites: SPED 4100 and SPED 4760. 3 hours

SPED 5750 Education of Learners with Emotional Impairments This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with emotional impairments. Corequisite: SPED 5700 3 hours

SPED 5800 Introduction to Learning Disabilities This course provides an introduction to the field of learning disabilities. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. 3 hours

SPED 5850 Advanced Theory and Practice with Learning Disabilities Explores theories of learning disabilities, including an in-depth examination of controversies in the field. Also, examines issues and practices relating to the instruction of students with learning disabilities, including assessment and identification of learning disabilities, and intervention options. Prerequisite: SPED 5800 3 hours

SPED 5980 Readings in Special Education This course is designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and the department chairperson. May be repeated for credit. Prerequisite: Department approval. 1 to 4 hours

SPED 5990 Topics in Special Education This course provides a survey or in-depth coverage of topics related to the education of learners with disabilities. This course may be repeated for credit. Prerequisite: Departmental approval. 1 to 3 hours

Speech Pathology and Audiology

SPPA 2000 Communication Disorders and Sciences This introductory course provides a broad overview of the acoustical, anatomical, biological, emotional, linguistic, physiological, and psychosocial bases of human communication and the ways in which it may be disordered. The impact of scientific investigation, technology, education, economics, health and rehabilitation on communication disorders will be addressed. Individual and societal variables related to communication and its disorders, the challenges of medical and technological advancements, and the quantitative tools used in assessment and rehabilitation will be stressed. 3 hours

SPPA 2001 Honors Seminar in Communication Sciences and Disorders This discussion section is a supplement to the lecture portion of SPPA 2000. The honors discussion is designed to give students hands-on experiences through clinical observation, exposure to use of clinical instruments, and learning about research opportunities in the fields of audiology and speech-language pathology, specifically active research at WMU. Graded on a Credit/No Credit basis. Restricted to students in the Lee Honors College. Prerequisite: SPPA 2000 1 hour

SPPA 2030 Normal Language Acquisition A study of normal language acquisition as a basis for investigating disordered language. The course involves a survey of the stages of language acquisition and a consideration of mechanisms of language acquisition. Prerequisites: SPPA 2000 with a grade of “C” or better. Corequisite: SPPA 2040 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SPPA 2040</td>
<td>Phonetics</td>
<td>A study of human speech sounds as a basis for understanding speech production and speech perception. Means of symbolizing speech sounds are provided to prepare the student for accurate transcription of speech behavior. Enrollment in a lab section is required.</td>
<td>Prerequisites: SPPA 2000 with a grade of &quot;C&quot; or better. Corequisite: SPPA 2030</td>
<td>3 hours</td>
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<tr>
<td>SPPA 2041</td>
<td>Phonetics Laboratory</td>
<td>Exercises and practice in phonetic transcription.</td>
<td>Prerequisites: LANG 2500 or BIOS 1120. Corequisite: SPPA 2040.</td>
<td>1 hour</td>
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<tr>
<td>SPPA 2050</td>
<td>Speech Anatomy and Physiology</td>
<td>A study of respiration and phonation, with emphasis on their function in speech production and speech perception. The course includes a detailed study of the structures, physiology, and neurology. Corequisite: SPPA 2060</td>
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<td>3 hours</td>
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<tr>
<td>SPPA 2051</td>
<td>Speech Anatomy and Physiology Lab</td>
<td>Study of speech anatomy and physiology in a cadaver laboratory. Restricted to majors in Speech Pathology and Audiology. Prerequisite: BIOS 1120 with a grade of &quot;C&quot; or better. Corequisite: SPPA 2050</td>
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<td>1 hour</td>
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<tr>
<td>SPPA 2060</td>
<td>Hearing Science</td>
<td>A study of the structure and function of the hearing system, as related to communicative processes. The course includes a consideration of theories of speech perception. Corequisite: SPPA 2050.</td>
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<td>3 hours</td>
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<td>SPPA 2070</td>
<td>Clinical Laboratory</td>
<td>This course introduces the student to the academic, clinical, and personal aspects of the professions of speech and language pathology and audiology, and it requires participation in structured observation of clinical activities. Corequisite: SPPA 2030 and SPPA 2040.</td>
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<td>3 hours</td>
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<tr>
<td>SPPA 2080</td>
<td>Introduction to Audiology</td>
<td>An introduction to the measurement of hearing and the field of audiology. The course includes an introduction to aural pathologies.</td>
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<td>3 hours</td>
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<tr>
<td>SPPA 2970</td>
<td>Special Topics in Speech Pathology and Audiology</td>
<td>This is a variable topics, variable credit undergraduate level course for consideration of current and special interests in communication sciences. Specific topics and number of credit hours will be announced each time the course is scheduled. May be repeated for credit.</td>
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<td>1 to 4 hours</td>
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<tr>
<td>SPPA 3510</td>
<td>Phonemic Disorders</td>
<td>A detailed study of the nature of phonemic disorders; orientation to clinical management.</td>
<td>Prerequisite: SPPA 2040.</td>
<td>2 hours</td>
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<tr>
<td>SPPA 3530</td>
<td>Fluency Disorders</td>
<td>A detailed study of the nature of fluency disorders; orientation to clinical management.</td>
<td>Prerequisites: SPPA 2040 and SPPA 4030.</td>
<td>2 hours</td>
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<tr>
<td>SPPA 3540</td>
<td>Language Disorders in Children</td>
<td>A detailed study of the nature of communication problems associated with congenital or acquired impairment of language function in children; orientation to clinical management. Prerequisite: SPPA 2030.</td>
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<td>3 hours</td>
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<tr>
<td>SPPA 4000</td>
<td>Practicum in Speech Pathology and Audiology I</td>
<td>Clinical experience in the management of speech, language, and/or hearing disorders. Prior departmental approval required.</td>
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<td>2 hours</td>
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<tr>
<td>SPPA 4010</td>
<td>Practicum in Speech Pathology and Audiology II</td>
<td>Clinical experience in the management of speech, language, and/or hearing disorders. Prerequisite: SPPA 4000.</td>
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<td>2 hours</td>
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<tr>
<td>SPPA 4030</td>
<td>Speech Science</td>
<td>Building on the student's prior understanding of anatomic, physiologic, and neurologic bases of speech, this course examines normal speech production with reference to the acoustic and perceptual products of interacting respiratory, phonatory, articulatory, and resonance systems.</td>
<td>Prerequisites: SPPA 2050 and SPPA 2060.</td>
<td>3 hours</td>
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<tr>
<td>SPPA 4560</td>
<td>Rehabilitative Audiology</td>
<td>Principles and clinical management of communication problems associated with auditory impairment. Prerequisite: SPPA 3580.</td>
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<td>3 hours</td>
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SPPA 4590  Special Studies in Communication Disorders  
A survey of neuropathologies and structural deviations which result in communication disorders, including aphasia and dysarthria. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum. 3 hours

