2001

Western Michigan University Undergraduate Catalog 2001-2003

Western Michigan University

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2001-2003 Calendar

**Fall Semester, 2001**
- August 27, Monday: Advising Day—Classes Begin at 4:00 p.m.
- September 3, Monday: Labor Day Recess
- October 5, Friday: Spirit Day Recess
- October 13, Saturday: Homecoming
- November 15, Thursday: Final Day to Apply for December 2001 Graduation*
- November 21, Wednesday: Thanksgiving Recess Begins at Noon
- November 26, Monday: Classes Resume
- December 3-7: Final Examination Week
- December 8, Saturday: Semester Ends—Commencement

**Winter Semester, 2002**
- January 7, Monday: Advising Day—Classes Begin at 4:00 p.m.
- January 21, Monday: MLK Day Convocation and Activities—University Closed
- March 4, Monday: Semester Recess
- March 11, Monday: Classes Resume
- March 15, Friday: Final Day to Apply for April 2002 Graduation*
- April 22-26: Final Examination Week
- April 27, Saturday: Semester Ends—Completion

**Spring Session, 2002**
- May 6, Monday: Classes Begin
- May 15, Wednesday: Final Day to Apply for June 2002 Graduation*
- May 27, Monday: Memorial Day Recess
- June 26, Wednesday: Session Ends at Noon
- June 29, Saturday: Commencement

**Summer Session, 2002**
- June 26, Wednesday: Classes Begin at Noon
- July 4, Thursday: Independence Day Recess
- July 15, Monday: Final Day to Apply for August 2002 Graduation*
- August 16, Friday: Session Ends

**Fall Semester, 2002**
- September 2, Monday: Labor Day Recess
- September 3, Tuesday: Advising Day—Classes Begin 4:00 p.m.
- October, Friday: Spirit Day Recess
- October, Saturday: Homecoming
- November 15, Thursday: Final Day to Apply for December 2002 Graduation*
- November 27, Wednesday: Thanksgiving Recess Begins at Noon
- December 2, Monday: Classes Resume
- December 9-13: Final Examination Week
- December 14, Saturday: Semester ends—Commencement

**Winter Semester, 2003**
- January 6, Monday: Advising Day—Classes Begin at 4 p.m.
- January 20, Monday: MLK Day Convocation and Activities—University Closed
- March 3, Monday: Semester Recess
- March 10, Monday: Classes Resume
- March 15, Friday: Final Day to Apply for April 2003 Graduation*
- April 21-25: Final Examination Week
- April 26, Saturday: Semester Ends—Commencement

**Spring Session, 2003**
- May 5, Monday: Classes Begin
- May 15, Friday: Final Day to Apply for June 2003 Graduation*
- May 26, Monday: Memorial Day Recess
- June 25, Wednesday: Session Ends at Noon
- June 28, Saturday: Commencement

**Summer Session, 2003**
- June 25, Wednesday: Classes Begin at Noon
- July 4, Friday: Independence Day Recess
- July 15, Monday: Final Day to Apply for August 2003 Graduation*
- August 15, Friday: Session Ends

**NOTE:** This Academic Calendar is Subject to Change Without Notice.

*Graduation Fee and Application Deadline*

- **Fall Semester Graduation (December):**
  - $30.00 Application Deadline: August 1
  - $50.00 Application Deadline: November 15
- **Winter Semester Graduation (April):**
  - $30.00 Application Deadline: December 1
  - $50.00 Application Deadline: March 15
- **Spring Session Graduation (June):**
  - $30.00 Application Deadline: February 1
  - $50.00 Application Deadline: May 15
- **Summer Session Graduation (August):**
  - $30.00 Application Deadline: April 1
  - $50.00 Application Deadline: July 15
ACADEMIC UNIT NAME AND AFFILIATION CHANGES

Since the last printing of The Undergraduate Catalog, 2001–2003, several academic units have changed their names or unit affiliation. These changes are listed below. For more complete information about the changes, consult the advisor in the appropriate department.

African Studies
The coordinate major in African Studies has transferred its affiliation to the Africana Studies Program from the Haenicke Institute for International and Area Studies and becomes an option in the Africana Studies interdisciplinary major.

Black Americana Studies
The Program in Black Americana Studies has changed its name to AFRICANA STUDIES PROGRAM, and names of its major and minor have changed to AFRICANA STUDIES.

Blind Rehabilitation
The Department of Blind Rehabilitation has changed its name to the DEPARTMENT OF BLINDNESS AND LOW VISION STUDIES.

Division of Continuing Education
The Division of Continuing Education has changed its name to EXTENDED UNIVERSITY PROGRAMS.

Science Studies
The Department of Science Studies has changed its name to the MALLINSON INSTITUTE FOR SCIENCE EDUCATION.

GENERAL UNIVERSITY POLICIES

Since the last printing of The Undergraduate Catalog, 2001–2003, several general University policies affecting undergraduate students have been added or modified. These changes are listed below. For more complete information about the additions or changes, consult the advisor in the appropriate department.

Dropping Classes and Withdrawing from All Classes

The text on page 27 of The Undergraduate Catalog, 2001–2003 under the heading “Withdrawing from Classes After the Final Date to Drop” is changed. The new text follows:

Students may drop a course or withdraw from all courses without academic penalty through the Monday of the tenth week of classes in the fall and spring semesters and through the Monday of the fifth week of the summer I and summer II sessions. A non-punitive “W” will be reflected on the student’s academic record for any classes dropped after the drop/add period and before the withdrawal deadline. The final date for withdrawing is published in the Schedule of Course Offerings. Students may not withdraw from any class after this date without academic penalty.

Each student is encouraged to confer with the instructor before withdrawing from a class as the student may not re-register for the class.

Students who wish to drop a course or withdraw from all classes officially after the Monday of the tenth week of classes in the fall and spring semesters and through the Monday of the fifth week of the summer I and summer II sessions because of genuine hardship (i.e., illness, death in the immediate family), must be passing the course and must file a written appeal on forms which may be obtained from the Registrar’s Office. An Appeals Committee to review late withdrawals will be appointed by the Provost and Vice President for Academic Affairs. The Appeals Committee may request information from the instructors involved and from other appropriate sources.

The Registrar’s Office will record the drop or withdrawal if it has approvals as listed above. If the semester has ended, the student must request a grade change to “W” through the Grade Appeal Process.
Mission of the University

The text on page 5 of The Undergraduate Catalog, 2001–2003 follows:

Mission

Western Michigan University is a student-centered research university, building intellectual inquiry, investigation, and discovery into all undergraduate, graduate, and professional programs. The University provides leadership in teaching, research, learning, and public service. Nationally recognized and internationally engaged, the University:

• Forges a responsive and ethical academic community
• Develops foundations for achievement in pluralistic societies
• Incorporates participation from diverse individuals in decision-making
• Contributes to technological and economic development
• Engenders an awareness and appreciation of the arts

GOALS

Western Michigan University’s mission is characterized by its pursuit of the following institutional goals:

• To foster a safe, civil, and healthy University community
• To provide access to academic programs at reasonable cost and in multiple settings
• To strengthen interdisciplinary collaboration and international programs
• To increase diversity within the student body, faculty, and through institutional practices and programs
• To recognize excellence in the teaching, research, learning, creative work, scholarship, and service contributions of students
• To conduct ongoing assessment activities and engage in continuous improvement initiatives within the University
• To establish relationships between alumni and the University
• To advance responsible environmental stewardship
• To support community and regional partnerships that elevate civic, cultural, social, and economic life

Approved by Western Michigan University’s Board of Trustees, December 7, 2001

Residency Policy of Western Michigan University

The text on page 10 of The Undergraduate Catalog, 2001–2003 is changed. The new title of the Residency Policy follows:

Residency Policy of Western Michigan University

The text on page 10 of The Undergraduate Catalog, 2001–2003 is changed. The new title of the Residency Policy follows:

The governing board at each university in Michigan has the authority to establish a residency policy/guidelines for admissions and/or fee purposes. Therefore, residency policies (guidelines) may vary from school to school and are independent of those used by other state authorities to determine residency for purposes such as income and property tax liability, driving and voting, attendance at the University but thereafter his/her permanent home. A student's natural parents and/or legal guardian if the student is 24 years of age or younger and (a) has been involved primarily in educational pursuits, or (b) has not been entirely financially self-supporting through employment.

a. Dependent Student—Parent(s) in Michigan

The domicile of a dependent student is presumed to be the same as that of the student's natural parents. A dependent student whose parents are, according to University Residency Policy, domiciled in Michigan is presumed to be eligible for resident classification for University purposes 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.

b. Dependent Student—Parent(s) in a State other than Michigan

A dependent student who is living in a state other than Michigan and whose parent(s) is presumed to have the same evidentiary effect as that of a dependent student's natural 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 shall not qualify as complete incapacity.

A dependent student who is living in Michigan and who, according to University Residency Policy, is permanently domiciled in Michigan does not lose resident status if the parents leave Michigan provided: (1) that the student has completed at least the junior year of high school prior to the parents' departure; (2) that the student remains in Michigan, enrolled as a full-time student in high school or an institution of higher education; and (3) that the student has not taken steps to establish a domicile outside Michigan.
or any other action inconsistent with maintaining a domicile in Michigan.

b. Independent Student—Parent(s) Not in Michigan

A dependent student whose parents are domiciled outside the State of Michigan is presumed to be a non-resident for tuition-paying purposes at Western Michigan University.

4. Independent Student: A student may be granted in-state residency for tuition-paying purposes if the student provides evidence of 12 consecutive months (one year) of physical presence in the State of Michigan immediately preceding the first day of classes in the term in which the student is applying for a change in status. The year of continuous presence is never the only criterion used for determining in-state classification and, in itself, will not qualify a student for in-state status for tuition-paying purposes at WMU.

5. 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 student for tuition-paying purposes.

6. Immigrants and Aliens: Only persons who are citizens or permanent residents of the United States may be eligible for resident classification at Western Michigan University. These individuals, like U.S. citizens, must prove that they have established a Michigan domicile as defined in these regulations. In other words, having the privilege of remaining permanently in the United States, in itself, does not entitle a person to resident classification for University fee purposes. At the present time, non-citizens who are entitled to reside permanently in the United States include:

   a. Permanent Resident Alien must be fully processed and possess Permanent Resident Alien card or stamp in passport verifying final approval by filing deadline for applicable term.
   b. Refugees must have I-94 card with "Refugee" designation.
   c. A, E (primary), G, and J visa holders: Based upon current law, these non-immigrant visa classifications are the only ones that permit the visa holder to establish a domicile in the United States. As changes occur in applicable law, this list shall be updated.

7. 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 the 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 a 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.

8. Misrepresentation and Falsification of Information: Students who provide false or misleading information or who intentionally omit relevant information on their admissions application or the "Application for Resident Classification for University Admission and/or Fee Purposes" or any other document relevant to residency eligibility may be subject to disciplinary and/or legal measures.

9. Appeal Process: Any student may appeal the decision on their residency application within 20 calendar days after he/she has been served notice of the decision on their application by taking the following steps:

   a. Provide a written notice of appeal to the Vice President for Business and Finance stating the reasons therefor. Please note that any additional documents that may provide evidence of domicile not submitted with the original application must be included with the appeal.
   b. Additionally, the student must request in writing that all documents submitted with the original application be forwarded to the Vice President for Business and Finance so the entire file may be reviewed in the appeal process.
   c. Failure to receive within the required 20 days shall constitute a waiver of all claims to reclassification or rebates for the applicable semester/session.

The admissions office will have a written decision on the Appeal when the review is complete. The decision on the residency appeal shall be the final recourse within the University.

The Student's Responsibility and the Residency Application Process

While circumstances for each applicant are unique, the following is designed to be a reference for students who are interested in applying for resident classification for tuition-paying purposes at Western Michigan University (WMU). The fact that a student may qualify for resident status at another college or university in the State of Michigan or that the student may be considered resident by other laws or regulations within the State of Michigan is not used in determining resident status for tuition-paying purposes at WMU.

Required Documentation

When filing an Application for Resident Classification for University Admissions and/or Fee Purposes, the following documentation must be included with the application form:

   • All applicants must provide a copy of a valid driver's license for their self and of the person or persons upon whom the applicant is basing the claim to resident eligibility.
   • All applicants must provide copies of the front and signature pages of the most recent year's federal and state income tax returns and accompanying W2s for the applicant and any dependent persons upon whom the applicant is basing the claim to resident eligibility.
   • All applicants who are born outside of the United States must provide verification of U.S. citizenship or visa status.
   • All applicants who are dependents (refer to Stipulation 3 of our policy) must provide copies of the front and signature pages of their parent's most recent year's federal and state income tax returns and accompanying W2s.
   • All applicants whose claim to eligibility for resident classification is based on permanent, full-time employment for themselves, a parent or spouse must provide a letter from the employer, written on company letterhead (including phone number), stating the position, status and dates of employment. A copy of the most recent pay stub showing Michigan taxes being withheld must also be included.
   • All applicants whose claim is based on their spouse's status as a resident, must provide a copy of their marriage certificate with the applicable signatures.
   • All applicants are also responsible for providing any other documentation necessary to support their claim to residency eligibility that may be requested by the Office of the Assistant Vice President for Business.

General Information

A student enrolling at WMU for the first time shall be classified as an in-state or out-of-state student for tuition-paying purposes. It is the student's responsibility to read the Residency Policy and to register under the proper residency classification. Students are encouraged to contact the Office of the Assistant Vice President for Business if they have questions regarding their residency classification or need assistance.

Any student who previously attended WMU as a non-resident student until an Application for Residency Classification for University Admission and/or Fee Purposes is filed and approved.

The admissions office performs the initial screening for in-state/out-of-state residency classification. If a student indicates Michigan residency on the admissions application and the admissions office questions the status, the student will be classified as a non-resident student. The fact that the student's claim to residency for purposes of tuition-paying eligibility is questioned does not necessarily mean that the student will be ineligible. It simply means that the student's circumstances must be documented by completing an Application for Resident Classification for University Admission and/or Fee Purposes. A student who has an out-of-state classification at the time of admission but claims eligibility for resident classification, must file an Application for Resident Classification for University Admission and/or Fee Purposes for an official determination of status. If any of the following circumstances apply:

   • The student is living out of the State of Michigan at the time of application to the University.
   • Either parent is living out of the state of Michigan (applies if the student is 24 years of age or younger and is a dependent student).
   • The student has attended or graduated from an out-of-state high school and has been involved in educational pursuits for the majority of time since graduate from high school.
   • The student has had out-of-state employment or domicile within the last 3 years.

(please note: the above list is not exhaustive.)

Before a student is granted residency status for admissions and/or fee purposes, the University will require the student to have continuously resided in Michigan for one year immediately preceding the first day of classes in the term in which the student is applying for in-state classification. If the student presents clear and convincing evidence which demonstrates the establishment of a Michigan domicile, the student will be eligible for in-state classification.

Establishing a Michigan Domicile

The following circumstances and activities which may demonstrate Michigan domicile, though not conclusive or exhaustive, may lend support to a claim for eligibility for in-state classification. This is not an exhaustive list:

   • In the case of a dependent student, at least one parent must reside in Michigan, as demonstrated by the parent's permanent employment, establishment of a household and/or residential lease.
   • Student employed in Michigan in a full-time, permanent job, provided that the
student's employment is the primary purpose for the student's presence in Michigan.

- Student's spouse employed in Michigan in a full-time, permanent job, provided that the spouse's employment is the primary purpose for the student's presence in Michigan.

The following circumstances and activities listed below are temporary or indeterminate and, in and of themselves, do not demonstrate domicile in Michigan:

- Enrollment in a Michigan high school, community college or university
- Employment in Michigan that is temporary or short-term
- Employment in Michigan in a position normally held by a student
- Military assignment in Michigan
- Payment of Michigan income or property taxes
- Ownership of property in Michigan
- Presence of relative in Michigan (other than parent(s) for dependent student)
- Possession of a Michigan driver's license or voter's registration
- A student's statement of intent to be domiciled in Michigan.

In cases where it is determined that a student has not demonstrated establishment of a domicile in Michigan as defined by this policy, the University will require the student to document one year of continuous physical presence in the state. The year to be documented will be the 12 consecutive months immediately preceding the first day of classes of the semester/session in which the student is registering residency.

In documenting the year of continuous presence in Michigan, the student will be expected to show actual physical presence by means of enrollment, employment, in-person financial transactions, etc. Having a lease or a permanent address in Michigan does not, in itself, qualify as physical presence. Short-term absences (vacation periods of 21 days or less, spring break, and break time between fall and spring semesters), in and of themselves, will not jeopardize compliance with the one-year requirement. The nature of the short-term absence will be assessed to determine whether it is contrary to an intent to be domiciled in Michigan. Absences from Michigan that exceed the time mentioned above or failure to document 12 consecutive months of physical presence will be considered as noncompliance.

**Filing Dates/Deadlines**

Students may apply for resident classification for any semester/session in which they are enrolled. Applications must be filed not later than 20 calendar days following the first day of classes for the Fall and Spring semesters (10 calendar days for the Summer I and Summer II sessions). The deadline dates for filing the Application for Resident Classification for University Admission and/or Fee Purposes are the same for all students (undergraduate and graduate). If the deadline falls on a weekend, holiday or closure day, it will be extended to the next business day. (Note: Applications must be received in the Office of the Assistant Vice President for Business by the filing deadline. Applicants who do not file by the deadline will be responsible for paying tuition at the nonresident rate. Exceptions will not be granted.)