SPPA 5010  Principles of Speech Science  
Overview of the anatomy, physics, biology, physiology, and psychology of human speech production and speech perception. This course is intended to focus not only on well-established concepts in speech science, but also on the many research areas in which our understanding is incomplete. Open to upper class or graduate students. Restricted to majors or masters in Speech Pathology and Audiology. Prerequisite: Department approval. 3 hours

SPPA 5530  Stuttering and Other Fluency Disorders  
Theories and therapies applicable to the understanding and clinical management of stuttering are studied in depth. Open to upperclass and graduate students. Restricted to masters and majors in speech pathology and audiology. 2 hours

SPPA 5800  Psychoacoustics  
A study of the principles, theories, and methods which provide the bases for hearing measurement in clinical and experimental settings. Topics include quantification, measurement and analysis of acoustic signals and subjective responses to those signals. Prerequisite: Departmental approval. 3 hours

SPPA 5801  Pediatric Audiology  
This course deals with the identification, measurement, and management of hearing impairment in infants and young children. Open to upperclass and graduate students. Prerequisite: SPPA 2060 and SPPA 3580, or department approval. 3 hours

SPPA 5950  Language Development and Disorders for Educators  
This course provides the student preparing to be a classroom or special education teacher with information about the nature of spoken and written language, its development, conditions associated with language disorders, and the principles and methods of assessment and treatment for children, from infancy through adolescence, with specific language needs. Not applicable toward the master’s degree in Speech-Language Pathology. 2 hours

SPPA 5970  Topics in Speech Pathology and Audiology  
Selected topics in speech pathology and audiology are systematically explored through lectures, laboratory experiences, and student projects. Possible areas of study are: instrumentation in audiology, manual communication, electrophysiologic audiometry, computer applications to speech pathology and audiology, augmentative communication, and contemporary professional issues. 1 to 4 hours

SPPA 5980  Readings in Speech Pathology and Audiology  
Arranged on an individual basis to provide students the opportunity to pursue independent study of special areas of interest in depth. 1 to 4 hours

Statistics

STAT 1600  Statistics and Data Analysis  
A general introduction to statistics with an emphasis on data analysis and graphical presentation. Extensive use will be made of the computer to prepare results. Topics may include: data collection, sampling and experimentation, measurement issues, descriptive statistics, statistical graphics, normal distribution, cross-classified data, correlation and association, formal statistical inferences, and resampling methods. This course satisfies General Education Proficiency 3: College-Level Mathematics or Quantitative Reasoning. Prerequisite: MATH 1100 or MATH 1110 with a grade of “C” or better, or satisfactory score on Mathematics Department Placement Examination. 3 hours

STAT 2160  Business Statistics  
An applications-oriented study of statistical concepts and techniques. The course focuses on the student as a user of statistics who needs a minimal understanding of mathematical theory and formula derivation. Major topics of study are statistical description, central tendency, dispersion, distributional shapes, sampling, confidence levels, probability, comparison tests, association tests, and regression analysis. The objectives of the course are to develop the skill to apply these concepts in conjunction with computer usage and make appropriate decisions regarding actual business problems. This course satisfies General Education Proficiency 4: Mathematics or Quantitative Reasoning. All STAT 2160 students are expected to take the final exam on the assigned mass exam day. Prerequisite: MATH 1160 or MATH 1180 or MATH 1220, MATH 1230 or MATH 2000; with a grade of “C” or better. 3 hours
STAT 2600 Data Analysis Using R  Students will obtain a solid introduction to R as a functional programming language and will be able to use R to effectively compute statistical and graphical procedures. Topics covered: descriptive statistics and plots, discrete and continuous probability models including the binomial, Poisson, normal, gamma and Weibull distribution. Monte Carlo simulations, basic one and two-sample location problems using traditional and robust statistical procedures, regression (simple and multiple) and one and two-way ANOVA designs using traditional and robust statistical procedures. This course satisfies General Education Proficiency 4: Mathematics or Quantitative Reasoning. Prerequisites: MATH 1100 with a grade of "C" or better. 4 hours

STAT 2830 Methods of Data Analysis  This course is an examination of data analytic methods in the social sciences. Major topics include frequency distributions, graphic presentation of data, measures of central tendency and variability, cross-tabulation, sampling distributions, statistical inference by confidence intervals and significance tests, bivariate regression and correlation. Students can receive credit for only one of: STAT 2160, STAT 2600, STAT 2830, STAT 3640, STAT 3660 or SOC 2830. This course satisfies General Education Proficiency 3: College-Level Mathematics or Quantitative Reasoning. Prerequisites: MATH 1100 and SOC 2820, with grades of “C” or better. 3 hours

STAT 3620 Probability  General probability spaces, conditional probability, independence, random variables, distributions of discrete and continuous random variables, expectation, moment generating function, joint distributions, conditional distributions, and transformations. Special probability models, including binomial, Poisson, gamma, beta, normal, t, and F. Convergence in probability and distribution and the Central Limit Theorem. Prerequisite: MATH 1230 or MATH 1710 with a grade of “C” or better. 4 hours

STAT 3640 Foundations of Data Analysis  This course treats both the theory and applications of statistics. Topics include: random variables and probability distributions, the central limit theorem, sampling distributions, point and interval estimation, hypothesis testing, analysis of variance, correlation and regression. Prerequisite: MATH 1230 or MATH 1710 with a grade of “C” or better. 4 hours

STAT 3660 Data Analysis for Biosciences  An introduction to statistics for students in the biological and related sciences with an emphasis on the basic concepts and explanations of why things work. The focus is on quantitative reasoning and statistical thinking for making decisions and conjectures. This numerical art will be illustrated with a wide range of interesting problems. Topics include descriptive statistics like means, medians, standard deviation, percentiles; correlation and regression - interpretation and prediction problems; the normal and binomial distributions; law of averages; sampling variability and standard errors; inferential statistics to -confidence intervals and tests of hypotheses for one- and two-sample problems. This course satisfies General Education Proficiency 3: College-Level Mathematics or Quantitative Reasoning. Prerequisite: MATH 1100 or MATH 1110 with a grade of “C” or better; or the equivalent or satisfactory score on the departmental placement exam. 4 hours

STAT 4620 Introduction to Mathematical Statistics  This course provides an introduction to the theoretical foundations of statistical estimation and hypothesis testing. Topics include concepts of sampling and inference, maximum likelihood estimation, and likelihood ratio tests. Prerequisites: MATH 2300, MATH 2720, STAT 3620 and STAT 3640. 3 hours

STAT 4640 Introduction to Statistical Computing  This course provides an introduction to the use of statistical computer software in the MINITAB and SAS packages. The statistical graphics capabilities of SASGRAPH and MINITAB will also be included. The following topics may be emphasized: data entry; editing; production of statistical summaries in the form of tables, graphs, charts, and plots for report writing purposes; data management methods for large survey-type data sets. The latter topic may include: subset analysis, updating, and missing data methods. Attention may also be given to the statistical topics of: correlation and regression analysis; one and two sample problems; and analysis of variance. Prerequisite: An introductory statistics course. 3 hours

STAT 4810 Communicating Statistical Results  The emphasis of the class will be the reporting of statistical analysis so that all relevant information is conveyed, avoiding the use of jargon and enhancing the text with the use of informative tables or graphics. Examples of statistical reports will be examined and discussed. Students will be assigned projects involving data gathering and analysis. Written and oral reports on the methodology used and the results of the analysis will be required of each student. Student reports will then be discussed and critiqued by the class for content and
clarity of writing as well as appropriateness of the methodology used. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Prerequisites: STAT 3620, STAT 3640, STAT 4640 with a grade of “C” or better; and approval of instructor.

STAT 5020 Statistics for Graduate Study
Statistics instruction in existing courses at appropriate level for graduate students enrolled in a degree program who need knowledge of Statistics for their field of study. May be repeated for credit. May not be taken by undergraduate students in any field nor by graduate students in Statistics. Prerequisites: Approval of department of student’s graduate program and approval of Department of Statistics. 3 hours

STAT 5610 Applied Multivariate Statistical Methods
An applied treatment of multivariate procedures is presented. Classical procedures such as Hotelling’s T-squared methods are discussed for the one and two sample problems and MANOVA for standard designs. Topics that will be accentuated are principal components, discriminant analysis, cluster analysis, and factor analysis. Emphasis will be on graphical methods and applications. Open to upperclass and graduate students. Prerequisites: an introductory course in statistics and a course in linear algebra. 3 hours

STAT 5630 Sample Survey Methods
This course consists of a broad overview of the techniques of survey data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-stage cluster, and two-stage cluster sampling; ratio and regression estimation; subpopulation analyses; problems of nonresponse; surveys of sensitive issues; minimization of survey costs; sample size determination. Real surveys are discussed and actual survey data are analyzed. Open to upperclass and graduate students. Prerequisite: An introductory statistics course such as STAT 2600 or STAT 3640 and instructor approval. 3 hours

STAT 5650 Design of Experiments for Quality Improvement
This course covers statistical methods useful for improving the quality of products and systems in an industrial setting. It provides a comprehensive set of tools to use in building better products and in reducing manufacturing and other costs. The focus will be on solving real engineering problems through case studies. Taguchi methods will be discussed along with modifications from standard statistical practice. Topics will include planning and experiment, experimental strategy, Analysis of Variance concepts, factorial designs, orthogonal arrays, loss functions, signal-to-noise ratios, identifying significant factor effects, graphical methods, parameter design and tolerance design. Open to upperclass and graduate students. Prerequisite: An introductory course in statistics such as STAT 2600 or STAT 3640. 3 hours

STAT 5660 Nonparametric Statistical Methods
This course presents a broad overview of statistical methods commonly referred to as nonparametric or distribution-free methods. Topics include: inferences for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing based on ranking methods, measures of rank correlation, efficiency. Emphasis will be on the application of nonparametric statistical methods to data from many different applied fields. Open to upperclass and graduate students. Prerequisite: An introductory statistics course such as STAT 2600 or STAT 3640. 3 hours

STAT 5670 Statistical Design and Analysis of Experiments
A course in experimental design and the analysis of variance with particular emphasis on industrial experiments. Topics include: complete randomized, randomized complete block; Latin square, and split-plot designs; orthogonal contrasts and polynomials; multiple comparisons; factorial arrangement of treatments; confounding; fractional replication. The course is molded around the complete analysis of good applied problems. Open to upperclass and graduate students. Prerequisite: An introductory statistics course such as STAT 2600 or STAT 3640. 4 hours

STAT 5680 Regression Analysis
An applied course in regression analysis; simple and multiple linear regression; resolution of fit of a model, including residual analysis, precision of estimation, and tests of general hypotheses; model building; step-wise regression; use of indicator variables; non-linear regression. Open to upperclass and graduate students. Prerequisite: An introductory statistics course such as STAT 2600 or STAT 3640. 3 hours

STAT 5690 Quality Improvement Concepts and Methods
This is a course on quality technology for application in business and industry involving concepts and methods from Statistics, Management and Psychology and how they must blend together to obtain results. Topics may include: quality concepts for products and services, Deming philosophy of quality improvement, leadership and management concepts, analytic vs enumerative studies, theory of variability, the seven tools, exploratory data analysis, statistical graphics, Shewhart control charts, cusum charts, process 3 hours
capability, principles of experimental design, robust product and process design. Prerequisite: An introductory statistics course such as STAT 2600 or 3640. 4 hours

STAT 5820 Time Series Analysis The development and practical use of seasonal and non-seasonal ARIMA (Autoregressive Integrated Moving Average) Box-Jenkins time series models is presented. Identification of correct time series models, estimation of model parameters, and diagnostic checks of identified models will be covered. The uses of these models for forecasting future trends and assessing interventions will be examined. Extensive data analysis using SAS, MINITAB, and Splus/R statistical packages are included. Topics include: regression time series models, autocorrelation partial autocorrelation, Yule-Walker equations, differencing, stationarity, autocorrelation models, moving average models, seasonality, invertibility, and Box-Pierce tests. Open to upperclass and graduate students. Prerequisites: STAT 3640 and STAT 5680. 3 hours

STAT 5850 Applied Data Mining Data mining can be described as the process of building models. For the development of models, the applied data mining course aims to go far beyond the classical statistical methods, such as linear regression. This course provides an applied overview to such modern non-linear methods as generalized additive models, decision trees, boosting, bagging and support vector machines as well as more classical linear approaches such as logistic regression, linear discriminant analysis, K-means clustering and nearest neighbors. Extensive data analyses are done using statistical programming R. Open to upperclass and graduate students only. Prerequisite: STAT 5680 or STAT 6620 or instructor approval. 3 hours

STAT 5860 Computer Based Data Analysis Computer intensive statistical methods are discussed for a variety of statistical problems, including location problems, linear and nonlinear models, mixed models, and generalized linear models (glm). These analyses include bootstrapping and other resampling techniques, computational maximum likelihood procedures, and robust procedures. The course uses simulation procedures for various probability models. The software language R is used. Open to upperclass and graduate students. Prerequisites: (STAT 2600 or STAT 3640) and STAT 5680, with a grade of "B" or better in any prerequisite, or instructor's approval. 3 hours

STAT 5990 Independent Study in Statistics Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student. May be repeated for credit. Open to upperclass and graduate students. Prerequisite: Approval of chairperson of department. 1 to 3 hours

Social Work

SWRK 1000 Introduction to Social Services This course provides a fundamental image of the subject matter with the profession of social work. It takes a look at the broadest units of consensus within the profession and differentiates one broad topic from another. It identifies exemplars, theories, and methods of practice in a way that newcomers to the profession can comprehend. 3 hours

SWRK 2100 Social Work Services and Professional Roles This course introduces students to the social work profession: its code of ethics, value base, and commitment to social justice. The course examines the evolution of social work as a profession, acquaints students with contemporary social work roles and fields of practice, and examines the profession's responsibilities in the delivery of social work services to minority and majority groups in the public and private sectors. 3 hours