Incomplete information (supporting documentation) and/or absence of dates (month/day/year) could result in immediate denial of resident status and/or delay the processing of your application.

All official actions concerning the review of your application residence will be communicated to you in writing. It is your responsibility to notify this office of any change in your mailing address.

**Requirements for Earning a Second Bachelor's Degree**

A revised text describing the requirements for earning a second bachelor's degree appears below. (See page 21 of The Undergraduate Catalog, 2001-2003 for the original text.) No requirements have changed; the new text clarifies the distinctions between WMU graduates and non-WMU graduates.

The following are the minimum requirements for a WMU graduate to receive a second bachelor's degree or for a student wishing to pursue two or more baccalaureate degrees either concurrently or otherwise from WMU:

- Completion of minimum of 30 credits in residency beyond requirements for first degree.
- Completion of new major requirements as well as all specified University, College, and program requirements.
- 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.
- NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally do not qualify the student for a second degree.

The following are the minimum requirements for non-WMU graduates to receive a second bachelor's degree from WMU:

- Prior Bachelor's degree from a regionally accredited college or university.
- Completion of minimum 30 credits in residency beyond requirements for first degree.
- Completion of new major requirements as well as all specified University, College, and program requirements, including general education, proficiencies, and a minimum 2.0 gpa.
- Generally, no second degree will be granted from the discipline in which the first degree was earned.
- NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally do not qualify the student for a second degree.

**UNDERGRADUATE PROGRAMS**

Since the last printing of The Undergraduate Catalog, 2001-2003, a number of undergraduate programs have been added, changed, or deleted. These programs are listed below, in alphabetical order by department name. For more complete information, consult the advisor in the appropriate department.

**AFRICANA STUDIES**

Major In Africana Studies with two options:

1. Black Americana Studies, (2) African Studies

Minor In Africana Studies

(Revised requirements)

**ART**

Admission process and requirements for Art Majors

(Revised admission process and requirements)

**ARTS AND SCIENCES**

Group Social Studies Minor for Secondary Education

(Revised requirements)

**BUSINESS INFORMATION SYSTEMS**

Major In Computer Information Systems

Minor In Computer Information Systems

(Revised Major and Minor requirements)

**COMMUNICATION**

Major In Organizational Communication

(Revised Major requirements)

Minor In Secondary Education In Communication

(Revised Minor requirements)

**COMMUNITY HEALTH SERVICES**

Bachelor of Science In Interdisciplinary Health Services

(Revised requirements)

**CONSTRUCTION ENGINEERING, MATERIALS ENGINEERING, AND INDUSTRIAL DESIGN**

Curriculum In Interior Design

(Revised Curriculum requirements)

**EXTENDED UNIVERSITY PROGRAMS (CONTINUING EDUCATION)**

GUS Program In Student Integrated Curriculum

(Revised requirements)

GUS Program In Health Studies

(Deleted program; no longer admitting students)

**FAMILY AND CONSUMER SCIENCES**

Curriculum In Textile and Apparel Studies, Merchandising Emphasis

(Revised Curriculum requirements)

Curriculum In Textile and Apparel Studies, Design and Development Emphasis

(Revised Curriculum requirements)

Minor In Textile and Apparel Merchandising

(Revised Minor requirements)

**FINANCE AND COMMERCIAL LAW**

Major In Finance

(Revised requirements)

**FAMILY AND CONSUMER SCIENCES**

Major In Family Studies

(Revised Major requirements)
UNDERGRADUATE COURSES

Since the last printing of The Undergraduate Catalog, 2001-2003, a number of undergraduate courses have been added, changed, or deleted. The additions, changes, and deletions are effective Fall 2002 unless otherwise noted. For more complete information, consult the advisor in the appropriate department.

AFRICANA STUDIES (AFS)
AFS 388 Introduction to African Civilization 3 hrs. (Changed; effective Spring 2003)

ANTHROPOLOGY (ANTH)
ANTH 460 Money, Consumption, and Cannibals 3 hrs. (New)
ANTH 525 Spirits and Medicine 3 hrs. (New)

ASIAN AND MIDDLE EASTERN LANGUAGES (AMEL)
AMEL 500 Special Topics in World Languages 3 hrs. (New)

ARTS AND SCIENCES (A-S)
A-S 200 Introduction to Nonprofit Leadership 3 hrs. (Changed. Course now identified by "PADM" prefix.)
A-S 300 Nonprofit Advancement 3 hrs. (Changed. Course now identified by "PADM" prefix.)
A-S 304 Nonwestern World 4 hrs. (New)
A-S 400 Seminar in Nonprofit Leadership 3 hrs. (Changed. Course now identified by "PADM" prefix.)

AVIATION SCIENCE (AVS)
AVS 141 VFR Operations 8 hrs. (New)
AVS 142 Airplane Knowledge and General Handling 8 hrs. (New)
AVS 241 IFR Operations 8 hrs. (New)
AVS 242 Navigation and Basic Instrument Flight 8 hrs. (New)
AVS 341 Commercial Flight Operations 8 hrs. (New)
AVS 342 Multiengine Commercial Flight Operations 8 hrs. (New)
AVS 441 Domestic and International Jet Operations 8 hrs. (New)
AVS 442 Jet Knowledge and Handling 8 hrs. (New)
AVS 499 Studies in Aviation Sciences 1–8 hrs. (Changed)

BIOLOGICAL SCIENCES (BIOS)
BIOS 420 Human Genetics 3 hrs. (Deleted)
BIOS 425 Genetics Laboratory 3 hrs. Fall (Deleted)
BIOS 437 Histology 3 hrs. (Deleted)
BIOS 455 Marine Biology 3 hrs. (Deleted)
BIOS 525 Microbial Ecology 3 hrs. (New)
BIOS 526 Molecular Biology Laboratory 3 hrs. (Changed)
BIOS 528 Biology of Non-Vascular Plants 4 hrs. (Deleted)
BIOS 529 Biology of Vascular Plants 4 hrs. (Deleted)
BIOS 530 Bryology 3 hrs. (Deleted)

BLINDNESS AND LOW VISION STUDIES (BLRH)
BLRH 592 Introduction to Education of Children with Visual Impairments 2 hrs. (Changed)
BLRH 595 Introduction to Orientation and Mobility 2–4 hrs. (Changed)

BUSINESS (BUS)
BUS 390 Business Internship 1–3 hrs. (Changed; effective Spring 2003)

BUSINESS INFORMATION SYSTEMS (BIS)
BIS 260 Microcomputer Applications 3 hrs. (Changed)
BIS 261 Business Programming 3 hrs. (Changed)
BIS 266 LAN Administration 3 hrs. (Changed)
BIS 343 Report Writing 3 hrs. (Changed)
BIS 360 Systems Analysis and Design 3 hrs. (Changed)
BIS 380 Business Web Design 3 hrs. (Changed; effective Spring 2003)
BIS 385 Business Web Architecture 3 hrs. (New)
BIS 460 Business Database Applications 3 hrs. (Changed)
BIS 464 Knowledge Management 3 hrs. (Changed)
BIS 483 Business Publications and Presentations 3 hrs. (Changed)
EDT 503 Educational Technology Academy 1–3 hrs.  
(Changed; Course previously identified by “ED” prefix.)

EDT 550 Photography Workshop 1–3 hrs.  
(Changed; Course previously identified by “ED” prefix)

ELECTRICAL AND COMPUTER ENGINEERING (ECE)  
ECE 123 Mobile Robots 3 hrs.  
(New)

ECE 210 Circuit Analysis 4 hrs.  
(Changed)

ECE 520 Power Electronics and Motors 3 hrs.  
(New)

FAMILY AND CONSUMER SCIENCES (FCS)  
FCS 124 Apparel Construction 3 hrs.  
(Changed)

FCS 202 Field Experience—Family Studies 1–3 hrs.  
(Changed; effective Spring 2003)

FCS 220 Textiles 3 hrs.  
(Changed)

FCS 224 Experimental Clothing Techniques 3 hrs.  
(Changed)

FCS 314 Infant and Toddler Development 3 hrs.  
(Changed)

FCS 326 History of Costume 3 hrs.  
(Changed)

FCS 329 Promotion of Textile and Apparel Products 3 hrs.  
(Changed)

FCS 422 Apparel Manufacturing 3 hrs.  
(Changed)

FCS 430 Fashion Retailing 3 hrs.  
(Changed)

FCS 524 The Socio-Psychological Aspects of Clothing 3 hrs.  
(Changed)

FCS 535 Communication Skills for Working with Families Across the Lifespan 3 hrs.  
(New)

FINANCE AND COMMERCIAL LAW (FCL)  
FCL 342 Entrepreneurial Finance 3 hrs.  
(New)

FCL 384 Criminal Law and Procedure 3 hrs.  
(Changed; effective Spring 2003)

GEO SCIENCES (GEO)  
GEO 131 Historical Geology 4 hrs.  
(Changed; effective Spring 2003)

GEO 132 Integrated Earth System Studies 3 hrs.  
(New)

GEO 506 Introduction to Soils 3 hrs.  
(Changed; effective Spring 2003)

GEO 514 Isotope Hydrology 3 hrs.  
(New)

GEO 544 Environmental Geology 3 hrs.  
(Deleted; effective Spring 2003)

GEO 545 Hazardous Waste Remediation 3 hrs.  
(New; effective Spring 2003)

GEO 555 Introduction to Geochemistry 3 hrs.  
(New; effective Spring 2003)

GEO 560 Introduction to Geophysics 3 hrs.  
(Changed; effective Spring 2003)

GEO 640 Igneous and Metamorphic Petrology 4 hrs.  
(Changed number to 540)

GERONTOLOGY (GRN)  
GRN 450 Field Education in Gerontology 1–4 hrs.  
(Changed)

HEALTH, PHYSICAL EDUCATION, AND RECREATION (HPER)  
HPER 153 Introduction to Athletic Training 3 hrs.  
(New)

HPER 253 Injury/Illness Survey and Management 3 hrs.  
(New)

HPER 383 Athletic Injury Evaluation 3 hrs.  
(New)

HPER 384 Therapeutic Modalities 3 hrs.  
(New)

HPER 486 Therapeutic Exercise for Athletic Injuries 3 hrs.  
(New)

HPER 487 Sports Medicine Seminar 3 hrs.  
(New)

HPER 535 Principles and Problems of Coaching 3 hrs.  
(Changed; effective Spring 2003. Renumbered HPER 635.)

HPER 560 Administration of Physical Education 2 hrs.  
(Deleted; effective Spring 2003.)

HPER 562 Administration of Athletics 3 hrs.  
(Changed; effective Spring 2003. Renumbered HPER 660.)

HPER 582 Athletic Training for Coaches 3 hrs.  
(Changed; effective Spring 2003. Renumbered HPER 634.)

HPER 590 Exercise Physiology 3 hrs.  
(Changed; effective Spring 2003. Renumbered HPER 670.)

HPER 595 Analysis of Movement in Sports 3 hrs.  
(Changed; effective Spring 2003. Renumbered HPER 673.)

HISTORY (HIST)  
HIST 375 Modern East Asia 3 hrs.  
(Changed; renumbered HIST 276)

HIST 388 Introduction to African Civilization 3 hrs.  
(Changed; effective Spring 2003)
### HEALTH SERVICES (HSV)
- HSV 100 Health and Human Services Career Seminar 1 hr. (New)
- HSV 410 Legal Issues in Health and Human Services 2 hrs. (New)
- HSV 420 Health and Human Services Research and Statistics 3 hrs. (New)
- HSV 430 Major Issues in Health and Human Services 3 hrs. (New)
- HSV 460 HHS Independent Research 3 hrs. (New)
- HSV 470 HHS Internship 6 hrs. (New)

### INDUSTRIAL AND MANUFACTURING ENGINEERING (IME)
- IME 210 Engineering Cost Estimating 3 hrs. (New)
- IME 416 Operations Control in Industry 4 hrs. (Changed)
- IME 418 Industrial Engineering Senior Seminar 1 hr. (New)
- IME 419 Industrial Engineering Senior Design 4 hrs. (New)

### JAPANESE (JPNS)
- JPNS 210 Business Japanese 3 hrs. (New)

### LATIN (LAT)
- LAT 201 Latin Composition 4 hrs. (New)
- LAT 324 Latin Literature 4 hrs. (Changed)

### MATHEMATICS (MATH)
- MATH 151 Geometry for Elementary/Middle School Teachers 4 hrs. (Changed)
- MATH 408 Linear Programming 3 hrs. (Changed)
- MATH 554 Algebra in the Elementary/Middle School Curriculum 4 hrs. (Changed)
- MATH 555 Mathematical Problem Solving in the Elementary/Middle School Curriculum 4 hrs. (Changed)

### MECHANICAL ENGINEERING (ME)
- ME 256 Statics 3 hrs. (Changed)
- ME 258 Dynamics 3 hrs. (Changed)
- ME 365 Machine Design I 3 hrs. (Changed)
- ME 432 Thermodynamics II 3 hrs. (Changed)
- ME 433 Environmental Systems Design in Buildings 3 hrs. (Changed)
- ME 439 Design of Thermal Systems 3 hrs. (Changed)
- ME 450 Non-Metallic Materials 3 hrs. (Changed)
- ME 457 Experimental Solid Mechanics 3 hrs. (Changed)
- ME 481 Vehicle Design 3 hrs. (Changed)

### MANAGEMENT (MGMT)
- MGMT 275 Analytical Foundations 3 hrs. (New)
- MGMT 301 Project Management 3 hrs. (Changed)
- MGMT 302 Project Leadership 3 hrs. (Changed; effective Spring 2003, Renumbered MGMT 401)
- MGMT 414 Entrepreneurship 3 hrs. (Changed; effective Spring 2003)
- MGMT 460 Decision Analysis 3 hrs. (Changed; effective Spring 2003)
- MGMT 470 Operations Simulation 3 hrs. (Changed; effective Spring 2003)
- MGMT 464 Production Management and Control 3 hrs. (Changed; effective Spring 2003)
- MGMT 465 Managing for Quality 3 hrs. (Changed; effective Spring 2003)

### MARKETING (MKTG)
- MKTG 373 Electronic Commerce and Marketing 3 hrs. (Changed)
- MKTG 397 Food Marketing Field Experience 1-3 hrs. (Changed)
- MKTG 480 Franchising 3 hrs. (Changed)
- MKTG 484 Business Logistics 3 hrs. (Changed)

### OCCUPATIONAL THERAPY (OT)
- OT 200 Human Functional Anatomy 4 hrs. (New; effective Spring 2003)
- OT 202 Orientation to Occupational Therapy 2 hrs. (Changed)
- OT 475 OT Practicum I 3 hrs. (Changed)
- OT 478 U.S. Policy in Health and Human Services 3 hrs. (New; effective Spring 2003)
- OT 481 Occupational Therapy in Work Settings 2 hrs. (Changed)
- OT 482 OT Practicum II 3 hrs. (Changed)

### PUBLIC AFFAIRS AND ADMINISTRATION (PADM)
- PADM 200 Introduction to Nonprofit Leadership 3 hrs. (Changed. Course previously identified by "A-S" prefix.)
- PADM 300 Nonprofit Advancement 3 hrs. (Changed. Course previously identified by "A-S" prefix.)
- PADM 400 Seminar in Nonprofit Leadership 3 hrs. (Changed. Course previously identified by "A-S" prefix.)
- PADM 410 Internship in Nonprofit Leadership 3 hrs. (New; effective Spring 2003)
- PADM 645 Endowment Development/Investments 2 hrs. (Changed. Renumbered PADM 568)
- PADM 649 Grant Writing for Nonprofit Organizations 2 hrs. (Changed. Renumbered PADM 583)

### POLITICAL SCIENCE (PSCI)
- PSCI 344 Russian and East European Politics 4 hrs. (Changed)

### SPECIAL EDUCATION (SPED)
- SPED 410 Seminar in Special Education 2 hrs. (New)
- SPED 515 Introduction to Early Childhood and Special Education 1 hr. (New)
- SPED 525 Introduction to Transition Issues for Students with Disabilities 2 hrs. (New)
- SPED 541 Program Practicum in Special Education: Mi 1 hr. (Changed)
- SPED 571 Program Practicum in Special Education: El 1 hr. (Changed)
- SPED 581 Practicum with Learners with Learning Disabilities 1 hr. (New)
- SPED 537 Technology in Special Education 3 hrs. ( Changed; effective Spring 2003)

### STATISTICS (STAT)
- STAT 260 Elementary Statistics 4 hrs. (Course inadvertently omitted from 2001-2003 catalog)
- STAT 537 Technology in Special Education 3 hrs. (New; now cross-listed with new ES 200)
UNIVERSITY GENERAL EDUCATION PROGRAM

The text on pages 31–34 of the The Undergraduate Catalog, 2001–2003 citing the General Education Program Courses is changed. The new general education course list for 2002–2003 follows:

General Education Program Courses

Approved as of 6/1/02

THE PROFICIENCIES

Proficiency 1: College-Level Writing

BIS 142 Informational Writing 3
ENGL 105 Thought and Writing 4
IME 102 Technical Communication 3

Proficiency 2: Baccalaureate-Level Writing

Does not count toward 37 credit minimum General Education hour requirement. Consult your curriculum or major program advisor for course approved for your area of study