SWRK 3000 Social Welfare as a Social Institution This course analyzes social welfare as a response to social problems and human needs. It examines the social, economic, political, and philosophical forces that have led to the historic development and institutionalization of social welfare. It encourages students to develop a critical perspective on social welfare policies and programs and stresses an understanding of the impact of age, race, gender, sexual orientation, and social class upon social policy and service delivery. Prerequisite: Completion of 25 credit hours. 3 hours

SWRK 3200 Social Work Interviewing and Assessment This course seeks to provide students with professional interviewing skills, and enhanced understanding of verbal and non-verbal communication, listening skills, and an awareness and understanding of diverse issues related to the interviewing process. The person-in-environment perspective will be utilized throughout this course. Students will develop beginning proficiency as generalist social work practitioners.
when interviewing clients and other professionals who may work in an interdisciplinary setting. Various approaches to practice will be introduced including observation and rapport development within the context of strengths-based social work practice. Students will begin to develop knowledge and proficiency in how to translate interview information into a bio-psycho-social assessment. Students will also learn introductory skills relating to the problem-solving model, particularly engagement and problem identification. Students are expected to demonstrate increased insight into their own behaviors, values, beliefs, and attitudes as they relate to professional social work practice. Prerequisites: SWRK 2100

SWRK 3330 Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice
This course focuses upon ethnic/racial groups who are among social welfare consumers and social work clientele. Individual and institutional racism are examined. Racial/cultural characteristics and group strengths, needs, priorities, and experiences in the context of social welfare and social work are also explored. The course reviews implications of ethnic factors for social work practice, social policy, and social work education. Prerequisite: SOC 2000 and SWRK 2100. Corequisite: SWRK 3200. 3 hours

SWRK 3500 Human Behavior and the Social Environment
Human growth and behavior are studied across the life span and as social/cultural phenomena that are conditioned by economic, historical, political, geographic, and racial/ethnic diversity. Thus, human development and behavior are inseparable from the social context which affect and are affected by them and which condition their meanings. This course also examines the complex interplay between social, cultural, biological, and psychological systems and pays close attention to diversity in the human experience and to the factors and settings that create diversity. Prerequisites: SWRK 2100, OT 2000, PSY 1000, SOC 2000, and completion of 55 credit hours. Prerequisites with concurrency: PSY 3000 or SOC 2830 or STAT 1600 or STAT 3660 3 hours

SWRK 3510 Social Work Concepts in Group, Community and Organizational Behavior
This course provides the student with an understanding of human behavior related to small group process, formal organizations, and community dynamics. Students are introduced to selected systems concepts. The interplay of various forces which affect the development of social groups, communities, and organizations, and the effects of these interdependent systems on the client system are examined. The impact of race, sex, and age is considered in relation to groups, organizations, and communities. Prerequisites: SWRK 2100, SWRK 3000, SWRK 3200, SWRK 3330, SWRK 3500, PSCI 2000 and completion of 55 credit hours. Corequisite: SWRK 3650 and SWRK 4000. This course is restricted to Social Work majors. 3 hours

SWRK 3650 Social Work Research Methods
Social Work 3650 is a research methods course that emphasizes the generation and appraisal of knowledge used in social work. The aim is for students to obtain knowledge and skills in research methods and data analysis approaches that are essential to effective and accountable social work practice. The course provides students with a working understanding of theoretical and practical issues inherent in the research process, particularly as it relates to professional practice. The course focuses on giving students a strong foundation of research knowledge and skill necessary for knowledge building in the social sciences arena. This course presents students with ideas, techniques, and procedures basic to evidence-based decision making. It provides students with a balance of lecture material and interactive activities, which include discussion, homework assignments, experiential exercises, and computer assignments. This course is restricted to Social Work majors only. Prerequisite: ENGL 1050 and SWRK 3500. Corequisites: SWRK 3510 and 4000. Corequisites: SWRK 3510 and 4000. 3 hours

SWRK 4000 Social Work Practice with Individuals and Families
The problem-solving process serves as the basis of intervention strategies for this course. Students will learn practice theories and intervention strategies for use with individuals and families. Emphasizing the generalist intervention model, students learn social work roles including advocate, facilitator, case manager, and broker. Students will be expected to demonstrate an ability to formulate case plans including intake, assessment, plan of service, evaluation of intervention, and termination of services. Methods of practice evaluation are presented, including single-system design. This course is restricted to Social Work majors. Prerequisites: SWRK 3500 with a grade of "C" or better. Corequisites: SWRK 3510 and SWRK 3650. 3 hours

SWRK 4010 The Problem Solving Process with Task Groups and Organizations
This course introduces the subject of assessment and intervention with task groups and organizations as a central concern of social work. We will examine the systemic relationship between task groups and organizations and the role of the worker in task groups and organizations. This course also addresses human diversity and empowerment within task groups. This course is restricted to Social Work majors. Prerequisites: Senior standing and SWRK 4000 with a grade of "C" or better. Corequisites: SWRK 4020. 3 hours
SWRK 4020 Social Welfare Policy

This is the second course of the undergraduate social welfare sequence. Its purpose is to introduce the subject area of social welfare policy as a central concern of social work. The goals of the course are to help the student identify evolving socio-cultural and economic bases of social welfare in America, to gain understanding of the substance of particular social policy areas, and to learn to approach the study of social welfare policy within the context of analytic frameworks. It pays attention to the impact of social policy on human service organizations analyzing the effects of specific policies on workers and clients. SWRL 4020 places primary focus on the content of social welfare policy. Prerequisites: SWRK 4000, ECON 2010, PSCI 2000, and completion of 87 credit hours. This course is restricted to Social Work majors. 3 hours

SWRK 4100 BSW Field Education I

This course is designed to integrate classroom learning into the application of foundational social work practice in field placements or internships. The BSW field experience emphasizes generalist social work practice at the micro, mezzo, and macro levels. Placements are in organizations offering direct social work practice experiences with some combination of individuals, families, groups, organizations, and communities. Learning experiences are consistent with the foundation curriculum objectives, and the learning contract. Field education is the signature pedagogy of social work education, and demonstrates the integration of social work knowledge, values, and skills into social work practice. SWRK 4100 course is the first in a two-course sequence taken as a capstone of the BSW coursework; the second course is SWRK 4110. This course is restricted to Social Work majors. Prerequisites: Senior standing and SWRK 4000 with a grade of "C" or better. 4 hours

SWRK 4110 BSW Field Education II

This course is designed to integrate classroom learning into the application of foundational social work practice in field placements or internships. The BSW field experience emphasizes generalist social work practice at the micro, mezzo, and macro levels. Placements are in organizations offering direct social work practice experiences with some combination of individuals, families, groups, organizations, and communities. Learning experiences are consistent with the foundation curriculum objectives, and the learning contract. Field education is the signature pedagogy of social work education, and demonstrates the integration of social work knowledge, values, and skills into social work practice. SWRK 4110 course is the second in a two-course sequence taken as a capstone of the BSW coursework; the first course is SWRK 4100. This course is restricted to Social Work majors. Prerequisites: Senior standing, SWRK 4010, SWRK 4020, SWRK 4100 and SWRK 4600 (SWRK 4600 may be taken concurrently). 4 hours

SWRK 4130 Social Policy and Service Delivery in Selected Problem Areas

Intensive study in selected field of service specialization and social problem areas. Attention is focused on learning about the major social policy issues associated with the service or problem area. Specific topics will be announced each semester. 3 hours

SWRK 4230 Ethics in Substance Abuse Treatment

The goal of this course is to lead students from an initial understanding of personal value based decision making into a concept of professional/public value based decision making, resulting eventually into the application of a model that is employed in the substance abuse field. In addition, this course will specifically address ethical and legal issues, as well as professional standards that are to be adhered to while working with this population. 3 hours

SWRK 4500 Individual Studies in Social Work

This course will be arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of interest. May be repeated for credit. 1 to 4 hours

SWRK 4600 Social Work with Communities

This is the third in a three-part sequence in generalist social work practice. Social workers have a rich heritage in advocating for social justice. This course involves an examination of major theoretical and conceptual tenets of community practice from a social work perspective. Students will learn practice methods for community organizing, advocacy, community development, and other community practice skills. It also involves a practical integration of theoretical and conceptual knowledge of community practice through assignments which focus on communities that are available through field placements or other arrangements. Students will learn about community practice, social work’s historical and contemporary emphasis on “empowerment” and person-environment interface. Prerequisites: SWRK 4010, SWRK 4020, SWRK 4100 (all prerequisites may be taken concurrently) and completion of a minimum of 87 credit hours. 3 hours

SWRK 4650 Special Studies in Social Welfare Practice

Study of selected topics related to the theory and practice of social welfare activities and endeavors. Focus will be on roles of human service workers and methodologies
utilized in these roles in a range of social welfare areas. Specific topics will be announced. Prerequisite: Consent of instructor. 3 hours

**SWRK 5970 Teaching Apprenticeship in Selected Social Work Curriculum Areas**
This course focuses on the development of educational skills for social workers through faculty-directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area. 1 to 4 hours

**SWRK 5980 Readings in Social Work**
This course offers advanced students with good scholastic records an independent program of study, arranged in consultation with the instructor. One to four credit hours per semester. 1 to 4 hours

**Teaching English Learners**

**TEL 5150 Introduction to ESL/Bilingual Education**
This introductory course is designed to engage practicing teachers in learning about the history, theories, and principles related to English as a second language and bilingual education. Theories of language learning, and various historical approaches to language teaching form a foundation for principled practice. Open to upperclass and graduate students. 3 hours

**TEL 5200 Linguistic Principles for ESL and Bilingual Education**
This course raises students' awareness of how human language is organized and learned so that they will be better able to understand what and how students gain proficiency in the languages they are learning. Emphasis is placed on the major components of language (phonology, morphology, lexicon, syntax, etc.) and recognizing how they are realized as children and adults learn a language. Open to upperclass and graduate students. 3 hours

**Theatre**

**THEA 1000 Playing with Fire: Love, Politics & Entertainment**
Students will explore theatre's impact on contemporary culture, learn how theatre works, and discover why theatre matters. Students WILL attend theatre performances and have opportunities to participate in University Theatre. This course satisfies General Education Area I: Fine Arts. 3 hours

**THEA 1050 Introduction to African-American Theatre**
A survey/lecture course from a African-American perspective examining the activities and developments of African-American life as evidenced through its theatre, with emphasis on history, philosophy, dramatic creations, criticism, and concerns. Includes lectures on traditional theatre of Western Civilization and African contributions. This course satisfies General Education Area III: The United States: Cultures and Issues. 3 hours

**THEA 1150 Introduction to Theatre Production**
An introductory course intended to develop the students' understanding of production practices and applications as it pertains to University Theatre productions. Restricted to majors in Theatre. 1 hour

**THEA 1200 Stagecraft I**
A beginning course in technical production including familiarization with theatrical equipment and materials; the planning and construction of basic stage scenery, costumes, and properties; the fundamentals of stage lighting; and laboratory work on University Theatre Productions. Restricted to majors in Theatre. 3 hours

**THEA 1300 Period Styles of Design**
A survey of historical periods and design styles as they are applied to the theatre. The study will include an examination of architecture, costumes, furniture, interiors, lighting, ornament and stage scenery. Restricted to majors in Theatre. 3 hours

**THEA 1310 Drafting and Color Media**
A methods course for beginning students in lighting, costume, scenic design, and technical production providing instruction and practice in the special techniques of drafting for the theatre and in the use of various color media for design renderings and scale models. Restricted to majors in Theatre. 3 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>THEA 1410</td>
<td>Introduction to Acting</td>
<td>An initial approach to the study of dramatic action using scripted and unscripted material, basic acting exercises and improvisational techniques. Emphasis is placed upon use of the imagination, creating ensemble and creative risk-taking while cultivating self-awareness and the ability to critique objectively and nonjudgmentally. Restricted to majors in Theatre.</td>
<td>3 hours</td>
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<tr>
<td>THEA 1420</td>
<td>Acting I: Action and Personalization</td>
<td>Study and practice of scene-work from a basic Stanislavski point of view. Restricted to majors in Theatre.</td>
<td>3 hours</td>
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<tr>
<td>THEA 1450</td>
<td>Beginning Acting</td>
<td>This is an introduction to the practice of acting aimed at the non-Theatre major. The course emphasizes self-awareness, minimizing personal idiosyncrasies, and developing creative capacity for authentic performance. The course also introduces students to professional standards for evaluating performance, to practical application of techniques in warming up, improvisation, textual and character analysis, and to basic acting vocabulary.</td>
<td>3 hours</td>
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<tr>
<td>THEA 1480</td>
<td>Direct Encounter with the Arts</td>
<td>A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of areas: cinema, photography, theatre, sculpture, music, poetry, dance and architecture. Classroom discussions are held following the student's participation in the various art events scheduled each semester, with students expected to write journals and response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross-listed with MUS 1480, ART 1480. May be taken only once from College of Fine Arts Departments.</td>
<td>4 hours</td>
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<tr>
<td>THEA 1700</td>
<td>Script Analysis</td>
<td>The study of selected plays from the standpoint of the theatre artist. Emphasis on thorough examination of the play script preparatory to production. Restricted to majors in Theatre.</td>
<td>3 hours</td>
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<tr>
<td>THEA 1810</td>
<td>Stage Management</td>
<td>This is a foundation course in the principles, practices, and applications of Stage Management in both educational and professional theatre. Basic and advanced techniques of the stage manager are presented, including the prompt book, production book, audition, rehearsal, performance, and post-production procedures. In addition, stage management forms and formats will be studied to strengthen communication and organizational skills. The course will include production management projects involving the creation of an eight-play repertory season, a production schedule, a production master calendar, a production budget broken into a chart of accounts, a production staff breakdown wherein the student suggests the staff necessary to create the season, and a production salary budget. Restricted to majors in Theatre.</td>
<td>3 hours</td>
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<tr>
<td>THEA 1900</td>
<td>Summer Theatre</td>
<td>Theatre majors may receive credit for participating in a full season of summer theatre in the performance or production areas. Students must submit a summer theatre application to the Department Chair. Repeatable for credit up to six hours. Restricted to majors in Theatre. Prerequisite: Application approved by Department Chair.</td>
<td>1 to 3 hours</td>
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<tr>
<td>THEA 2200</td>
<td>Stagecraft II</td>
<td>A course in technical production including the planning and construction of complex stage scenery, costumes and properties; scenery painting; lighting technology; and laboratory work on University Theatre productions. Restricted to majors in Theatre. Prerequisites: THEA 1200 with a grade of &quot;C&quot; or better.</td>
<td>3 hours</td>
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<tr>
<td>THEA 2300</td>
<td>Stage Makeup</td>
<td>Study and practice of the basic principles and techniques of stage makeup. Restricted to majors in Theatre.</td>
<td>3 hours</td>
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<tr>
<td>THEA 2301</td>
<td>Computer-Aided Theatre Design</td>
<td>An introduction to the application of computer hardware and software to design for the theatre, including instruction and practice in CAD, color imaging, and 3-D modeling. Restricted to majors in Theatre. Prerequisites: THEA 1300 and THEA 1310, with a grade of &quot;C&quot; or better in all prerequisites.</td>
<td>3 hours</td>
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<tr>
<td>THEA 2311</td>
<td>Theatrical Rendering</td>
<td>A methods course for students in scenic, costume, and lighting design providing instruction and practice in various mediums and styles of rendering used by theatrical designers. Restricted to majors in Theatre. Prerequisite: THEA 1310 with a grade of &quot;C&quot; or better.</td>
<td>3 hours</td>
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THEA 2320  Scenic Design  A course in scenography covering the design of stage settings and properties expressed through color renderings and/or the scenic models, and including further development of skills in drafting for the theatre. Restricted to majors in Theatre.  Prerequisites:  THEA 1200 and 1700, with a grade of "C" or better in all prerequisites.  3 hours