A-S 496 Writing-Intensive Mentored Portfolio 3-6
AMS 490 American Studies in Global Context 3
ANTH 354 Growth and Development 3
ANTH 439 Issues in South American Ethnography 3
ANTH 440 Ethnography 3
ANTH 450 Primate Behavior and Ecology 3
ANTH 480 Money, Consumption, and Cannibals 3
ART 325 Writing About Art 3
ART 327 Writing About Art History 3
AVS 490 Senior Project I—Planning 1 and AVS 491 Senior Project II—Analysis 2
BIOS 319 Plant Physiology 4
BIOS 350 Human Physiology for Majors 5
BUS 370 Integrated Communication in Business 3
CHEG 487 Senior Design Project 3
CHEM 436 Physical Chemistry Lab I 2
CMD 443 Industrial Design Thesis and Project I 3 and CMD 447 Industrial Design Thesis and Project II 3
CMD 483 Project Design and Control 1 and CMD 485 Senior Project 3
COM 335 Leadership 3
COM 350 Public Relations and Organizations 3
COM 358 TV and Film Scripting 3
COM 359 Broadcast Journalism 3
COM 370 Interpersonal Communication 3
COM 372 Introduction to General Semantics 3
COM 441 Documentary in Film and Television 3
COM 448 Telecommunications Management 3
COM 450 Public Relations Program Development 3
CS 460 Software Systems Development 3
CTE 342 Curriculum Development in CTE 3
DANC 345 Twentieth Century American Dance 3
ECE 481 Electrical/Computer Engineering Design I 2 and ECE 482 Electrical/Computer Engineering Design II 3

ECON 484 Comparative Economic Systems 3
ED 385 School and Society 3
ENGL 305 Practical Writing 4
ENGL 362 Literary Journalism 3
ENGL 415 Practical Literary Criticism 4
ENGL 440 Studies in Verse 4
ENGL 442 Studies in Drama 4
ENGL 444 Studies in the Novel 4
ENGL 452 Shakespeare Seminar
ENVS 320 Major Environmental Writings 3
FCS 350 Textiles for Interiors 3
FCS 415 Effective Parenting 3
FCS 488 Advanced and Experimental Foods 3
GEOG 303 Geographic Inquiry 4
GEOS 432 Geomorphology 3
GEOS 435 Sedimentation and Stratigraphy 4
HIST 320 Introduction to the Study of History 3
IME 316 Report Preparation 3
IME 491 Multidisciplinary Senior Project 2 and IME 492 Multidisciplinary Senior Project 2
JRN 420 Obligations of Contemporary American Journalism 3
LANG 375 Foreign Language in English Translation: Views of Humanity 3
MATH 314 Mathematical Proofs 3
MATH 402 Mathematical Modeling 3
ME 365 Machine Design I 3
ME 480 Mechanical and Aeronautical Engineering Project 3
MUS 352 Non-Western Music 4
NURS 307 Nurses' Role in Facilitating Health and Self-Care II 9
NURS 308 Nurses' Role in Facilitating Health and Self-Care (RN) 8
OT 478 U.S. Policy in Health and Human Services 3
OT 483 Capstone Experience in OT 1
PAPR 485 Research Design 3
HPER 332 Research and Writing in Recreation 3
HPER 450 Cultural Dynamics of HPER 2
PHIL 300 Ancient and Medieval Philosophy 4
PHIL 301 History of Modern Philosophy 4
PHIL 331 Moral Philosophy 3
PHIL 332 Theory of Knowledge 4
PHIL 333 Metaphysics 4
PHYS 466 Advanced Laboratory 3
PSY 421 Gender and Law 3
PSY 450 Seminar in International and Comparative Politics 3
PSY 490 Political Science Honors Seminar 3
PSY 494 Seminar in Political Science 3
REL 300 Writing About Religion 3
SOC 456 Social Stratification 3
SOC 466 Advanced Criminology 3
SOC 480 Advanced Sociology 3
SPAR 459 Special Studies in Communication Disorders 3
THEA 370 Theatre History I 3
THEA 372 Musical Theatre History and Script Analysis II 3

Proficiency 3: College-Level Mathematics or Quantitative Reasoning

MATH 114 Excursions in Mathematics 3
MATH 116 Finite Mathematics and Applications 3
MATH 118 Precalculus Mathematics 4
MATH 150 Number Concepts for Elem/Mid School Teach 4
MATH 190 Survey of Mathematical Ideas 4
MATH 200 Calculus with Applications 4
STAT 160 Statistics and Data Analysis 3
STAT 366 Introduction to Statistics 4
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**Language and Literature Requirements**

- **Proficiency 4: Enhance or Develop A Proficiency**
  - A course or courses in one of the following categories:
  - **Proficiency 4a, Advanced Writing**
    - ENGL 364 Feature and Article Writing            | 3 |
    - ENGL 365 Reviewing for the Press               | 3 |
    - ENGL 462 Advanced Writing                      | 4 |
    - JRN 300 Newswriting and Reporting              | 4 |
  - **Proficiency 4b, Mathematics or Quantitative Reasoning**
    - MATH 122 Calculus I                             | 4 |
    - MATH 151 Geometry for Elem/Mid                  | 4 |
    - MATH 200 Calculus with Applications             | 4 |
    - MATH 265 Probability and Statistics for Elementary/Middle School Teachers | 4 |
  - **Proficiency 4c, Critical Thinking**
    - PHIL 220 Critical Reasoning                     | 3 |
    - PHIL 225 Deductive Logic                        | 4 |
    - PHIL 320 Introduction to Formal Logic           | 4 |
    - PHIL 325 Inductive and Scientific Reasoning     | 3 |
  - **Proficiency 4d, Oral Communications**
    - COM 104 Public Speaking                        | 3 |
    - COM 170 Interpersonal Communication             | 3 |
  - **Proficiency 4e, American Sign Language**
    - CS 111 Computer Science I                       | 4 |
    - CS 112 Computer Science II                      | 4 |
  - **Proficiency 4f, 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**

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PADM 200 Introduction to Nonprofit Leadership

PHIL 313 Philosophy of Life

PSCI 100 Introduction to Political Science

PSCI 105 Critical Thinking about Politics

PSCI 240 Introduction to Comparative Politics

PSCI 250 International Relations

PSCI 311 American Politics and the Media

PSCI 340 West European Political Systems

PSCI 350 American Foreign Policy

PSCI 420 Constitutional Law

PSY 100 General Psychology

REL 323 Religion and Revolution

SOC 200 Principles of Sociology

WMS 320 Women, Multiculturalism, and Social Change

WMS 330 Gender Issues in Education

Distribution Area VI: Natural Science with Laboratory

ANTH 250 Introduction to Biological Anthropology

BIOS 105 Environmental Biology

BIOS 110 Biology Laboratory

BIOS 112 Principles of Biology

CHEM 101 General Chemistry I

CHEM 103 General Chemistry I

CHEM 105 Textiles and Design Media Chemistry

CHEM 106 Textiles and Design Media Laboratory

CHEM 110 General Chemistry I

CHEM 111 General Chemistry Laboratory

CHEM 190 Chemistry in Society I

CHEM 191 Chemistry in Society Laboratory

GEOG 106 Physical Geography

GEOS 100 Earth Studies

GEOS 130 Physical Geology

GEOS 200 Evolution of Life—A Geological Perspective

OT 200 Human Functional Anatomy

PHYS 100 How Things Work

PHYS 103 Sky and Solar System Laboratory

PHYS 104 Introduction to the Sky and Solar System

PHYS 106 Introduction to Stars and Galaxies

PHYS 110 Stars and Galaxies Laboratory

PHYS 107 Elementary Physics

PHYS 108 Elementary Physics Laboratory

PHYS 113 General Physics I

PHYS 114 General Physics I Laboratory

PHYS 205 Mechanics and Heat

PHYS 206 Mechanics and Heat Laboratory

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

ANTH 150 Race, Biology, and Culture

AVS 280 Transportation Technology: Policy, Perils and Promise

CHEG 261 Environmental Engineering

CMD 131 Introduction to Manufacturing Environment

CMD 251 The Evolution of Materials

COM 240 Introduction to Media and Telecommunications

ENVS 300 Environment, Technology, and Values

GEOG 100 World Ecological Problems

GEOG 350 Conservation and Environmental Management

GEOG 144 Environmental Earth Science

GEOG 312 Geology of the National Parks and Monuments

GEOG 322 Ocean Systems

HHS 461 Information Systems for Health Care Professionals: Medical Informatics

IME 122 Automobile in Society

IME 150 Introduction to Manufacturing

ME 220 Processes and Materials in Manufacturing

PAPR 160 Introduction to Environmental Technology

PAPR 261 Environmental Engineering

PHIL 255 Science, Technology, and Values

PHIL 334 Biomedical Ethics

PHIL 350 Foundations of the Modern Worldview

PHIL 355 Philosophy of Science

PHYS 102 Physics, Technology, and Society

SCI 133 Issues in Social Biology

SPPA 200 Communication Disorders and Sciences

Distribution Area VIII: Health and Well-Being

ADA 225 Drug Use: Personal and Social Impact

HOL 100 Choices in Living

PEGN 170 Health and Wellness—Aerobics

PEGN 171 Health and Wellness—Water Aerobics

PEGN 172 Health and Wellness—Circuit Fitness

PEGN 173 Health and Wellness—Jogging

PEGN 174 Health and Wellness—Walking

PEGN 176 Health and Wellness—Racquet Sports

PEGN 177 Health and Wellness—Climbing Techniques

PEGN 178 Health and Wellness—Self-Defense

PEGN 179 Health and Wellness—Figure Skating

PEGN 180 Health and Wellness—Beginning Swimming

PEGN 181 Health and Wellness—Intermediate Swimming

PEGN 182 Health and Wellness—Swim Conditioning

PERP 111 Healthy Living
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Mission of the University

Western Michigan University has identified five major goals to guide its development during the decade of the 1990s:

1. Offer instructional programs of academic excellence reflecting the high quality of the faculty and students, the depth and breadth of the curriculum and co-curriculum emphasizing personal growth and development, the enhanced facilities and learning resources, and the continuing assessment of learning and the learning process.

2. Increase the graduate enrollment, expand external support for research, facilitate scholarship and creative activity, and reward professional accomplishments of faculty, staff, and students.

3. Assist regional and state economic development through on- and off-campus instruction, applied research centers, and technical assistance to business, industry, government, and the schools.

4. Meet the needs of the citizenry by providing leadership and sponsorship of and participation in cultural events and civic activities.

5. Increase the diversity of the student body, faculty, and staff and enhance the multicultural nature of the University community.

Founded in 1903 as a normal school for preparing elementary and secondary school teachers and designated in 1957 as the state's fourth public university, Western Michigan University has earned recognition by the Michigan Legislature as a graduate-intensive university and by the Carnegie Foundation for the Advancement of Teaching as a Doctoral/Research University—Extensive. The University shares with other higher education institutions the mission to discover, disseminate, extend, and preserve knowledge and culture. In fulfilling this responsibility, University instructional programs strive to increase students' capacity for intellectual growth and achievement, instill a commitment to learning and service to society, and meet the needs of an increasingly diverse student population. The University's research mission requires the faculty and students to create new knowledge and to address social needs and concerns. The University serves the region as a major information and technology resource and plays a critical role in cultural, social, and economic development and enrichment. The University fosters and develops ethical behavior among administrators, faculty, staff, and students. Faculty and student governance structures rest upon the principles of academic freedom and professional ethics consistent with the responsibilities of an academic community.

(Approved by Board of Trustees February 20, 1970; amended June 13, 1980; June 25, 1982, and April 27, 1990.)
ADMISSIONS

ADMISSION POLICIES

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

In reviewing applications from prospective freshmen, the University will give primary consideration to high school grades in college preparatory subjects, mix of college prep courses, scores on the SAT/ACT, and trend of grades throughout high school. To give each student with evidence of probability for success the fullest possible consideration, seventh and/or eighth semester (high school senior year) transcripts may be required, an admission interview may be requested, and/or individual attributes and special abilities may be considered.

Freshman applicants are strongly encouraged to complete the Presidents Council of Michigan Public Universities Requirements. These include four units of English, three of math (including intermediate algebra), three of social studies, and two of natural sciences.

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.

In reviewing applications from prospective transfer students, the University will make decisions on the basis of previous college work (and high school grades if fewer than twenty-six semester hours will be transferred). At least a "C" average in transferable work would be required for initial consideration.

Offers of admission made to students currently enrolled in another college or university are conditional 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 recognizes the need for educational opportunities for people of widely varying ages and backgrounds. Therefore, special admission programs are available for potentially successful students from underrepresented or economically impoverished segments of society. In addition, the University provides access to adults who are returning to school after a considerable absence.

The University reserves the right to withdraw, revoke, and/or cancel an admission decision for any reason, and at any time, if deemed 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.

ADVANCED PLACEMENT PROGRAM (AP)

Western Michigan University participates in the Advanced Placement Program (AP) of the College Board. Students with scores of at least 3 (4 in the case of Physics) on any AP exam will receive college credit in the appropriate subject. Students should have College Grade Reports of their test scores sent to the Office of Admissions and Orientation 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. For more information on AP score requirements and equivalent credit awarded at Western, write to the Office of Admissions and Orientation.

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

This program gives individuals the chance 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).

GENERAL EXAMINATIONS

1. The general CLEP examination is available only to nontraditional students at WMU.
2. A nontraditional student is defined as a person who has spent a minimum of four years in non-school occupations since attending an educational institution on a full-time (minimum of twelve semester hours) basis.
3. Nontraditional students may take the general CLEP examinations only after completing fifteen hours after entering or re-entering WMU.
4. 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 English examination.
   - Students who have already received credit in a college mathematics course cannot receive credit by passing the mathematics examination.
   - Students who have received college credit for two courses in any of three areas, the humanities, social sciences, or natural sciences (excluding mathematics courses), from the Distribution Areas of General Education, or comparable transfer courses, cannot receive credit for the respective examinations.
5. 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 (540 prior to July 1, 2001), three hours of credit will be awarded to Area V (social and behavioral sciences) of the General Education Program.
   - If a student passes the social sciences-history examination with a score of 50 or above (550 prior to July 1, 2001), six hours of credit will be awarded to Area V (social and behavioral sciences) of the General Education Program.
   - If a student passes the English test (with the writing sample) with a score of 50 or above (550 prior to July 1, 2001; 660 for 1978 through April 1986 testing), four hours of credit 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 (489 prior to July 1, 2001), 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 mathematics examination with a score of 50 or above (497 prior to July 1, 2001), 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 to students based on thirteen of the CLEP Subject Examinations. Students may not receive CLEP subject credit if they have already received college credit for an equivalent course. Interested persons may contact the Office of Admissions and Orientation for information on Western's score requirements and course credit.

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

READMISSION

Students who make an initial enrollment at Western but do not return the following semester/term will have one year's valid attendance and subsequently take additional college work must complete a readmission form 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. University students who have been dismissed will normally not be re-admitted 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.

ADMISSION PROCEDURES

REGULAR DEGREE BOUND STUDENTS

Freshmen Students

To be considered for freshman admission, with no previous college work, students should:
1. Submit an application (available from high school counselors, the WMU Office of Admissions and Orientation, or online at www.wmich.edu/admi/undergradapp/) with a nonrefundable $25 application fee;
2. Have their high school send an official copy of their transcript directly to the Office of Admissions and Orientation (transcripts brought or sent by students cannot be accepted as official);
3. Meet 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 as well as a high school transcript.

Students whose native language is not English will be required to demonstrate proficiency in the English language prior to enrollment at Western Michigan University. See International Students in this section.

WHEN TO APPLY

Students should submit applications for fall semester during the fall preceding their freshman admission after completion of the junior year. Application by December 31 ensures full consideration for scholarships, financial aid. Honors College admission, housing, and orientation.

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.

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 and Orientation offers several options which all feature a general information session, as well as a walking tour of the Kalamazoo campus. Visit programs are offered year around, except when classes are not in session. These programs take place Monday through Friday and many Saturdays. For more information, or to arrange a visit, please contact the Office of Admissions and Orientation.

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 another course and transfer to the University after establishment of a college record.

Admission of students to freshman status, while they still are 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 admissions offer.

ORIENTATION

All first time freshmen are required to attend a two-day University Orientation session. The program includes placement testing, advising, course selection, meetings with various campus services, and registration for classes. Orientation Student Leaders, upperclass WMU students, assist freshmen to make friends and feel comfortable on the campus as well as to plan for a successful academic transition from high school to college. Orientation sessions for parents are held in conjunction with freshman sessions. Programs are held in the summer and just before the beginning of each term. Information is sent automatically to all admitted students.

TRANSFER STUDENTS

To be considered for admission as a transfer from another college or university, students should:
1. Submit an application (available from community college counseling offices or the WMU Office of Admissions and Orientation) with a $25 nonrefundable application fee;
2. Request that each college attended send an official transcript directly to the Office of Admissions and Orientation (transcripts brought or sent by students cannot be accepted as official). Failure to report all colleges attended will invalidate the application and may result in dismissal if admitted. Transfer credit will not be granted for any schools not reported.

Admissions and Orientation may require a personal interview to clarify or explain parts of the application materials.

CAMPUS VISITS

Transfer students are encouraged to take advantage of the visit opportunities noted in the freshmen section above. Specific transfer information sessions are included in visit programs. Students should contact the Office of Admissions and Orientation for details.

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 request additional grades, test scores, or an interview; or to ask the student to begin another course and transfer to the University after establishment of a college record. Admission of students to freshman status, while they still are 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 admissions 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 equivelancies are available in Michigan's public community colleges and other transfer information is available in the counseling offices of those community colleges or from WMU's Office of Admissions and Orientation. Credit transfer information for other institutions is also available from the WMU Office of Admissions and Orientation.