THEA 2330  Costume Design  A course in the design of theatrical costumes and accessories expressed through color rendering and including an overview of the history of the costume. Restricted to majors in Theatre.  Prerequisites:  THEA 1200 and 1700, with a grade of "C" or better in all prerequisites.  3 hours

THEA 2410  Voice and Movement I  Development and training of the actor's vocal and physical instrument for theatrical performance. Restricted to majors in Theatre.  Prerequisites:  THEA 1410 with a grade of "C" or better.  3 hours

THEA 2420  Voice and Movement II  Continued development of the actor's vocal and physical instrument for theatrical performance. Restricted to majors in Theatre.  Prerequisites:  THEA 2410 with a grade of "C" or better.  3 hours

THEA 2450  Acting II: Character and Action  Integration of theories and practices of Introduction to Acting and Acting I with an emphasis upon character development in the process of scene study. Restricted to majors in Theatre.  Prerequisites:  THEA 1410 and THEA 1420, with a grade of "C" or better in all prerequisites.  3 hours

THEA 2460  Acting III: Character, Action, Language  Integration of character development and scene study with an emphasis upon classical texts or other intensive language-oriented texts. Restricted to majors in Theatre.  Prerequisites:  THEA 2410 and THEA 2450, with a grade of "C" or better in all prerequisites.  3 hours

THEA 2600  Arts Management  A survey of procedures for Arts Management, including ticket office accounting, promotion, marketing, funding and audience development. Restricted to majors in Theatre.  3 hours

THEA 2700  Script Analysis for Production  This course will build on skills learned in Script Analysis THEA 1700. The class is focused on developing script analysis skills directly applicable to work in theatre production. Students will work in a collaborative model in various creative capacities on theoretical productions. Restricted to majors and minors in theatre.  Prerequisite:  THEA 1700 with a grade of “C” or better.  3 hours

THEA 2720  Musical Theatre History and Script Analysis I  An historical overview of the development of musical theatre from its earliest beginnings to 1943. Respective scripts will be analyzed within their historical context. Restricted to majors in Theatre.  3 hours

THEA 2810  Stage Management Production – Studio  Methods of stage management, including rehearsal coordination, prompt book preparation and director/cast/crew relationships from preproduction through performance on the Department of Theatre’s Studio Series productions. Students are assigned as stage managers on the Studio Series productions. May be repeated for credit. Restricted to majors in Theatre.  Prerequisite:  Instructor approval.  3 hours

THEA 2900  Theatre Practicum  Supervised experience in various areas of theatre in the University Theatre program. May be repeated for credit up to a maximum of eight semester hours (only six of which can apply toward major and three toward minor). Restricted to majors in Theatre.  1 to 8 hours

THEA 3200  Stagecraft III  This course is a continuation of Stagecraft II with special emphasis on problem-solving and new technology. This course will involve individualized projects and laboratory work on University Theatre productions. Restricted to majors in theatre.  Prerequisite:  THEA 2200 with a grade of “C” or better.  3 hours

THEA 3320  Lighting and Sound Design  A course in the design of theatrical lighting and sound and in the practical application of those designs to the stage, including laboratory work on University Theatre productions. Restricted to majors in theatre.  Prerequisites:  THEA 1200 and 1700, with a grade of "C" or better in all prerequisites.  3 hours
THEA 3330 Advanced Design A course for advanced students in the design of scenery, costumes, properties, lighting and/or sound; the professional drafting of those designs for technical production. Restricted to majors in Theatre. Prerequisites: THEA 1300, THEA 1310, and one of the following: (THEA 2320, 2330 or 3320); with a grade of “C” or better. 3 hours

THEA 3430 Elements of Performance This course will afford an opportunity for students to study a variety of elements of and approaches to performance through a series of rotating topics. Restricted to majors in Theatre. 1 hour

THEA 3440 Acting IV: Advanced Scene Study This class will focus on strengthening the foundation of the actors' skills through intensive scene study that will mimic some of the professional expectations of the industry. This class will focus on scene turnover challenging the actor to work quickly and efficiently on homework, active choices and defining conflict. Restricted to majors in Theatre. Prerequisite: THEA 2460 with a grade of “C” or better. 3 hours

THEA 3450 Acting V: Contemporary Drama Study and practice of acting in plays from current and twentieth century drama. Restricted to majors in Theatre. Prerequisite: THEA 2460 with a grade of “C” or better. 3 hours

THEA 3470 Voice and Movement Lab An advanced course in voice and movement with an emphasis on the individual needs of the student actor. This course provides the students with an opportunity to investigate special topics in voice and movement training and to receive individual and small group tutorials. Repeatable for credit under a different topic. Restricted to majors in Acting and Music Theatre Performance. Prerequisites: THEA 2410 with a grade of “C” or better. 3 hours

THEA 3510 Directing I Functions of the play director as teacher, interpreter, coordinator, and collaborator. Focus is upon principles and problems of directing on the proscenium stage. Restricted to majors in Theatre. Prerequisites: THEA 1410, and (THEA 1700 or THEA 2950), and junior standing; with a grade of "C" or better in all prerequisites. 3 hours