Transferable courses completed at another college will be accepted for credit only. Grades earned in those classes will be used only to determine admisibility to the University; they will not be recorded on the WMU transcript. Courses with "D" grades may be transferred only if the cumulative grade point average at the transfer institution was at least a 2.0 for work transferred to WMU. Course grades below "C" may not be used in fulfilling major or minor requirements. 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 and Orientation, according to the "Credit By Examination" information elsewhere in this catalog.

Western Michigan University normally accepts work taken at a college or university accredited by a regional accrediting agency (for example, North Central Association of Colleges and Schools). Work taken at a college or university accredited by an agency other than a regional accrediting agency may be accepted on a provisional basis, subject to validation. The validation process consists of successful, subsequent completion of 26
4. Provide proof of English competency. The
3. Provide proof of adequate funding per
2. Provide complete and official transcripts of
To qualify for admission, international students
attending a transfer orientation program. WMU
students transferring credit back to
Transfer students are encouraged to
arrangements for an advising session with a
WMU advisor as soon as they have their
Students transferring fewer than 16 credit
grades also will be taken into account. The
8 ADMISSIONS
7. Complete an academic assessment and
Admission to the Alpha Program is on a
PARTICIPATION
Students whose education has been
enrolled at another institution, 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 and Orientation to
ensure transferability.

ADVISING/REGISTRATION
All admitted transfer students should make
安排 for an advising session with a
WMU 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.
Admitted transfer students should call
their college advising office directly to arrange an
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.

INTERNATIONAL STUDENTS
To qualify for admission, international students
must show that they are academically,
financially, and linguistically capable of
success in a 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 and return it
to the WMU Office of International Student
Services with a $25.00 application fee.
2. Provide complete and official transcripts of
secondary and undergraduate studies 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.
3. Provide proof of adequate funding per
academic year. This funding amount
includes tuition, room and board, books,
health insurance, and miscellaneous
expenses. Personal/family savings must be
verified by a bank statement. If sponsored
by a government, an official letter must be
submitted showing that the scholarship is
valid for use at WMU, and indicating
beginning and ending dates of validity.
4. Provide proof of English competency. The
following tests and scores are accepted at
Western Michigan University as measures of
English competency. (Applicants who have
successfully completed at least
twenty-six semester hours at another
accredited U.S. institution may be exempted
from this requirement, at the
discernment of the Office of International
Student Services.)
Test of English as a Foreign Language
(TOEFL)
A score of 500 is required for
restricted admission (part-time remedial
English and part-time academics during the
first semester) or 550 for unrestricted
admission.
Michigan English Language
Assessment Battery (MELAB)
A score of 75 is required for restricted admission or
85 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) using Modules A, B, or C
(not the General Training Module). A score
of 6.5 is required for restricted admission or
7.0 for unrestricted admission.
International Baccalaureate (IB)
A grade of 5 in English is required at the Higher
Level for unrestricted admission. This
is equivalent to a 550 TOEFL.
5. A prospective student must enroll in the
WMU Career English Language Program for
International Students (CELSIS) until
achieving the required TOEFL score for
academic enrolment. For more
information, contact the CELSIS Office.

SPECIAL ADMISSION PROGRAMS
Alpha Program
The Alpha Program is a support program for
first-year students that seeks to provide the
opportunity for college-level work with
academic assistance. 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 admissions
criteria but who have demonstrated the
potential for college-level work. From this pool,
the University's Office of Admissions and
Orientation will select those students who
appear to have the best chance for success.
Interested students should follow regular
admissions procedures; the Office of
Admissions and Orientation will notify those
eligible for further consideration as Alpha
students.

The Martin Luther King, Jr.
Academy
The Martin Luther King, Jr. Academy is an
accelerated teaching and learning
development program that has been in
existence at WMU since 1983. Named in
honor of the late Dr. King, this particular
program has the distinction of being the
foreunner of similar programs in colleges and
universities throughout the United States.
Initially, the program was funded through a
grant from the Kellogg Foundation and was
able to provide scholarships as well as
remedial help to its participants. "Project 73,"
the original name of the program, began in
the fall of 1968 with sixty WMU freshmen coming
from high schools throughout southwestern
Michigan. It is now a year-round program,
beginning in the fall of the student's freshman
year.
Beginning Fall 2001, the Martin Luther King,
Jr. Academy was redesigned to recognize the
academic achievement of students who have
been awarded scholarships through the
Cultural Diversity Scholarship and various
other programs at Western Michigan
University. The MLK Academy provides an
opportunity for scholarship students to pursue
their major areas of study and to join with other
scholarship students in a variety of
educational experiences that broaden their
educational perspectives. The Academy
strives to enhance the educational experience
by creating a challenging, diverse, and
friendly learning environment which in college.

MLK Academy students have the
opportunity to participate in a variety of
programs and activities, including:
• Exposure to and encouragement for
international study.
• Academic enhancement programs,
including faculty and professional staff
mentors and faculty-guided research
projects leading to advanced degrees.
• Support of peer-group leaders to enhance
student learning and development
activities.
• Affiliation with student organizations that
enhance professional development.
• Introduction to career development
programming and associated internships.
• Participate in community involvement and
volunteerism (service learning projects).
• Attend a series of events featuring speakers
that represent the growing multicultural
community at WMU.

REQUIREMENTS FOR ACADEMY
PARTICIPATION
Must be a recipient of an Incentive
Scholarship or Cultural Diversity
Scholarship.
Attend Fall orientation program.
Attend bi-monthly meetings with DMA staff
and peer leaders.
Maintain a cumulative 2.0 g.p.a. or above.

NONTRADITIONAL ADMISSION PROGRAMS
Permission To Take Classes
Students whose education has been
interrupted by a period of five years may wish
to apply for non-degree Permission to Take
Classes (PTC) status. Students applying for
this status
1. Should complete a regular application for
admission and indicate non-degree status
(PTC) for program choice;
2. Will be admitted to non-degree status if
they have not attended another school or
college for at least five years;
3. May register for any course for which the
prerequisites have been met. PTC students
Students generally will take only two courses per semester; and

4. May enroll in subsequent terms for up to a total of 26 credits 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).

Students with non-degree (PTC) status may apply for degree admission after they have completed at least fifteen semester hours with at least a 2.0 grade point average. Admission to the degree program will be determined by review of performance in Western Michigan University courses.

Students who have attended another school or college within the past five years may apply for non-degree (PTC) status, but must also submit transcripts from all colleges and universities attended (and high school if they have completed fewer than 26 transferable college credits or have not attended any college).

Admission to non-degree (PTC) status would be determined by review under the same standards used for degree admission. Students admitted through this review would be eligible to enroll in courses for which prerequisites had been met and could enroll in courses for up to a total of 26 hours, providing they remain in good academic standing. Students admitted in this way would also be able to change to degree status at any time, providing they were in good standing at WMU.

Certain University courses and financial aid may not be available to non-degree (PTC) students. Acceptance to non-degree (PTC) status does not constitute admission to a degree program at Western Michigan University.

**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. Guest applications are available from the Office of Admissions and Orientation or the Office of the Registrar at all Michigan colleges and universities.

**High School Dual Enrollees**

Students who wish to take courses at the University while still in high school should submit a High School Guest (Dual Enrollment) Application Form (available from the Office of Admissions and Orientation). Seniors with at least a 3.25 high school grade point average will normally be admitted. Freshman through juniors with at least a 3.50 grade point average will be considered for enrollment on a case by case basis. In either instance, admission is as a guest student and does not constitute degree admission. Students who wish to apply for degree admission must be considered under regular admission standards.

**Project Scope (Senior Citizens' Opportunity Program in Education)**

Persons 62 years of age and older may enroll in some University classes on a seats available basis without charge, under these guidelines:

1. Students should apply as a Senior Citizen under the regular admission process on the day before classes begin (the application fee will be waived). No student is required to declare himself or herself a Senior Citizen student unless seeking enrollment without charge.

2. As soon as the application is processed, students are referred to the Registrar's Office for registration; and

3. Students must register their vehicles and pay for a student parking sticker or use metered parking.

All eligible students registering under Project SCOPE will be listed on official class rolls, will receive a grade, and will have all academic work recorded on a permanent student record.
TUITION AND FEES

Fees and costs identified in this catalog pertain to the 2001-2002 academic year, except as noted, and are subject to change without notice by action of the Board of Trustees. Questions concerning current fee schedules should be directed to the Office of the Director of Accounting Services.

TUITION
Student tuition fees are assessed on a credit hour basis. Fees per credit hour for 2001-2002 are listed below; these fees are subject to change without notice by action of the Board of Trustees.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Fee (in USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident* Undergraduate—Lower Division*</td>
<td>$129.91</td>
</tr>
<tr>
<td>Resident* Undergraduate—Upper Division*</td>
<td>$145.32</td>
</tr>
<tr>
<td>Resident Graduate</td>
<td>$185.62</td>
</tr>
<tr>
<td>Non-Resident* Undergraduate—Lower Division</td>
<td>$321.78</td>
</tr>
<tr>
<td>Non-Resident Undergraduate—Upper Division</td>
<td>$361.06</td>
</tr>
<tr>
<td>Non-Resident Graduate</td>
<td>$441.83</td>
</tr>
</tbody>
</table>

1Resident: See the Resident Classification section directly below for definition.
2Non-Resident: See the Resident Classification section directly below for definition.

RESIDENT CLASSIFICATION
A student's classification as a resident or non-resident for the purpose of assessing tuition fees is determined by the following policy adopted by the Board of Trustees of Western Michigan University. The policy applies to all students.

1. Since normally a student comes to Western Michigan University for the primary or sole 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 so classified throughout his/her attendance as a student, unless and until he/she demonstrates that his/her previous domicile has been abandoned and a Michigan domicile established.
2. The residence of a student who is a minor follows that of his/her parents or legal guardians, except that a minor student who comes to the institution from another state or country cannot be registered as a resident of this state on the basis of having a resident of this state as a guardian, except on permission of the Board of Trustees.
3. No student 18 years of age or older shall be eligible for classification as a resident unless the student shall be domiciled in Michigan and has resided in Michigan continuously for not less than one year immediately preceding the first day of classes of the term for which classification is sought.

Complete Withdrawal from All Courses, Effect on Tuition
The Schedule of Course Offerings for the appropriate semester/session should be consulted for the refund policy that pertains to complete withdrawal.

Students completely withdrawing from all classes must enter this information into the touchtone registration system or by going to the Registrar's office during the official drop/add days in order to process their withdrawal and assure a 100 percent refund. The withdrawal date for refund purposes will normally be determined by the date that the Registrar receives a Change of Enrollment Request form or an Appeal to Withdraw form. Students who find it impossible to be on campus to process a complete withdrawal and do not have access to touchtone phones may write to the Registrar's office, Room 3210 Seibert Administration Building, for aid in processing their withdrawal. All written requests for complete withdrawal must bear the appropriate postmark date for consideration of any refund.

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

STUDENT FEES OTHER THAN TUITION
Admission Application Fee
A non-refundable fee of $25 must accompany each application for admission.

Admission Validation Deposit
Entering Students: A $50 deposit applicable to fall student fees is required for all admitted beginner, transfer, and former 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 and Orientation.

Class Fees
Some courses have class-specific fees for which the student will be responsible. The University makes every effort to publish in the Schedule of Course Offerings such class-specific fees.

College of Engineering and Applied Sciences Class Fees
For each course at the 200-level and above in the College of Engineering and Applied Sciences, a fee of $25.50 will be assessed.
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 into a single per capita assessment. The enrollment fee for students registered in on-campus classes is as follows.

Students enrolled for 7 or more credit hours per semester or 4 or more credit hours per session:
- Fall and Winter Semesters: $289.00
- Spring and Summer Sessions: $144.50

Students enrolled for 6 or fewer credit hours per semester or 3 or fewer credit hours per session:
- Fall and Winter Semesters: $120.00
- Spring and Summer Sessions: $60.00

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.

Graduation Fee and Application Deadline
- Summer Session Graduation (August): $30.00 Application Deadline: April 1
- Fall Semester Graduation (December): $30.00 Application Deadline: August 1
- Winter Semester Graduation (April): $30.00 Application Deadline: December 1
- Spring Session Graduation (June): $30.00 Application Deadline: February 1

International Student Fee
International students will be charged a $25.00 fee each semester.

Late Add Fee
A late add fee of $50.00 is assessed for each class for which the student is allowed to register after the close of the drop/add period for that term.
This fee is a charge for the special handling required. It is not refundable.

Late Registration Fee
A late registration fee of $100.00 is assessed to each new on-campus registrant starting at 12:01 a.m. the third day of classes. This fee does not apply to those students completing drop-add procedures, only to students who did not register prior to the first day of classes.
This fee is a charge for the special handling required. It is not refundable.

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 charged one time per year, fall semester through summer session. Students registered in classes that require more than one type of liability insurance will be charged once for each.

Student Activity Fee
A student assessment fee (SAF) of $12.00 per semester (Fall and Winter) and $6.00 per session (Spring and Summer) will be collected from all graduate and undergraduate 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. The following is a sample of the programs funded in previous years: Bronco Bash, Homecoming, College Bowl, Miller Movies, Bernie's Afterhours, Bernhard Center Stage, lectures, etc.

RESIDENCE HALL AND DINING FEES
Cost of room and dining in 2001–2002 for 20 meals per week is $5,517.00 for the academic year; for 15 meals per week, $5,367.00 for the academic year; for 10 meals per week, $5,025.00 for the academic year.
The cost for room only is $1,286.00 for the fall semester and $1,321.00 for the winter semester, per student.
The rates quoted above are on the basis of two or more students per room and include a $25.00 per semester deferred maintenance fee. 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.
A first payment of $400 to be applied toward room and dining payment will be required with the signed contract before a housing assignment is made.
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.
WMU's Student Financial Aid Office administers a variety of student financial aid programs designed to aid students who are in need of additional financial support. Five types of financial aid programs are available: scholarships, grants, employment opportunities, loans, and tuition plans. The federal and state governments, colleges and universities, private associations, companies, and private citizens are sources of financial aid.

The information in this section describes both need- and non-need based financial aid programs awarded upon the 2001-2002 award year criteria at the time of this editing. Should federal, state, or university regulations and procedures change for the subsequent award years, the University will be responsible for administering these programs according to updated descriptions and criteria.

For complete, current information, visit the Student Financial Aid Office website at www.wmich.edu/finaid or email the Office at finaid-info@wmich.edu or call the Office at (616) 387-6000.

FASTWEB
FastWEB is a free computerized scholarship search found on the Internet. FastWeb can be accessed at www.fastweb.com. This interactive scholarship search analyzes a student's major, grade point average, race, handicap, gender, hobbies, work experience, religion, residence, nationality, veteran status, and athletic ability to locate scholarships for which the student may apply.

MI-SEARCH
The Michigan Higher Education Assistance and Student Loan Authority offers a free comprehensive search on their website. Michigan residents receive national and Michigan-specific scholarship information. Michigan students will receive information about any Michigan-specific scholarships listed in the database that matches the student's profile. MI-SEARCH can be accessed at www.MI-studentaid.org

PROCEDURES
Applying for Financial Aid
To determine eligibility for need-based financial aid programs, students must file a Free Application for Federal Student Aid (FAFSA). The FAFSA is available from high schools, from WMU's Student Financial Aid office, and from other higher education institutions. Returning applicants will receive a Renewal FAFSA as soon as January 1 of the award year for which they are planning to attend Western. Students may file the FAFSA as soon as January 1 of the award year for which they are planning to attend Western. The FAFSA gathers information regarding the parents’ and students’ income, assets, and other related information to determine the expected family contribution (EFC). The amount of need based financial aid is determined by subtracting the EFC from the cost of attendance. The cost of attendance is based on an estimation of tuition, fees, books, supplies, housing, food, transportation and personal expenses. The amount of aid not based upon need (non-need programs) is also determined by subtracting eligible need based financial aid programs and other resources received from the cost of attendance.

Besides filing the FAFSA, other documents and processes may be required before an award notice or payment is processed. Written communications will be mailed to students identifying what is required as a result of application edits, specific programs awarded, or general eligibility requirements. Application edits may require copies of Federal tax returns. Social security matches may require copies of social security card or driver’s license. Immigration and Naturalization Service matches may require copies of INS documents.

Program related documents may include loan promissory notes. Entrance counseling and financial aid counseling attendence is also required for first time loan borrowers at Western.

Awarding Process
Considering the amount of student's financial need, the Financial Aid Office automatically considers students for all types of Federal, state, and institutional grants, employment, 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 programs in the award package.

In general the eligibility factors that are reviewed are citizenship, residency, class level, grade level, enrollment hours, enrollment terms, degree status, default status, and good academic standing.

Most financial aid programs require a minimum enrollment equivalent to half time status to be eligible for payment. Awards are initially based on full time enrollment and adjusted to reflect actual enrollment after the term begins.

Any additional resources, changes to funding or regulations may affect student's financial aid award. If additional information received affects student's financial aid awards, a Revised Award Letter will be mailed.

Payment Process
Financial aid payments are credited on or before the first day of the term to a student's tuition, fees, housing, food, and other authorized charges. Payments are disbursed each term based upon the program eligibility requirements, and minimum enrollment requirements are verified at the time of each disbursement. Any excess funds remaining will be mailed to a student's local address.

Maintenance Requirements
To continue receiving financial aid, Federal and State regulations require monitoring a student's satisfactory progress towards a degree on an annual basis (at the end of winter semester). A review of a student's cumulative grade point average, the number of semesters attended, the number of hours passed, and the total hours attempted is conducted on an annual basis. Full time undergraduate students must pass at least 24 credit hours per academic year (or 12 hours per fall and/or winter semester). Those students that begin the semester at less than full-time are expected to pass one-half the number of credit hours as a full-time student. A withdrawal counts as hours attempted but not passed.

Student's who have not met the minimum criteria may lose financial aid eligibility for future semesters/sessions. Reinstatement of financial aid may be considered by filing an Academic Progress Appeal along with supporting documentation or by taking courses during the spring or summer sessions to make up any credit hour deficiencies.

Withdrawal from Courses and Impact on Financial Aid
All changes in registration, or an intent to withdraw completely from all courses, must be accomplished in accordance with the procedures published in the Schedule of Course Offerings. If a financial aid recipient drops some courses during the drop/add period, that student may no longer be eligible for the type or amount of financial aid received for that semester/session. Any excess funds received will need to be returned. In addition, a student who withdraws from courses after the end of the drop/add period will have those courses count as hours attempted and not passed. Courses attempted and not passed may not meet the standards of academic progress, and students may lose their eligibility for financial aid for future semesters/sessions.

If a financial aid recipient drops or withdraws from all of their courses after the start of the enrollment period, federal regulations require the amount of financial aid a student has earned up to that point be determined by a specific formula. A student who receives more aid than earned must return any excess funds. The amount of aid that was earned will be determined based on the number of days on enrollment in relation to the number of days in the payment period. That is, if the student completed 30 percent of the payment period, the student will have earned 30 percent of the financial aid. Once the student has completed more than 60 percent of the payment period, the student will have earned all the aid. After a student has withdrawn, the Office of Student Financial Aid will calculate the amount of funds that must be
Undergraduate Catalog
Kalamazoo, Michigan
2001 • 2003

The provisions of this catalog, any other catalog, policy, rules, codes, guidelines, or information issued by the University (collectively "requirements") shall not be considered to be a contractual or otherwise binding obligation of the University. Changes in administration and instruction may be made after the publication date of this catalog. 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. The University reserves the right to change, delete, or add to requirements, procedures, and/or other provisions at any time without prior notice. Such changes may include, but not be limited to, modification or discontinuance of programs, as well as modification or discontinuance of specific courses. In the event such action is taken, students affected will be advised by their units of the options available to them to complete their degrees.

The University will assist students in finding alternate ways to complete programs or course work. The University further reserves all rights regarding dismissals, suspensions, withdrawals, denials of requests or applications, cancellations or revocations of admissions, impositions of holds on records of students, and other administrative decisions, at all times. Academic calendars are subject to change without notice.

Western Michigan University requires that all students demonstrate skills in reading, writing, mathematics, and computer usage deemed appropriate and sufficient by the University as conditions for the awarding of any degree. These conditions may be met, at the discretion of the University, through regular courses of study or special testing.

Western Michigan University retains the right to rescind any WMU degree obtained improperly, including but not limited to, as a result of misrepresentations, incomplete or false information, and/or in violation of University requirements. Before making any final decision regarding a degree, however, the University will afford the student an opportunity to be heard in accordance with University requirements in effect at the time of the discovery of the alleged offense.

Becoming a student at Western Michigan University signifies the student's agreement to comply with all requirements of the University whenever approved.
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FINANCIAL AID AND SCHOLARSHIPS

returned. Failure to withdraw officially may
result in all aid being cancelled for that
payment period.

borrow funds on an annual basis with an

interest rate of 5.0 percent. The annual amount

withdrawal from classes first discuss the

ranges up to $1,800 per academic year.
Interest and principal payments are deferred
as long as a student is enrolled at least
half-time. Repayment of the loan plus interest

the Office of Student Financial Aid.

be enrolled a least half-time.

It is highly recommended that the student
contemplating a partial or complete
situation with a Financial Services Specialist in

TYPES
Grants/Need Based

Scholarships

Financial aid programs funded by the Federal
and state government to provide free
assistance to exceptionally needy
undergraduate students.
Federal Pell Grant provides grants up to

$3,750 per academic year to eligible
undergraduate students who have not
obtained a bachelor's degree
Federal Supplemental Educational
Opportunity Grant provides grants up to
$1,200 per academic year to eligible,
undergraduate students who have not
obtained a bachelor's degree.
Michigan Educational Opportunity Grant
provides grants up to $1,000 per academic
year to eligible, undergraduate students who
are Michigan residents and who have not
obtained a bachelor's degree
Michigan Adult Part Time Grant provides
grants up to $600 per academic year to
eligible, undergraduate students who are
Michigan residents, self-supporting, enrolled
part-time and have not obtained a bachelor's
degree. Recipients are limited to two years of
eligibility.
Michigan Competitive Scholarship is
based on financial need and a student's

composite ACT score. The scholarship
provides up to $1,300 per academic year to
eligible, undergraduate students who are
Michigan residents and have not obtained a
bachelor's degree. Recipients are limited to
ten semesters of eligibility that must be used
within ten years of their high school graduation.

Employment
Financial aid programs funded by the Federal
and state government to assist needy students
through employment opportunities:
Federal College Work Study provides
employment opportunities for undergraduate
and graduate students. Students who work
from ten to twenty hours average a week while

attending school may earn up to $3,000 per

academic year. Western's Student
Employment Referral Service office assists
students who have been awarded employment
in selecting jobs either on or off-campus
(including community service opportunities).
Michigan College Work Study provides
employment opportunities for undergraduate
and graduate students who are Michigan
residents. Students who work from ten to

twenty hours average a week while attending
school and may earn up to $3,000 per
academic year. Western's Student
Employment Referral Service office assists

students who have been awarded employment

in selecting jobs either on or off-campus
(including community service opportunities).

Loans
Financial aid programs designed to assist
students through borrowing at.a lower interest
rate with opportunities to defer principal
payments and possibly interest payments until
after enrollments ends:

Federal Perkins Loan allows needy
undergraduate and graduate students to

begins nine months after the student ceases to

Federal Direct Subsidized (FDS) Loan
allows undergraduate and graduate students
with financial need to borrow funds on an
annual basis with a variable interest rate

capped at 8.25 percent. The annual amount is
dependent upon cost of attendance, EFC,
grade level, and other resources received.
Interest and principal payments are deferred
as long as a student is enrolled at least

half-time. Borrowers pay a 3 percent
origination fee 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
is a program not based on need and allows
undergraduate and graduate students to
borrow funds on an annual basis with a

variable interest rate capped at 8.25 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 a 3 percent
origination fee 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) is a
program not based on need and allows
parents of dependent students to borrow

funds on an annual basis with a variable

interest rate capped at 9.0 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.
Borrowers pay a 4 percent origination fee that
is deducted from each disbursement.

Borrowers must have no adverse credit history.
Dependent students whose parents have been

denied a PLUS loan due to an adverse credit

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actively recruits both on- and off-campus
employment, including community service,
opportunities. Students may review the jobs
listed with the service in Room A-100,
Ellsworth Hall or on the web at

http://jobs.dosa.wmich.edu. Openings include
food service and clerical positions of all levels,
retail sales positions, and technical positions
requiring computer science skills.
Students may also directly contact specific
areas of the university where they wish to work.
Students are employed by University
departments, offices, libraries, laboratories,
residence halls, the recreation center, and the
Bernhard Center.

The Career and Student Employment
Services Office can also help students find an
existing co-op or internship program or design
a program on their own and contact
prospective employers.
Residence Hall positions are also available
either as advisors or assistant directors.
Advisors receive free room and board on

campus (single room). Assistant directors
receive free room and board on campus
(single room) and a stipend each semester.
Contact Residence Hall Life for further

information.
U.S. Armed Forces offers students a

variety of educational assistance programs.
For further detail, contact your local armed
forces recruiter.

Payment Plans are available through
either Academic Management Services or
Tuition Management Systems. These private
companies work with the University's
Customer Account Services office. The plans
allow parents and students to pay tuition, fees,
and on-campus housing costs on a monthly

basis. The plans generally cost $50 and do not

charge interest. Parents or students generally
pay a deposit, and the balance is paid by
monthly installments. The companies pay the
University directly.
Students may contact Academic
Management Services by calling
1-800-635-0120, and Tuition Management
Systems by calling 1-800-722-4867.
Western's Short Term Loan Program
provides emergency short-term loans to
Western enrolled students. Both graduate and
undergraduate students who have no financial

obligations to the University may apply for
loans at the Financial Aid office. Loans

history may borrow FDU loan funds.
Michigan Alternative Loan (Mi-Loan)
provides credit-worthy students and their

average $300.00, are charged a simple
interest rate of 5 to 7 percent, and require
repayment generally in thirty days.

interest rate is variable, and students may

by University alumni, faculty, staff and friends.

parents an alternative source of funds. The

borrow up to $10,000 per year. Borrowers must
submit a FAFSA and pass a credit eligibility

check. Eligibility is dependent upon the cost of
attendance, eligibility for need based
programs and other resources received.
Other Alternative Loans Banks and

private organizations have set up a variety of

alternative loan programs. These programs
require payment while the student is in school,
the interest rates are at a higher rate than the
federal programs, and they offer different
repayment options. Contact Student Financial
Aid for a listing of known alternative loan
programs.

Other Financial Opportunities
Michigan Merit Award is a $2,500 scholarship

award for high school seniors based upon

MEAP scores or a combination of MEAP and
ACT or SAT scores. For further details contact

the Department of Treasury at (888) 956-3748
or visit their website at
www.MeritAward.state.mi.us.

On and Off Campus Student

Employment opportunities exist. The Career
and Student Employment Services Office

The loan funds below have been establish

A.A.U.W. Graduate Social Work Fund

A.A.U.W. Nursery Education Loan Fund
Academic Affairs Special Loan
Alpha Beta Epsilon Loan Fund
Alpha Phi Alpha /Epsilon X Chapter
Alumni Short-Term Loan Fund
American Business Club of Kalamazoo
A. Robert Anderson Memorial Loan Fund
Associated Women Students Loan Fund
AUSCO Loan Fund
Fannie Ballou Memorial Fund
Robert H. Barr Loan Fund
John L. Bendix Memorial Loan Fund
Albert W. Behnke

Roger Bennett Memorial Fund

Amelia Biscomb Memorial Loan Fund
William R. and Emma Wales Brown Student
Loan Fund
Ernest Burnham Rural Loan Fund

Chapman Student Loan Fund
Class of 1936 Loan Fund

College of Applied Sciences Loan Fund

Communications Arts and Sciences Loan Fund

Dorothy Dalton Loan Fund
Delta Kappa Gamma Alpha Psi Loan Fund
Delta Sigma Theta Loan Fund

Vlada and Irene Dimac Loan Fund
Disabled Student Services


FINANCIAL AID AND SCHOLARSHIPS

The Gordon and Ferne Elferdink Loan Fund
Michael Finley Memorial Loan Fund
Foreign Students Aid Loan Fund
James Gardner Memorial Loan Fund
Judity H. Halseth
Marie Harik Loan Fund
Harriett Brubing Loan Fund
Leroy H. Harvey Memorial Loan Fund
Eunice E. Herald Home Economics Loan Fund
Deidie M. Herman Debate Loan Fund
Helen R. Buyers Guild Loan Fund
Alfred Ho Loan Fund
John C. Hoekje Loan Fund
Honor's College Loan Fund
Home Economics Memorial Loan Fund
Donald Huizinga Memorial Loan Fund
Inter-Fraternal Council Loan Fund
Frank Fatzinger Memorial Loan Fund
Fremburg W. James Loan Fund
Rev. B. Moses James Memorial Loan Fund
John Jenkins Memorial Loan Fund
Walter Larry Jenkins Memorial Fund
Goldie O. Johnson Loan Fund
Kalamazoo Area MAECD Loan Fund
Kalamazoo Ladies' Library Association Loan Fund
Kalamazoo Motor Freight Loan Fund
Alice J. Kaufman Loan Fund
Jerome E. Keane Loan Fund
Freda and Martin Kelley
Donald G. and Mildred Kidder Loan Fund
Kwanis Educational Aid Fund
The Dr. Ralston Kuykendall Memorial Loan Fund
Carleton Lee Memorial Fund
Alice Louise Lefevre Memorial Fund
Elizabeth E. Lichly Loan Fund
Marvel F. Liddy Student Loan Fund
David E. Ling Memorial Loan Fund
Larry G. Lohrner Memorial Fund
M. Dezeta Loutzenhiser Short Term Loan Fund
Rayth W. Lower Memorial Loan Fund
Charles S. Nichols Loan Fund
R. C. Mahon Foundation Loan Fund
Mildred Maloney Memorial Loan Fund
Jean G. Mainstorm Loan Fund
Mathematics Faculty Memorial Loan Fund
William McGinnis Memorial Loan Fund
Southwestern State Employees' Credit Union Loan Fund
Marion R. Sprau Occupational Therapy Fund
George Sprau Loan Fund
Kenneth H. Squires Memorial Loan Fund
Mr. and Mrs. J. Fred Staley Fund
State D.A.R. Loan Fund
Student Loan Fund
Student Service Emergency Loan Fund
Marion Tamin Memorial French Loan Fund
TAPPI (Kalamazoo Valley Section) Loan Fund
Cora Tea Loan Fund
Adrian Trimpé Distributive Education Loan Fund
C.N. Van Deventer Loan Fund
University Dames of WMU Loan Fund
Dr. Charles Van Riper Speech Pathology and Audiology Loan Fund
Waldo-Feather-Frazier Loan Fund
Dwight B. Waldo Memorial Fund
Walter Wegerly Scholarship Loan Fund
James A. Welsh Foundation Loan Fund
Mary Howe Student Loan Fund
Helin and Bernard Weissberg Loan Fund
WMU Language Department Loan Fund
WMU Paper Technology Alumni Association Loan Fund
WMU Parents Association Loan Fund
WMU Southern California Alumni Loan Fund
WMU Speech Loan Fund
Howard Wolfe Loan Fund
W Dean Worden Loan Fund
Crystal Worner Memorial Fund
WSA-GSAC Loan Fund

WMU SCHOLARSHIPS FOR BEGINNING FRESHMEN

MEDALLION SCHOLARSHIP PROGRAM

Through the Medallion Scholarship Program, the WMU Scholarship Committee selects recipients for one of the following three scholarships:

Medallion Scholarship: The Medallion Scholarship (15 awards), the University's most prestigious scholarship for new freshmen, exemplifies Western's commitment to recognize and encourage superior academic achievement. Medallion scholars currently receive $32,000, awarded in $8,000 per year for up to four years. The amount of the award is based on high school academic achievement (grades, course selection, and standardized test scores) and extracurricular or community involvement, and financial need.

All recipients of the Cultural Diversity Scholarship are automatically enrolled in the Martin Luther King, Jr. Academy at WMU.

ADDITIONAL SCHOLARSHIPS FOR ENTERING FRESHMEN

WMU Award for National Merit Scholarship Winners Western Michigan University is an institutional member of the National Merit Scholarship Corporation and sponsors scholarships for National Merit Scholarship Finalists. Recipients are selected on the basis of national merit test scores and academic achievement. The amount of the award is $3,000 ($750 per year for up to four years). To be eligible, students must designate Western as their first school choice with the National Merit Scholarship Corporation no later than April 1 of the year preceding the award year. Students receiving the maximum $2,000 per year award as a National Merit Scholar, or students awarded the WMU Medallion Scholarship, are not eligible for the $3,000 scholarship.

Legacy Award Recipients of the WMU Alumni Association Legacy Award will receive a one-time grant of $1,000 ($500 fall semester and $500 spring semester). To be eligible, the recipient must be an entering freshman or transfer student, and a child, grandchild, stepchild, of a dues paying WMU alumnus/alumna.

WMU Scholarships for Michigan Community College Transfer Students

A transfer student may receive only one of the following awards. For consideration, students must have completed at least 26 semester hours of transferable course work at the time of application.

WMU Distinguished Community College Scholars Award A minimum of ten WMU Distinguished Community College Scholars Awards are given annually to Michigan residents transferring to Western with an associate's degree from a Michigan community college. Recipients of this $6,000 scholarship receive $3,000 each academic year. To be eligible, students must have a grade point average of 3.75 or above in transferable courses and all materials necessary for admission must be received in Western's Office of Admissions and Orientation by March 1. Recipients are selected by the Western Michigan University Scholarship Committee.

WMU Community College President's Scholarship Michigan community college presidents select the recipients of this $4,000 scholarship, which provides $2,000 each academic year. To be eligible, students must have a grade point average of 3.5 or above in transferable courses, selected by a Michigan Community College President, and all materials necessary for admission must be received in Western's Office of Admissions and Orientation by March 1.

CULTURAL DIVERSITY SCHOLARSHIP PROGRAM

Cultural Diversity Scholarship The Cultural Diversity Scholarship is awarded each year primarily to a select number of graduating minority high school students. Applications of all minority students are reviewed automatically when they apply for admission to WMU. Students wishing to be considered for the Cultural Diversity Scholarship are strongly encouraged to complete the essay portion of the WMU admissions application. Awards range in amount from $2,000 per year ($8,000 over four years) to $6,000 per year ($24,000 over four years). The amount of the award is based on high school academic achievement (grades, course selection, and standardized test scores) and extracurricular or community involvement, and financial need.