THEA 3520 Directing II A continuation of THEA 3510. Focus is upon the principles and problems of directing for the non-proscenium stage and expansion of directorial approaches to production. Students prepare and direct scenes and one short play using non-proscenium staging. Restricted to majors in theatre. Prerequisite: THEA 3510 with a grade of “C” or better. 3 hours

THEA 3700 Theatre History I Survey of theatre history from the beginnings to 1642. Playwrights, acting styles, theatre production, theatre architecture, and audience taste are studied. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Restricted to majors in Theatre. Prerequisite: College-level writing course (ENGL 1050, BCM 1420, or IEE 1020). 3 hours

THEA 3710 Theatre History II Survey of theatre history from 1642 to the twentieth century. Playwrights, acting styles, theatre production, theatre architecture and audience taste are studied. Restricted to majors in theatre. Prerequisite: THEA 3700 with a grade of "C" or better. 3 hours

THEA 3720 Musical Theatre History and Script Analysis II A historical overview of the development of musical theatre from 1943 to the present. Representative scripts will be analyzed within their historical context. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Restricted to majors in theatre. Prerequisite: THEA 2720 with a grade of “C” or better. 3 hours

THEA 3810 Stage Management Production – Mainstage Methods of stage management, including rehearsal coordination, prompt book preparation and director/cast/crew relationships from preproduction through performance on The Department of Theatre’s Mainstage productions. Students are assigned as stage managers on the
Mainstage productions. May be repeated for credit. Restricted to majors in theatre. Prerequisite: Instructor approval. 3 hours

THEA 3820 Job Preparation, Self Promotion and Branding This course offers career preparation for theatre professionals. Portfolio preparation will follow the United States Institute for Theatre Technology's standards and standards employed by Actors' Equity Association LORT theatres and URTA and ACTF for Stage Managers. Standards and subjects include: organization, resume, interview/audition procedures, personal marketing and presentation, dress and decorum, job applications, and networking. The course will include general management and producing projects that involve the creation of production budgets and grant writing. Restricted to majors in Theatre. Prerequisite: THEA 1810 with a grade of “C” or better. 3 hours

THEA 3900 Professional Theatre Internship Advanced theatre majors may receive credit for participating in the Professional Theatre Internship Program with professional theatres. Students must submit an internship application to the department's Internship Coordinator. The Internship Coordinator will determine the number of credit hours to be awarded. This course may be repeated for a maximum of six credit hours. Restricted to majors in Theatre. 2 to 6 hours

THEA 3910 Performance Practicum Performance Practicum is designed to provide acting students the opportunity for rigorous, supervised work on university theatre productions. Each student is required to complete two semesters of this course before graduation. Restricted to majors in theatre. Prerequisites: THEA 1420 with a grade of “C” or better and instructor approval. 2 hours

THEA 4000 Special Topics in Theatre An investigation of topics of special interest related to theatre. Repeatable for credit under a different title. Examples of topics for study may include: dialects, mime, puppetry, script writing, advanced directing, theatre administration, touring theatre, advanced improvisation, stage management, and technical direction. Restricted to majors in Theatre. Prerequisites: THEA 2301, and two of the following: (THEA 2320, THEA 2330, THEA 3320); with a grade of “C” or better in all prerequisites. 1 to 3 hours

THEA 4330 Portfolio Preparation Instruction and practice in the preparation and presentation of the theatrical designer’s and/or technician’s resume and portfolio with emphasis on applications for professional theatre internships, apprenticeships, employment, and/or graduate schools. Restricted to majors in theatre. Prerequisites: THEA 2301, and two of the following: (THEA 2320, THEA 2330, THEA 3320); with a grade of “C” or better in all prerequisites. 3 hours

THEA 4410 Acting Studio Study and practice of auditioning and cold readings with an emphasis upon preparation for graduate schools, internships, and the professional world of the actor. Restricted to majors in theatre. Prerequisite: THEA 2460 with a grade of “C” or better. 3 hours

THEA 4430 Acting for the Camera The study and practice of principles of acting as applied to film and television. Restricted to majors in theatre. Prerequisite: THEA 2460 with a grade of “C” or better. 3 hours

THEA 4440 New Play Project Focuses on the collaborative process of mounting original works. Students will directly collaborate with playwrights from the English Department’s graduate and undergraduate playwriting program and stage their original work for the first time. Attention is paid to not only the dramaturgical needs of this process, but to the challenge of staging and creating original characters. All productions have a final performance for a live audience. May be repeated for credit. Restricted to majors in theatre. Prerequisite: THEA 1420 with a grade of “C” or better. 3 hours

THEA 4700 Development of Theatre Art A survey of the development of twentieth century theatre art and its relationship to concurrent developments in other arts and world politics. Restricted to majors in theatre. Prerequisite: THEA 3710. 3 hours

THEA 4900 Individualized Study in Theatre Designed to enable upper division theatre majors, or students in special programs, to initiate, plan and execute projects in particular aspects of theatre. Must be planned in collaboration with a member of the theatre faculty who will act as supervising teacher. No more than six credit hours may count toward the major. Projects may involve study and research in an area of special interest, special performances or other creative activities. Restricted to majors in theatre. Prerequisite: Approval of performance or tech/design area, departmental advisor, and departmental chair. 1 – 6 hours
THEA 4950 Music Theatre Performance Workshop I II Students will participate in rehearsal and performance of staged readings from a broad spectrum of music theatre repertoire. Readings will incorporate technique and skills from the prior two semesters of MTP Workshop coursework. Readings will be performed before a public or invited audience. Students will be directed and evaluated by a faculty team from Theatre, Music and Dance. Prerequisite: DANC 4950 with a grade of “C” or better. 3 hours

THEA 4990 Music Theatre Showcase The purpose of this course is to prepare students who will soon graduate in Music Theatre Performance to be competitive as they face auditioning for the professional industry they will be entering. The focus of the course is to select and prepare musical audition material. Students will have the opportunity to rehearse and receive staging, vocal, and interpretation coaching on up to three songs, as well as direction and choreography for an ensemble number. In addition, the course will discuss the nature of the professional music theatre industry and what is expected of artists entering the field. The small class size will allow students to address their individual needs and issues and receive ample coaching and attention within the class. This course is restricted to majors in music theatre performance. Prerequisite: Senior standing. 1 hour

University Curriculum
UNIV 1010 Freshman Seminar This course is designed to assist students to encounter experientially, intellectually, and emotionally the various avenues of learning, and to foster the academic, personal, social, and career development of each student. The activities and assignments of the course aid students in the development of an intellectual awareness and provide the skills and self-management required for a successful transition from high school to the University. The course is intended to excite students about learning and living in the new and challenging world of Western Michigan University. For freshmen only. 1 to 3 hours

UNIV 1020 Career Exploration and Development This course is designed to help students through the career development process by assessing and developing skills in self-awareness, career awareness, decision-making, and planning. It will include activities to identify and explore the following areas: values, interests, career information, decision-making, University resources, and the world of work. Assignments will involve taking a career assessment, written exercises, networking, resume development and career research. 1 hour

UNIV 1030 Special Topics within Academic Success UNIV 1030 is open only through instructor or department approval. The department overseeing UNIV 1030 will be the Center for Academic Success Programs. Courses will vary by topic and be chosen based on student need. The goals of the course will range from academic preparation for special populations, academic improvement, career exploration and skill building. 1 to 3 hours

Workforce Education and Development
WFED 1980 Career Exploration and Self-Evaluation This course will assist students in evaluating their current transferable work skills as well as the various career options they may want to pursue upon program completion. Additionally, this course will provide the student with an opportunity to learn and apply three highly marketing employability skills: critical thinking, problem solving, and organization. 1 hour

WFED 1990 Employability Skills This course will prepare students for employment after graduation by providing students with effective job search and interview strategies. In addition, students will develop a career portfolio highlighting the various technical and transferable skills they possess. 1 hour

WFED 3050 Career and Employability Skills Intensive investigation of career and employability skills in Career and Technical Education. Included are the concepts required to develop skills and behaviors that will prepare students for the world of work. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum. This course satisfies General Education Proficiency 2: Baccalaureate-Level Writing. Restricted to students who have been admitted to the professional level of a Workforce Education and Development major or a Workforce Education and Development minor. 3 hours
WFED 3480 Student Assessment and Management This course is designed to prepare students for the responsibilities of classroom instruction. Emphasis is placed on student classroom management, assessment, and evaluation strategies. Requires a minimum of one (1) day per week participating in a classroom. Restricted to students who have been admitted to the professional level of a Career and Technical Education major. May be taken concurrently with ED 3050. Restricted to students who have been admitted to the professional level of a Workforce Education and Development major. Prerequisites: WFED 5130 (may be taken concurrently) and WFED 5420 (may be taken concurrently). 3 hours

WFED 4010 Adult Teaching and Learning Strategies Review and application of the principles of adult education and teaching methods in Workforce Education and Development programs and settings. Emphasis is placed on practicing specific teaching strategies in class. Restricted to junior standing or above. 3 hours

WFED 4020 Career Assessment and Development Review and application of the career development process for adults in Workforce Education and Development programs and settings. The focus is on helping people with career decisions including assessing needs and navigating databases. Restricted to junior standing or above. 3 hours

WFED 4030 Training Systems in Organizations Overview of the role and function of training systems in Workforce Education and Development programs and settings. Emphasis is placed on needs analysis, instructional design, facilitation, and evaluation. Restricted to junior standing or above. 3 hours

WFED 4100 Seminar in Education The seminar will be directly related to the student intern's teaching experiences within the field of career and technical education. The seminar will further the student's practical understanding of important facets of the art and science of teaching including creating a productive learning environment, advancing student learning in subject matter areas and workplace readiness while improving teaching practice through professional development and outreach with business, professional, family, and community partners. The seminar will be designed to develop reflective practitioners through the use of discussion, learning journals, and the development of a professional teaching portfolio. Must be taken concurrently with WFED 4750. Corequisite: WFED 4750 2 hours

WFED 4750 Teaching in Workforce Education and Development This course represents the final field experience of the student's curriculum during which an application of all knowledge and skills acquired is facilitated. Through the experiences provided in this course, students develop the skills and knowledge necessary for certification as a career and technical education teacher in the state of Michigan. Must be taken concurrently with WFED 4100. Corequisite: WFED 4100 10 hours

WFED 5010 Topics in International Workforce Education and Development This course provides an overview of Workforce Education and Development systems around the world with a special focus on one country. Students will identify and analyze the characteristics of each system as well as the benefits/advantages compared to the United States. This course is typically offered as a short term study abroad experience, although it may be offered in traditional and online formats. Open to upperclass and graduate students. 3 hours

WFED 5100 Special Populations in Workforce Education and Development Special populations enrolled in workforce education programs and the identification of appropriate teaching strategies, materials, and support services for effective teaching and learning. Open to upperclass and graduate students. Restricted to students who have been admitted to the professional level of a Career and Technical Education major, students in the Workforce Education and Development minor, or graduate students. 3 hours

WFED 5120 Principles of Workforce Education and Development Explanation, identification, investigation of the history, philosophy, principles, programs, and services in workforce education. Open to upperclass and graduate students. Restricted to students who have been admitted to the professional level of a Workforce Education and Development major, students in the Workforce Education and Development minor, or graduate students. 3 hours

WFED 5121 Career Exploration in Workforce Development This course will provide students with an introductory field experience in workforce education and development. Each student will be placed in a non-profit organization, business, or government agency that focuses on workforce development. Students will spend a minimum of 72 hours at their placement site. In addition to performing tasks under the direction of a site supervisor, students will job-shadow at least two professionals in workforce development. Students will also create a portfolio that demonstrates their work and volunteer experiences in workforce education and development. Open to upperclass and graduate students.
Prerequisites: WFED 5120, WFED 4010 and WFED 4020 (WFED 4010 and WFED 4020 may be taken concurrently).

WFED 5130 Teaching Methods in Workforce Education and Development
Analysis and methods of organizing instruction in workforce education. Included is a review of instructional theory and practice in workforce education, the development of lesson plans, the selection and use of instructional methods, and the presentation of content using various methods of delivery. Open to upperclass and graduate students. Restricted to students who have been admitted to the professional level of a Workforce Education and Development major, students in the Workforce Education and Development minor, or graduate students. 3 hours

WFED 5140 Workshop in Workforce Education and Development
Investigation, research, and development of a particular topic or area of interest for workforce education. (Students may enroll for more than one topic, but in each topic only once, to a maximum of three credit hours.) Open to upperclass and graduate students. Prerequisite: Vocational Certification or consent. 1 to 3 hours

WFED 5150 Grant Writing for Workforce Education and Development
Analysis of the grant writing process, including the identification of a sponsor, development of an idea and plan, and completion of a proposal. Open to upperclass and graduate students. 3 hours

WFED 5420 Curriculum Development in Workforce Education and Development
Principles of analyzing, selecting, and arranging curriculum for instructional purposes in workforce education. Open to upperclass and graduate students. Restricted to students who have been admitted to the professional level of a Career and Technical Education major or graduate students. 3 hours

WFED 5430 Work-site Based Education Programs
Study of work-site based education programs, including the organization and establishment of training programs, supervision of trainees on the job, and development of individual training plans and programs. Emphasis on establishing working relationships between school, business, and the community, including cooperative education, work experience, apprenticeship, work-study, and work exploration programs for Workforce Education. Open to upperclass and graduate students. 3 hours

WFED 5750 Internship in Workforce Development and Leadership
This course will provide students with a capstone internship experience in workforce education and development. Each student will be placed in a non-profit organization, business, or government agency focusing on adult training, career assessment and development, or workforce development systems. Students will spend a minimum of 12 hours per week at their placement site per three credits. Students will also create a professional portfolio that demonstrates their expertise in workforce education and development. May be repeated for credit. Open to upperclass and graduate students. Prerequisites: WFED 5121, WFED 4010, WFED 4020, WFED 5120, WFED 5130 and WFED 5420; with a minimum grade of "B" in all prerequisites. All prerequisites except WFED 5121 may be taken concurrently. 3 to 9 hours
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