All recipients of the Cultural Diversity Scholarship are automatically enrolled in the Martin Luther King, Jr. Academy at WMU.
Phi Theta Kappa Alumni Scholarship
Transfer students who are Phi Theta Kappa members in good standing are eligible for this $3,000 ($1,500/academic year) award. A 3.5 or higher in transferable courses is required. Funds are limited due to the number of Phi Theta Kappa members. Normally the award is given for the fall/winter semester. The University makes these awards as long as funds are available.

WMU Academic Scholarship for Transfer Students
Students who transfer to Western with a grade point average of 3.5 or above—as computed by the Western Office of Admissions and Orientation—will be eligible for a $2,000 scholarship, which provides $1,000 each academic year. For students to be eligible, all materials necessary for admission must be received in Western’s Office of Admissions and Orientation by March 1. The University makes these awards as long as funds are available.

Transfer Achievement Scholarship
Students who transfer to Western in the fall with a grade point average of 3.0 in transferable courses may be eligible for this $1,000 award, as long as funds are available. This scholarship is not renewable. For students to be eligible, all materials necessary for admission must be received in Western’s Office of Admissions and Orientation by March 1. The University makes these awards as long as funds are available.

WMU Scholarships for Currently Enrolled Students

WMU Undergraduate Research and Creative Activities Award
The WMU Undergraduate Research and Creative Activities Award Program, administered by the Honors College, is designed to encourage and nurture research and creative activities by outstanding students at Western Michigan University.

An essential feature of the Undergraduate Research and Creative Activities Award Program is the apprentice/mentor relationship established between a student and faculty member. A suitable project can come from any area of academic endeavor at the University. It could include, but would not be limited to, research, development, design, field study or creative project or performance. Normally the project should require approximately 150 hours (or ten hours per week) of the student’s time over one semester. Additional funds are available for a second semester renewal application.

The applicant must be a Western Michigan University undergraduate, should have a grade point average of at least 3.5, and typically have accumulated at least 60 credit hours by the time the project will begin. The program awards a $600 stipend for the first semester. An award may be renewed once if there is sufficient justification. While the program is administered by the Honors College, the student does not need to be a member of the Honors College in order to qualify for an award.

The selection of awardees will be based on the past academic performance of the student, the experience and expertise of the sponsoring faculty member, and the merits of the proposed project.

WMU Academic Scholarship
Currently enrolled Western students whose University grade point average is 3.50 or above are eligible to apply for this $500 fall/winter semester award. Western awards 4.0 grade point averages and continues awarding down to a 3.25 grade point average as long as funds are available.

Application forms are available at Western’s Student Financial Aid Office from December 1 through January 31 at the Student Financial Aid Office.

Non-Traditional Student Scholarship
Awards up to $500 per semester for adult learners who have had a significant break in education. Awards are given on the basis of need and/or scholarship.

To be eligible, undergraduate students must be enrolled for three to eleven credit hours for fall/winter and have a 2.5 grade point average. Graduate students must be enrolled for two to five credit hours for fall/winter and have a 3.2 grade point average. The award year deadline is July 1. Contact the Student Financial Aid Office at (616) 387-6000 or regional centers for an application form.

ENDOWED AND DEPARTMENT SCHOLARSHIPS

Western Michigan University offers an extensive array of Endowed Scholarships and Departmental Scholarships. The amounts, eligibility criteria, and application procedures vary and are subject to change. For the most current and accurate information on each of these many scholarship opportunities, visit the website of the Office of Student Financial Aid and Scholarships at www.wmich.edu/finaid or contact the individual academic department at WMU or review the WMU publication Scholarships in your high school counselor’s office.
## DEGREES, CURRICULA, MAJORS AND ACCREDITATION

### DEGREES

The Board of Trustees, on recommendation of the President and faculty 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 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 Development Administration
- Master of Fine Arts
- Master of Music
- Master of Public Administration
- Master of Science
- Master of Science in Accountancy
- Master of Science in Engineering
- Master of Science in Medicine
- Master of Social Work
- Specialist in Education
- Doctor of Education
- Doctor of Philosophy

### UNDERGRADUATE CURRICULA AND MAJORS

**CURRICULA AND MAJORS BY COLLEGE**

<table>
<thead>
<tr>
<th>College of Arts and Sciences:</th>
<th>CURR: LEC Liberal Education</th>
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</thead>
<tbody>
<tr>
<td>Major: AMS</td>
<td>American Studies</td>
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<tr>
<td>Major: ANT</td>
<td>Anthropology</td>
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<td>Major: BCH</td>
<td>Biochemistry</td>
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<td>Major: BIO</td>
<td>Biomedical Chemistry</td>
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<td>Major: BCP</td>
<td>Broadcast and Cable Production</td>
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<td>Major: BOC</td>
<td>Business-Oriented Chemistry</td>
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<td>Major: CHM</td>
<td>Chemistry</td>
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<td>Major: COS</td>
<td>Communication Studies</td>
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<td>Major: CRJ</td>
<td>Criminal Justice</td>
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<td>Major: EAR</td>
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<td>Major: ECO</td>
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<td>Major: ENG</td>
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<td>Major: FRC</td>
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<td>Geography</td>
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<td>Major: HIS</td>
<td>History</td>
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<td>HYD</td>
<td>Hydrogeology</td>
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<td>IPC</td>
<td>Interpersonal Communication</td>
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<td>JNL</td>
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<td>LAT</td>
<td>Latin</td>
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<td>MAT</td>
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<td>MDS</td>
<td>Media Studies</td>
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<td>OCM</td>
<td>Organizational Communication</td>
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<td>Philosophy</td>
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<td>PPA</td>
<td>Political Science in Public Administration</td>
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<td>RSP</td>
<td>Professional Studies</td>
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<td>Psychology</td>
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<td>TCM</td>
<td>Telecommunications Management</td>
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<tr>
<td>TOU</td>
<td>Tourism and Travel</td>
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</tbody>
</table>

**Preprofessional Programs**
- PD: Pre-Dentistry (Select a major from Liberal Education Curriculum)
- PL: Pre-Law (Select a major from Liberal Education Curriculum)
- PM: Pre-Medicine (Select a major from Liberal Education Curriculum)

**Coordinate Majors**
- These are majors to be selected only along with a standard major.
- AMS: African Studies
- AIS: Asian Studies
- BAS: Black Americana Studies
- EGD: Environmental Studies
- EUR: European Studies
- LMS: Latin American Studies
- REL: Russian and East European Studies
- WMS: Women's Studies

**College of Aviation:**
- Students selecting the Aviation Flight Science program will be placed in the “Pre-Aviation Flight Science” (PFL) curriculum until requirements have been met. See the College of Aviation section for complete information on admission requirements.

### College of Education:
- (3) Students selecting teacher certification programs will be placed in the “Pre-Education” (PED) curriculum until requirements have been met. See the College of Education section for complete information on admission requirements.

**CURR: CTE Career and Technical Education**
- Major: FSE Family and Consumer Science Teacher Education
- Major: SEB Secondary Education in Business
- Major: SEM Secondary Education in Marketing

**CURR: DI Dietetics**
- Major: DI Dietetics

**CURR: EED Elementary Education**
- Major: EGM Elementary Group Minors

**CURR: EEM Elementary Music**
- Major: MUS Music, Elementary

**CURR: FSA Food Service Administration**
- Major: FSA Food Service Administration

**CURR: FST Family Studies**
- Major: FST Family Studies
- Major: FCD Family Studies—Child Development

**CURR: HPR Health, Physical Education and Recreation**
- Major: CHE Community Health
- Major: EXS Exercise Science
- Major: REC Recreation

**CURR: IET Industrial Education Technology**
- Major: IDT Industrial Technology
- Major: SEB Secondary Education in Business
- Major: TAD Technology and Design

**CURR: ITD Interior Design**
- Major: ITD Interior Design

**CURR: Sed Secondary Education**
- Major: ATE Art Teaching
- Major: BIO Biology
- Major: CHM Chemistry
- Major: EAR Earth Science
- Major: ENG English
- Major: FRE French
- Major: FSE Family and Consumer Science Teacher Education
- Major: GEG Geography
- Major: GER German
- Major: HET Health Education Teaching
- Major: HIS History
- Major: IDT Industrial Technology
- Major: LAT Latin
- Major: MAT Mathematics
- Major: MUE Music Education
- Major: PHY Physics
- Major: POL Political Science
- Major: PVE Physical Education—Teacher/Coach
- Major: SEB Secondary Education in Business
- Major: SEM Secondary Education in Marketing
- Major: SPA Spanish
- Major: TAD Technology and Design

**CURR: PEP Physical Education**
- Major: PEP Physical Education—Teacher/Coach
College of Engineering and Applied Sciences:

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

(5) Not available on-campus.

CURR: AER Aeronautical Engineering
Major: AER Aeronautical Engineering

CURR: CHG Chemical Engineering
Major: CHG Chemical Engineering

CURR: CPE Computer Engineering
Major: CPE Computer Engineering

CURR: CEN Construction Engineering
Major: CEN Construction Engineering

CURR: CSE Computer Science—General
Major: CSE Computer Science—General

CURR: CST Computer Science—Theory and Analysis
Major: CST Computer Science—Theory and Analysis

CURR: EE Electrical Engineering
Major: EE Electrical Engineering

CURR: EGR Engineering Graphics and Design Technology
Major: EGR Engineering Graphics and Design Technology

CURR: GCA General College
Major: GCA General College

CURR: ID Industrial Design
Major: ID Industrial Design

CURR: IEN Industrial Engineering
Major: IEN Industrial Engineering

CURR: MFE Manufacturing Engineering
Major: MFE Manufacturing Engineering

CURR: MFT Manufacturing Engineering Technology
Major: MFT Manufacturing Engineering Technology

CURR: MMU Materials Engineering
Major: MMU Materials Engineering

CURR: ME Mechanical Engineering
Major: ME Mechanical Engineering

CURR: PAE Paper Engineering
Major: PAE Paper Engineering

CURR: PAS Paper Science
Major: PAS Paper Science

CURR: PRT Printing
Major: PRT Printing

College of Fine Arts:

(6) Students selecting Graphic Design will be placed in the Art Curriculum until requirements have been met. See the Art section for complete information on admission requirements.

CURR: ART Art
Major: ART Art

CURR: ATE Art Teaching
Major: ATE Art Teaching

CURR: ATH Art History
Major: ATH Art History

CURR: GRD Graphic Design
Major: GRD Graphic Design

CURR: DAC Dance
Major: DAC Dance

CURR: MCA Music
Major: MCA Music

CURR: MFT Music Theatre Performance
Major: MFT Music Theatre Performance

CURR: TTH Theatre
Major: TTH Theatre—Design and Technical Production

THN Theatre Education

College of Health and Human Services:

Students selecting Health and Human Services program will be placed in the Pre-Program until all requirements have been met (i.e., Pre-Nursing (HHS), Pre-Occupational Therapy (POT), Pre-Social Work (PSW), Pre-Speech Pathology and Audiology (PSN), and Pre-Travel Instruction (PTI)). See the College of Health and Human Services sections for complete information on admission requirements.

CURR: NUR Nursing
Major: NUR Nursing

CURR: RN Nursing
Major: RN Nursing

CURR: OT Occupational Therapy
Major: OT Occupational Therapy

CURR: SW Social Work
Major: SW Social Work

CURR: TIN Travel Instruction
Major: TIN Travel Instruction

Coordinate Major: (This major to be selected only along with a standard major.)

GRN Gerontology

Honors College
CURR: HNC Honors College

The Honors College Curriculum is a closed curriculum, available only to previously admitted members of the Honors College. For more information, contact the Honors College at (616) 387-3230.

Division of Continuing Education:

Specific information about the courses listed below may be found in the Division of Continuing Education section of this catalog.

(7) Students selecting Occupational Educational Studies will be placed in the Pre-Occupational Studies (POE) Major until requirements have been met.

CURR: GUS General University Studies

CURR: CE Continuing Education
Major: PTC Permission to Take Classes

Other Curricula
CURR: UNV University Curriculum

CURR: ATP Academic Transitions Program

CURR: PTC Permission to Take Classes

CURR: SCOP S.C.O.P.E.

CURR: UN University Curriculum

Students not selecting a curriculum will be placed in the UNIVERSITY (UNV) CURRICULUM until a selection can be made (see the entry directly below). Students are encouraged whenever possible to select a specific curriculum.

University (UNIV)

UNIV 101 Freshman Seminar
1-3 hrs.
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.

UNIV 102 Career Exploration and Development
1 hr.
This course is designed to help the undecided student assess and develop 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, and University resources. Assignments will involve written exercises and research in the Career Media Center.

PREPROFESSIONAL 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 preprofessional training. It should be noted, however, that the courses outlined are only suggested plans to
No special college program is required or recommended by most law schools. Generally, law schools prefer a solid four-year program leading to a bachelor’s degree. As long as a student receives a quality education featuring critical analysis, logical reasoning, and written and oral communication skills, a number of majors are acceptable for the prelaw student. Most often chosen are English, business, political science, history, and economics, but such disciplines as philosophy, anthropology, mathematics, sociology, and the natural sciences are also suitable majors. Interested students should discuss possible majors and major-minor combinations with an advisor to find out which best suits them.

Regardless of major, certain kinds of courses are essential during an undergraduate career. Courses which stress writing such as English and business communication courses are indispensable. Courses which require students to use legal reasoning such as administrative law, constitutional law, and business law are highly recommended. Courses which develop an awareness of the structure and processes of government, including national government, legal environment, and judicial processes are also valuable. Finally, acquaintance with the structure and development of American business, the American historical experience, economics, and government is advisable.

A first-year student should see a prelaw advisor during the first semester for assistance in selecting a curriculum. A transfer student should see a prelaw advisor as soon as possible.

**MEDICINE**

Maria McGurr, Premedical Advisor

**Medical Sciences Advisors**

2318 Friedmann Hall

387-4366

Medical schools increasingly want students with diverse backgrounds and a variety of skills and interests. A science major is not a prerequisite for medical school, although good preparation in chemistry, biological sciences, and physics is expected. Medical schools are most concerned with overall quality and scope of undergraduate work. Students should have well-developed communication skills and interests in the humanities and social sciences.

Nearly every medical school, including those in Michigan, requires two semesters each of English, physics, biological sciences, inorganic chemistry, and organic chemistry. Dental schools may have additional requirements. Interested students should consult the handbook Admission Requirements of U.S. and Canadian Dental Schools (call number: RA 91.458; Latest Edition in Waldo Library’s Science Reference Desk), for specific requirements. It is also important for interested students to read the specific information about the dental schools in which they are interested (see premedical advisor).

It is important that premedical students see the preprofessional advisor on a regular basis for curriculum guidance. The advisor is located in 2318 Friedmann Hall. Also available through the advising office are registration materials for the Dental Aptitude Test (DAT) and the American Association of Dental Schools Application Service (AADAS).

Students should complete the minimal requirements by the end of their junior year or before they take the Dental Admission Test. The sequence of courses will depend on the student’s major and minor, as well as appropriate prerequisites. Western Michigan University courses which fulfill minimum dental school requirements, and also provide a good foundation for the Dental College Admission Test, are listed below:

1. CHEM 110 and 111; 112 and 113; 375 and 376; 377 and 378.
2. BIOS 150 and 151; and recommended courses BIOC 250 and 350.
3. PHYS 113 and 114; 115 and 116 or 205 and 206; 207 and 208.
4. ENGL 105 plus an English course in literature or creative writing.

**LAW**

Kevin Knutson, Prelaw Advisor

College of Arts and Sciences Academic Advising Office

2318 Friedmann Hall

387-4366

**Advisors:** Department of Finance and Commercial Law

3900 Health Science Building

387-5720

**Advisors:** Department of Political Science

3302 Friedmann Hall

387-6680

**ADVISING**

In case students should plan their courses of study according to the requirements of the school to which they plan to transfer for professional training.

BIOS 250 is recognized too strongly that the student should exercise care to make certain that the specific requirements of a particular school will have been met.

**DENTISTRY**

Maria McGurr, Preclinical Advisor

Kerrie Jo Harvey

Medical Sciences Advisors

2318 Friedmann Hall

387-4366

Dental schools increasingly want students with diverse backgrounds and a variety of skills and interests. A science major is not a prerequisite for dental school, although good preparation in chemistry, biological sciences, and physics is expected. Dental schools are most concerned with overall quality and scope of undergraduate work and want students to have well-developed communication skills and interests in the humanities and social sciences.

Nearly every dental school, including those in Michigan, requires two semesters each of English, physics, biological sciences, inorganic chemistry, and organic chemistry. Dental schools may have additional requirements. Interested students should consult the handbook Admission Requirements of U.S. and Canadian Dental Schools (call number: RA 91.458; Latest Edition in Waldo Library’s Science Reference Desk), for specific requirements. It is also important for interested students to read the specific information about the dental schools in which they are interested (see preclinical advisor).

It is important that preclinical students see the preprofessional advisor on a regular basis for curriculum guidance. The advisor is located in 2318 Friedmann Hall. Also available through the advising office are registration materials for the Dental Aptitude Test (DAT) and the American Association of Dental Schools Application Service (AADAS).

Students should complete the minimal requirements by the end of their junior year or before they take the Dental Admission Test. The sequence of courses will depend on the student’s major and minor, as well as appropriate prerequisites. Western Michigan University courses which fulfill minimum dental school requirements, and also provide a good foundation for the Dental College Admission Test, are listed below:

1. CHEM 110 and 111; 112 and 113; 375 and 376; 377 and 378; and recommended courses 355 and 356.
2. BIOS 150 and 151; and recommended courses BIOC 250 and 350.
3. PHYS 113 and 114; 115 and 116 or 205 and 206; 207 and 208.
4. ENGL 105 plus an English course in literature or creative writing.

**ACCREDITATION**

**UNIVERSITY ACCREDITATION**

Western Michigan University is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools, 30 North LaSalle Street, Suite 2400, Chicago, IL 60602-2504; telephone 800-621-7440.

**PROGRAM ACCREDITATION**

The National Council for Accreditation of Teacher Education has accredited the College of Education, which includes the following programs:

- bachelor’s programs for preparation in early childhood; elementary education; high school; secondary education; health, physical education, and recreation; and special education.
- master’s programs in early childhood; reading; teaching in the elementary school; teaching in the middle school; and health, physical education, and recreation.
- master’s and doctoral programs in counselor education and special education.
- master’s, educational specialist, and doctoral programs in educational leadership.

Programs in the Department of Art are accredited by the National Association of Schools of Art and Design.

Programs in the Department of Blind Rehabilitation are accredited by the Association for Education and the Rehabilitation of the Blind and Visually Impaired.

Programs in the Haworth College of Business are accredited by the American Assembly of Collegiate Schools of Business.

Programs in the Department of Chemistry are accredited by the American Chemical Society.

The computer science theory and analysis major in the Department of Computer Science is accredited by the Computing Sciences Accreditation Commission of the Computing Sciences Accreditation Board, Inc.

The baccalaureate programs in aeronautical, computer, construction, electrical, industrial, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The baccalaureate programs in manufacturing, engineering technology and engineering graphics and design technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

The engineering graphics and design technology program is also accredited by the National Association of Schools of Art and Design.

The baccalaureate programs in aviation maintenance technology, aviation science and administration, and aviation flight science are accredited by the Council on Aviation Accreditation.

The dietetic programs in the Department of Family and Consumer Sciences are approved by the American Dietetics Association.

Illustrate in general the kinds of programs that preprofessional students should follow. In every case students should plan their courses of study according to the requirements of the school to which they plan to transfer for professional training.
In the Department of Counselor Education and Counseling Psychology, the master's and doctoral programs in community counseling, school counseling, student affairs in higher education, counseling and leadership, and counselor education and supervision are accredited by the Council for Accreditation of Counseling and Related Educational Programs; the doctoral program in counseling psychology is accredited by the American Psychological Association.

Programs in the Department of Dance are accredited by the National Association of Schools of Dance.

Programs in the Department of Health, Physical Education and Recreation are accredited by the Association for Health Education and the National Athletic Training Association.

The industrial design program in the Department of Construction Engineering, Materials Engineering, and Industrial Design is accredited by the National Association of Schools of Art and Design.

The interior design program in the Department of Family and Consumer Sciences is accredited by the Foundation for Interior Design Education Research.

Programs in the School of Music are accredited by the National Association of Schools of Music.

Programs in the Bronson School of Nursing are accredited by the National League for Nursing Accrediting Commission.

Programs in the Department of Occupational Therapy are accredited by the Accreditation Council for Occupational Therapy Education.

The Physician Assistant Program is accredited by the Committee on Accreditation on Allied Health Education Programs.

In the Department of Psychology, the master's and doctoral programs in behavioral analysis, applied behavior analysis, and experimental analysis are accredited by the Association for Behavior Analysis International; the doctoral program in Clinical Psychology is accredited by the American Psychological Association; and the specialist and doctoral programs in School Psychology are accredited by the State of Michigan and by the National Association of School Psychology.

The master's program in public administration is accredited by the National Association of Schools of Public Affairs and Administration.

Programs in the School of Social Work are accredited by the Council on Social Work Education.

Programs in the Department of Speech Pathology and Audiology are accredited by the Education Standards Board of the American Speech-Language-Hearing Association and by the Professional Services Board of the American Speech-Language-Hearing Association.

Programs in the Department of Theatre are accredited by the National Association of Schools of Theatre.

Copies of accreditation documents are available for review upon request in the Office of the Provost and Vice President for Academic Affairs.
GRADUATION AND ACADEMIC ADVISING

GRADUATION

GRADUATION PROCEDURES

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 Commencement Ceremony in December, April, June, or August; however, a Commencement Ceremony is held only in December, April, and June.

Applications for a graduation audit to determine the student's eligibility for graduation are available in the College Advising Offices. Major and minor slips also must be secured from the appropriate advisor(s) and submitted along with the application. The deadlines and fees for submitting the application are listed directly 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.

Students whose audit determines that they do not fully meet degree and University requirements or students who wish to change from one graduating class to another will be removed from the anticipated graduating class identified on the application form. Such students must then be met. When a student fails to meet requirements for graduation resulting from failed courses, a summer session, or for any reason for which the student is responsible, responsibility rests with the student to reapply for the next regular graduating class following completion of his/her requirements. Under no circumstances will any student be graduated if his/her academic record does not show complete fulfillment of all requirements within thirty 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. 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. A 20-hour subject major or 36-hour group major is required of students in Elementary and Secondary Education, with a minor or minors of at least 20 semester hours. For further details see Curricula for Teachers. 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. Beginning with the Fall Semester, 1973, students graduating with an Associate of Science degree from Michigan two-year colleges, which are signatory to the Michigan Association of College Registrars and Admissions Officers General Education Agreement, will automatically have fulfilled the first and second year General Education requirements of two courses at the junior and senior levels which 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 goes 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. Each student must satisfy the University computer literacy requirement as outlined in this section.
8. 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.
9. A maximum of fifteen semester hours of credit in correspondence (self-instructional) courses may be applied to a degree. Individual colleges and departments may have additional residency requirements.
10. Students transferring from a two-year community or junior college must complete a minimum of one-half of the academic work required in their curriculum in an accredited four-year, degree-granting institution.
11. 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.
12. In cooperation with two-year institutions of higher education in the State of Michigan, a student who transfers within three years upon leaving the junior college to Western Michigan University from a two-year Michigan institution may elect to graduate...
under the WMU catalog in effect at the
time of the initial registration at the
two-year institution.

13. As a requirement for graduation, all
seniors must participate in the
assessment program.

Requirements for Earning a
Second Bachelor's Degree

To receive a second baccalaureate degree, a student must:
1. previously hold a degree from a regionally
accredited college or university;
2. complete a minimum of 30 credits in
residency beyond the requirements for the first
degree;
3. complete the requirements for a new major
(or GUS concentration); and
4. meet all specified University, College,
certification and program requirements to
include general education, proficiencies,
and a minimum 2.0 GPA.

Generally, no second degree will be granted
from the college or academic area in which the
first degree was earned. Rather than seeking a second
baccalaureate degree, students may enroll as post-baccalaureate students and
have the completion of an additional major
recorded on the transcript.

Students who wish to pursue two or more baccalaureate degrees from WMU must also
meet the above requirements. Students who
meet the requirements for more than one major
program but who do not meet the above
standards may receive a single degree with
more than one major recorded on the
transcript. NOTE: College or program
accreditation standards may impose additional
requirements or limitations. Completion of
certification requirements generally do 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 when the
student reaches junior status.

3. Most candidates for a degree must
complete a major and a minor. There are
some exceptions which the student
advisor will explain.

4. In certain cases "group" majors totaling a
minimum of thirty hours and "group"
minors totaling a minimum of twenty hours
are permitted.

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.
   c. A combination of foreign language
courses, or of English or American
      Literature courses with a foreign
      language, is not permissible.
   d. 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.
   e. 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.
   f. Only approved majors and minors listed in
      the catalog can be placed on a student
      record.

Intellectual Skills
Requirements

The Baccalaureate degree at Western
Michigan University includes proficiency in the
intellectual skills of writing, reading, and
quantification. In order to ensure development
of students' abilities in these skills, the
University maintains an Intellectual Skills
Development Program. New students entering
WMU under the 1983-84 and subsequent
catalogs 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 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 options are:
- ENGL 100
- ENGL 105
- ENGL 142 (Business students)
- IME 102 (Engineering and Applied
  Sciences students)

In addition to the college-level writing
requirement, each student must also
demonstrate writing proficiency by
successfully completing 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 coursework
from four-year institutions only will fulfill this
requirement. Implementation begins for
students entering under the 1988
Undergraduate Catalog Supplement except
for students gaining a second baccalaureate
degree. This requirement meets General
Education Proficiency 2.

READING

On the basis of test scores, certain students
are required to pass ED 104, 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 109. Students must
earn a "C" or better in MATH 109 in order to
proceed to fulfill other mathematics
requirements.

GUIDELINES FOR WRITING, READING,
QUANTIFICATION SKILLS

ENGL 100, BIS 100, ED 104, and MATH 109
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 major or minor
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 100/161 or 360/361 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 Office of International Students
Services 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 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.

INTERNATIONAL TRANSFER STUDENTS

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

Intellectual Skills Requirements for
Transfer Students

WRITING

Students 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.

Students who transfer under the 1988 catalog
supplement or subsequent catalogs will also
meet the baccalaureate-level writing
requirement as designated by their major
department or program.
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 ED 104, 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 ED 104, Effective College Reading.

Students who transfer a mathematics course at the level of MATH 110 or higher are considered to have elementary-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 109 according to assessment results.

Computer Usage Requirement
Every undergraduate must demonstrate proficiency in computer usage through one of the following options:
1. Satisfactory completion of an approved computer usage course (e.g., BIS 102 or 110, CS 105, FCS 225, MUS 386, PEPR 149, SOC 182).
2. A passing grade or a credit-by-examination for an approved computer usage course.
3. Meeting proficiency standards set by the college of the student's major.

Students entering should contact their college advising office for specific instructions concerning the options for fulfilling the computer usage requirement.

University Assessment Requirement
Western Michigan University has in place an assessment program which provides information to various policy-making groups on the quality of programs and services provided to students. University Assessment functions in three general areas: Liberal Education and Skill Development Assessment, Majors Assessment, and Environmental Scanning. A number of different tests and procedures are used in the collection of information.

Students participate in the assessment program throughout their college careers on a sampling basis. When a student participates in procedures which are nationally normed, individual results are provided to each student during the term after testing. Individual results of assessment are not used for placement in classes or curricula, withholding earned academic credentials, granting academic credit, or released to anyone other than the student. Policy making groups within the University use only aggregate information to assess the quality of programs and services.

As a requirement for graduation, all seniors must participate in assessment as designated by the University. Questions about assessment should be directed to the student's advisor.

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

General Education Requirements
The requirements for the completion of the General Education program are listed directly below. The goals and structure of the program, as well as the criteria for both the proficiencies and the distribution areas are described in a following section entitled "General Education Policy."

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:
• a college-level writing course;
• a baccalaureate-level writing course in one's major or curriculum;
• a college-level mathematics or quantitative reasoning course beyond MATH 110 (not satisfying MATH 111), not limited to courses in the Department of Mathematics;
• a 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 foreign language to at least second semester, college-level, 6-8 hours.

• Satisfy both the college-level writing and college-level mathematics or quantitative reasoning proficiency requirements before registration in any upper-division-level course. Upper-division-level courses are defined as those courses with a course number of 300 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: Application 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 20 hours must be taken from 300- or 400-level courses in the distribution areas.
• No more than two courses from any one department may be used to satisfy distribution requirements.
• Courses at the 500-level do not count toward general education. Courses with prerequisites may count toward general education.
• Students may receive credit by examination in place of course work 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.

General Education Requirements for Transfer Students
All students graduating from WMU must meet the thirty-seven semester hour requirements of the General Education Program. This must include at least two courses at the 300-400 level in the distribution areas and, in addition, the baccalaureate-level writing requirement.

1. Students who have fulfilled the requirements of the MACRAO Articulation Agreement and are transferring from participating Michigan Community Colleges:
   - Colleges listed below have signed the MACRAO Articulation Agreement. Transfer students from these schools whose transcripts have been appropriately identified and certified as having fulfilled the requirements of the MACRAO 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 300-400 level General Education course work from the distribution areas, and complete the baccalaureate-level writing requirement (Proficiency 2). In addition, the University will determine the equivalence and applicability of transferable community college courses in meeting other graduation requirements.

Michigan Community College MACRAO Agreement Signatories:
Alpena Community College
Bay De Noc Community College
Delta College
Glen Oaks Community College
Gogebic Community College
Grand Rapids Community College
Henry Ford Community College
Jackson Community College
Kellogg Community College
Kirtland Community College
Lake Michigan College
Lansing Community College
Macomb Community College
Mid Michigan Community College
Monroe 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
Washtenaw Community College
Wayne County Community College
West Shore Community College

2. Transfer Students without MACRAO Certification:
   - Students who transfer from Michigan community colleges and who have not fulfilled the requirements of the MACRAO Articulation 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 individual community colleges. In order to determine requirements for 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

Community College
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.

General Education Program Courses
Approved as of 6/1/01

THE PROFICIENCIES

Proficiency 1: College-Level Writing
BIS 142 Informational Writing .................................. 3
ENGL 105 Writing and Reading .................................. 4
IME 102 Technical Communication .......................... 3

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

A-S 496 Writing-Intensive Mentored Portfolio 3-6
AMS 490 American Studies in a Global Context ............ 3
ANTH 354 Growth and Development .......................... 3
ANTH 439 Issues in South American Ethnography .......... 3
ANTH 440 Ethnography ........................................... 3
ANTH 450 Primates Behavior and Ecology ................. 3
ART 325 Writing About Art ....................................... 3
ART 327 Writing About Art History ........................... 3
AVS 490 Senior Project I—Planning 1, and AVS 491 Senior Project II—Analysis 2
BIOS 319 Plant Physiology ....................................... 4
BIOS 359 Human Physiology for Majors .................. 5
BUS 370 Integrated Communication in Business .......... 3
CHEG 487 Senior Design Project II ............................ 3
CHEM 436 Physical Chemistry Lab I ........................... 2
CMD 443 Industrial Design Thesis and Project I ............. 3

CMD 447 Industrial Design Thesis and Project II .......... 3
CMD 483 Project Design and Control .......................... 1

COM 485 Leadership .............................................. 3
COM 350 Public Relations and Organizations .............. 3
COM 358 TV and Film Scripting .................................. 3
COM 359 Broadcast Journalism ................................... 3
COM 370 Interpersonal Communication ........................ 3
COM 372 Introduction to General Semantics ................. 3
COM 441 Documentary in Film and Television ............. 3
COM 448 Telecommunication Management .................... 3
COM 450 Public Relations Program Development .......... 3
CS 460 Software System Development ........................ 3
CTE 342 Curriculum Development in CTE .................... 3
DANC 345 Twentieth Century American Dance ............. 3

ECE 481 Electrical/Computer Engineering Design I ........ 2
ECE 482 Electrical/Computer Engineering Design II ....... 3
ECON 484 Comparative Economic Systems .................. 3
ED 396 School and Society ...................................... 3
ENGL 305 Practical Writing ..................................... 4
ENGL 362 Literary Journalism ................................... 3
ENGL 415 Practical Literary Criticism ........................ 4
ENGL 440 Studies in Verse ...................................... 4
ENGL 442 Studies in Drama ...................................... 4
ENGL 444 Studies in the Novel .................................. 4
ENGL 452 Shakespeare Seminar ................................ 4
ENVS 320 Major Environmental Writings .................... 3
FCS 350 Textiles for Interiors ................................... 3
FCS 415 Effective Parenting .................................... 3
FCS 468 Advanced and Experimental Foods ................ 3

GEOG 303 Geographic Inquiry .................................... 4
GEOL 432 Geomorphology ...................................... 3
GEOL 435 Sedimentation and Stratigraphy ................... 4
HIST 390 Introduction to the Study of Humanity .......... 3
IME 316 Report Preparation ..................................... 3
IME 490 Multidisciplinary Senior Proposal ................. 2
IME 492 Multidisciplinary Senior Project .................... 2
JRN 420 Obligations of Contemporary Journalism ......... 3
LANG 375 Foreign Literature in English: Translation: Views of Humanity ............................................. 3
MATH 314 Mathematical Proofs .................................. 3
MATH 402 Mathematical Modeling ............................. 3
ME 365 Machine Design I ....................................... 3
ME 480 Mechanical and Aeronautical Engineering Project 3
MUS 352 Non-Western Music .................................... 4
NURS 307 Nurses' Role in Facilitating Health and Self-Care II 3
NURS 308 Nurses' Role in Facilitating Health and Self-Care (RN) 3
PHIL 483 Capstone Experience in OT ........................ 1
PAPP 485 Research Design ...................................... 3
PEP 332 Research and Writing in Recreation ................ 3
PEP 450 Cultural Dynamics of HPER .......................... 2
PHIL 300 Ancient and Medieval Philosophy .................. 4
PHIL 301 History of Modern Philosophy ....................... 4
PHIL 331 Moral Philosophy ....................................... 4
PHIL 332 Theory of Knowledge ................................... 4
PHIL 333 Metaphysics ............................................. 4
PHYS 466 Advanced Laboratory .................................. 3
PSCI 421 Gender and Law ....................................... 4
PSCI 450 Seminar in International and Comparative Politics 3
PSCI 490 Political Science Honors Seminar .................. 3
PSCI 494 Political Science ...................................... 3
PSCI 494E Political Science ...................................... 3
REL 300 Writing About Religion ............................... 3
SOC 456 Social Stratification .................................... 3
SOC 466 Advanced Criminology ............................... 3
SOC 480 Advanced Sociology .................................... 3
SPH 459 Special Studies in Communication Disorders .... 3
THEA 370 Theatre History I ..................................... 3
THEA 372 Musical Theatre History and Script Analysis II . 3

Proficiency 3: College-Level Mathematics or Quantitative Reasoning

MATH 114 Excursions in Mathematics ........................ 3
MATH 116 Finite Mathematics and Applications .......... 3
MATH 119 Precalculus Mathematics ........................... 4

MATH 150 Number Concepts for Elem/Mid School Teach.... 4
MATH 190 Survey of Mathematical Ideas ...................... 4
MATH 200 Calculus with Applications ........................ 4
STAT 160 Statistics and Data Analysis ....................... 3
STAT 366 Introduction to Statistics ......................... 4

Proficiency 4: Enhance or Develop A Proficiency

A course or courses in one of the following categories:

Proficiency 4a, Advanced Writing
ENGL 364 Feature and Article Writing ....................... 3
ENGL 365 Reviewing for the Press ............................ 3
ENGL 462 Advanced Writing ..................................... 4
JRN 300 Newswriting and Reporting .......................... 4

Proficiency 4b, Mathematics or Quantitative Reasoning

MATH 122 Calculus I .............................................. 4
MATH 151 Geometry for Elem/Mid School Teachers ......... 3
MATH 200 Calculus with Applications ........................ 4
MATH 265 Probability and Statistics for Elementary/Middle School Teachers 4
STAT 216 Business Statistics .................................... 3
STAT 260 Elementary Statistics ............................... 4

Proficiency 4c, Critical Thinking
PHIL 220 Critical Reasoning ..................................... 3
PHIL 225 Deductive Logic ....................................... 3
PHIL 320 Introduction to Formal Logic ........................ 4
PHIL 325 Inductive and Scientific Reasoning ............... 3
PSCI 105 Critical Thinking about Politics .................... 3

Proficiency 4d, Oral Communications
COM 104 Public Speaking ....................................... 3
COM 170 Interpersonal Communication ....................... 3

Proficiency 4e, American Sign Language

Proficiency 4f, Computer Science
CS 111 Computer Science ....................................... 4
CS 112 Computer Science ....................................... 4

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 enrolling in the University with college-level knowledge of a foreign language will be required 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

A-S 330 Study Abroad - WMU Programs ........................ 1-16

A-S 331 Study Abroad - Non-WMU Programs .................. 1-16

ART 120 Introduction to Art .................................... 3
ART 130 Studio Experience (3-D) ............................. 3
ART 140 Studio Experience (2-D) ............................. 3
ART 148 Direct Encounter with the Arts ...................... 4
ART 220 History of Art .......................................... 3
ART 221 History of Art .......................................... 3
BAS 330 History and Significance of Fashion Arts ......... 3
BAS 400 Blacks in the Arts ...................................... 3
DANC 145 Experiencing Dance ................................... 3
DANC 146 Direct Encounter with the Arts ........................ 4
ED 230 The Nature of Creativity ................................ 3
ENGL 110 Literature and Other Arts ........................... 4
ENGL 210 Film Interpretation ................................... 4
### Distribution Area II: Humanities

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<td>A-S</td>
<td>Study Abroad - Non-WMU Programs</td>
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<td>Foreign Studies Common Area</td>
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<tr>
<td>BAS</td>
<td>Special Topics in African Literature and Culture</td>
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<td>ENGL</td>
<td>Myth and Folk Literature</td>
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<td>Literary Classics</td>
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<td>ENGL</td>
<td>Shakespeare</td>
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<td>Women's Literature</td>
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<td>ENGL</td>
<td>The English Bible as Literature</td>
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<td>Women in Literature</td>
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<td>Early Western World</td>
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<td>Modern Western World</td>
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<td>Heroes and Villains in the Middle Ages</td>
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<td>Arts and Ideas: Ancient/Medieval</td>
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<td>Modern Arts and Ideas</td>
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<td>Women in European History</td>
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<td>Classical Greek and Roman Mythology</td>
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<td>Foreign Literature in English Translation: Views of Humanity</td>
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<td>Philosophy and Public Affairs</td>
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<td>Ethics in Engineering and Technology</td>
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<td>Introduction to History of Political Theory I: Political Theory to Thomas Hobbes</td>
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<td>Theological and Ideological Bases of Contemporary Politics</td>
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<td>Religions of the World</td>
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<td>The Christian Tradition</td>
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<td>The Jewish Tradition</td>
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<td>Psychological Elements in Religion</td>
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<td>REL</td>
<td>Religion and Social Ethics</td>
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<td>RUSS</td>
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<td>WMS</td>
<td>Media and the Sexes</td>
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### Distribution Area III: The United States: Cultures And Issues

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<td>ANTH</td>
<td>Ethnicity/Multiculturalism</td>
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<td>BAS</td>
<td>Black Prejudice</td>
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<td>BAS</td>
<td>Black Nationalism in America</td>
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<tr>
<td>BAS</td>
<td>African American Literature/Criticism and Culture</td>
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<td>BAS</td>
<td>Black Experience: From the African Beginnings to 1865</td>
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<td>BAS</td>
<td>Black Experience: From the Present to the Present</td>
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<td>BAS</td>
<td>The Black Woman: Historical Perspective and Contemporary Status</td>
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<td>BAS</td>
<td>The Underground Railroad in the Midwest</td>
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<td>BAS</td>
<td>Black Woman-Black Man Relationships</td>
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<td>BAS</td>
<td>Black Historical Movements/Moments</td>
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<td>BLRH</td>
<td>Introduction to Adults with Disabilities</td>
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<td>COM</td>
<td>Freedom of Expression</td>
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<td>ECOn</td>
<td>Women and the Economy</td>
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<td>ENGL</td>
<td>Literatures and Cultures of the United States</td>
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<td>Black American Literature</td>
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<td>Multi-Cultural American Literature</td>
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<td>African American History</td>
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<td>Women in United States History</td>
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<td>Native American History and Culture</td>
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<td>U.S. Spanish Borderlands: History and Culture</td>
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<td>African-American History and Culture</td>
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<td>JRN</td>
<td>The Cultural History of American Journalism</td>
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<td>MUS</td>
<td>American Music</td>
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<td>Philosophy in the American Context</td>
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<td>Race and Gender Issues</td>
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<td>PSCI</td>
<td>National Government</td>
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<td>Urban Politics in the U.S.</td>
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<td>American Political Theory</td>
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<td>Civil Liberties and Civil Rights</td>
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<td>The American/Latin Culture</td>
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<td>Introduction to African-American Theatre</td>
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<td>Introduction to Women's Studies</td>
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<td>Working Women, Past and Present</td>
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<td>Male/Female Psychological Perspectives</td>
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### Distribution Area IV: Other Cultures and Civilizations

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<td>Study Abroad - Non-WMU Programs</td>
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<td>ANTH</td>
<td>Sociology and Anthropology</td>
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<tr>
<td>ANTH</td>
<td>Cultures of Latin America</td>
<td>3</td>
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<td>ANTH</td>
<td>Cultures of Asia</td>
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<td>ANTH</td>
<td>Cultures of Africa</td>
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<td>ANTH</td>
<td>Cultures of the Middle East</td>
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<td>ANTH</td>
<td>The First Americans</td>
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<td>Art of Africa, Oceania, and the Americas</td>
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### Distribution Area V: Social and Behavioral Sciences

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<td>ANTH</td>
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<td>Modern Middle Eastern</td>
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<td>HIST</td>
<td>Introduction to African Civilization</td>
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<td>LANG</td>
<td>Non-Western Music</td>
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<td>PSCI</td>
<td>The Politics of Sub-Saharan Africa</td>
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<td>PSCI</td>
<td>Asian Politics</td>
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<td>Women in Developing Countries</td>
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<td>Buddhist Traditions</td>
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<td>Religion in the Indian Tradition</td>
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<td>SOC</td>
<td>Pacific Rim—Asian Societies</td>
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### Distribution Area VI: Interdisciplinary Programs

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<td>Communication Theory</td>
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<td>ECOn</td>
<td>Economic Issues in the U.S.</td>
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<td>ECON</td>
<td>Contemporary International Economic Policies</td>
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<td>History of Modern Economic Society</td>
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<td>Principles of Microeconomics</td>
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<td>Principles of Macroeconomics</td>
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<td>Personal Law</td>
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<td>Technology and Culture</td>
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<td>The Medieval and Early Modern History</td>
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<td>Modern Europe: Culture and Society</td>
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<td>History and Current Events</td>
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Distribution Area VI: Natural Science and Technology: Applications and Implications

ANTH 150 Race, Biology, and Culture .... 3
AVS 280 Transportation Technology: Policy, Planning, and Promise .... 3
CHEG 261 Environmental Engineering .... 3
CMD 131 Introduction to the Construction Environment .... 3
CMD 251 The Evolution of Materials .... 3
COM 240 Introduction to Media and Telecommunications .... 3
ENVS 300 Environment, Technology, and Values .... 4
GEOG 100 World Ecological Problems and Man .... 4
GEOG 350 Conservation and Environmental Management .... 3
GEOL 144 Environmental Earth Science .... 3
GEOL 312 Geology of the National Parks and Monuments .... 3
GEOL 322 Ocean Systems .... 3
HHS 461 Information Systems for Health Care Professionals: Medical Informatics .... 3
IME 122 Automobile in Society .... 3
IME 150 Introduction to Manufacturing .... 3
ME 220 Processes and Materials in Manufacturing .... 4
PAPP 160 Introduction to Environmental Technology .... 3
PAPP 261 Environmental Engineering .... 3
PHIL 255 Science, Technology, and Values .... 3
PHIL 334 Biomedical Ethics .... 4
PHIL 350 Foundations of the Modern World View .... 4
PHIL 355 Philosophy of Science .... 3
PHYS 102 Physics, Technology, and Society .... 3
SCI 133 In Pursuit of Social Biology .... 4
SAPP 200 Communication Disorders and Sciences .... 3

Distribution Area VII: Natural Science with Laboratory

ANTH 250 Introduction to Biological Anthropology .... 4
BIOS 105 Environmental Biology .... 3
BIOS 110 Biology Laboratory .... 1
BIOS 112 Principles of Biology .... 3
and
BIOS 110 Biology Laboratory .... 1
BIOS 234 Outdoor Science .... 4
CHEM 103 General Chemistry .... 3
CHEM 103 General Chemistry I .... 3
CHEM 105 Textiles and Design Media Chemistry .... 3
CHEM 106 Textiles and Design Media Laboratory .... 1
and
CHEM 10 General Chemistry I .... 3
CHEM 111 General Chemistry .... 3
and
CHEM 190 Chemistry in Society I .... 3
and
CHEM 191 Chemistry in Society Laboratory .... 1
GEOG 105 Physical Geography .... 4
GEOG 100 Earth Studies .... 4
GEOG 130 Physical Geology .... 4
GEOG 200 Evolution of Life—A Geological Perspective .... 4
PHYS 100 How Things Work .... 4
PHYS 113 Sky and Solar System Laboratory .... 1
and
PHYS 104 Introduction to the Sky and Space System .... 3
PHYS 106 Introduction to Stars and Galaxies .... 3
and
PHYS 110 Stars and Galaxies Laboratory .... 1
PHYS 107 Elementary Physics .... 4
and
PHYS 108 Elementary Physics Laboratory .... 1
PHYS 113 General Physics I .... 4
and
PHYS 114 General Physics I Laboratory .... 1
PHYS 205 Mechanics and Heat .... 4
and
PHYS 206 Mechanics and Heat Laboratory .... 1
advisor(s) and submitted along with the application for a graduation audit. Advisors will assist students with this 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  
5330 McCracken Hall, 387-0347  
Haworth College of Business  
2130 Schneider Hall, 387-5075  
College of Education  
2504 Sangren Hall, 387-3474  
College of Engineering and Applied Sciences  
2038 Kohrman Hall, 387-4033  
College of Fine Arts  
Art, 1406 Sangren Hall, 387-2440  
Dance, 3107 Dalton Center, 387-5830  
Music, 2132 Dalton Center, 387-4672  
Theatre, 1103 Gilmore Theatre Complex, 387-3220  
College of Health and Human Services  
B-119 Henry Hall, 387-2656  
University Curriculum  
203 Moore Hall, 387-4410  
Lee Honors College  
Main Office, Lee Honors College Building, 387-3230  
General University Studies (GUS) Program  
A-320 Ellsworth Hall, 387-4578  
Office of International Student Services  
A-411 Ellsworth Hall, 387-5865
REGISTRATION, RECORDS, AND ACADEMIC REGULATIONS

REGISTRATION

Registration is conducted by telephone at Western Michigan University according to the schedule and procedures given in the Schedule of Course Offerings, published prior to each semester and session and available in the Registrar's Office, in advising offices, and on the WMU website. The Schedule of Course Offerings should be consulted for details regarding the time and place of classes, credit types and levels for courses, course prerequisites, procedures and regulations regarding the adding or dropping of courses, tuition and fee schedules and their methods of payment, final examination week schedules, names and telephone numbers of departments and advisors, and all the University regulations that affect the registration process. Registration by students signifies an agreement to comply with all regulations of the University whenever approved by the University.

Advance Registration

Western Michigan University offers advance registration for each enrollment period as described in the Schedule of Course Offerings issued prior to each semester and each session. 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 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 reentry date. All other University regulations apply. As a matter of course, the Registrar will advise students granted forgiveness to meet with a college advisor.

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 underenrolled 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.

Waiving 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 in the Schedule of Course Offerings.

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. See the Schedule of Course Offerings for details of this procedure. Students may withdraw (drop) classes through the fifth (5th) day of the term and the course will not be reflected on the student's academic record as a non-punitive "W" (Official Withdrawal).

Students may withdraw (drop) classes through the fifth (5th) day of the term 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).

Withdrawing from Classes after the Final Date to Drop

Students may withdraw from courses without academic penalty through the second Monday prior to the mid-semester assessment at the Registrar's Office. A non-punitive "W" will be reflected on the student's academic record for any classes dropped after the drop/add period and before the mid-semester assessment. The final date for withdrawing is published in the Schedule of Course Offerings. Students may not withdraw from any class after this date.

Each student is encouraged to confer with the instructor before withdrawing from class as the student may not re-register for the class. Students who wish to withdraw from class officially after the second Monday past midpoint of the semester because of genuine hardship (i.e., illness, death in the immediate family), must be passing the course and may file a written appeal on forms which may be obtained from the Registrar's Office.

An Appeals Committee to review late withdrawals will be appointed by the Provost and Vice President for Academic Affairs. The Appeals Committee may request information from the instructors involved and from other appropriate sources. The Appeals Committee will rule upon the basis of the student's written application and any additional information received. The action of the Appeals Committee is final.

RECORDS

Identification Card

Each student on campus is required to have an identification card, which includes photo, name, and student signature. Dates, times, and locations of card production are determined and announced by the Department of Public Safety. Each new student is eligible for an identification card free of charge, although if the card is not obtained during the first semester of attendance after admission, a $20.00 fee will be charged for its production in any subsequent semester. A $20.00 fee is also charged for replacing a lost or damaged card. The card is valid throughout the student's entire enrollment at Western Michigan University. Lending the card to another or failure to present it when requested by University officials is a violation of University regulations and subjects the holder to disciplinary action. Students are personally liable for all obligations incurred by the use of their identification cards.

All withdrawals received after the drop/add period will be reflected on the student's academic record as a non-punitive "W" (Official Withdrawal).
Name Change

Students may maintain academic records under the name used at the time of admission. However, if an active student desires to make an official name change they must report to the Registrar's Office. If the unfurnished 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 complete an official Report of Incomplete Work form indicating the remaining requirement for removal of the incomplete grade and indicating the time allowed, if less than one full year. The instructor will retain a copy of his/her own records and submit a copy to the departmental office. The remaining copies will be returned, along with the grade sheets, to the Registrar's Office, which will provide the student with a copy.

"W"—OFFICIAL WITHDRAWAL

A grade of "W" is given when a course in which a student officially withdraws from that course or from the University before the final withdrawal date in the semester or session specified in the Schedule of Course Offerings. The "W" is a non-punitive grade.

GRADE CHANGE

A student who believes an error has been made in the assignment of a grade must follow the procedures described in the University policy entitled "Course Grade and Program Dismissal Appeals." The policy may be found in its entirety on page 270 of this catalog. The policy describes the appeal procedures, the stages of appeal, and the time deadlines for submitting the appeal at the various stages. Throughout the process, the Office of the University Ombudsman is available to students for assistance and clarification of rights.

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 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 with scores of at least 3 (4 in the case of Physics) on any AP exam will receive college credit in the appropriate subject. Students should have College Grade Reports of their test scores sent to the Office of
5. The following guidelines shall apply in the
classroom environment of the
General Education Program. In order to
complete the course requirement for Area VI,
students must:
1. Pass all required courses with a grade of C or above.
2. Complete the General Education Program requirements with
a minimum of 120 credit hours.
3. Maintain a minimum cumulative GPA of 2.0.
4. Earn at least 30 credits in residence at Western Michigan University.
5. Complete the University's core curriculum requirements.

subiect 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 to
students based on the scores they achieve on
the CLEP Subject Examinations. Students may not
receive credit for}] subject if they have already
received college credit for an
equivalent course. Interested persons
may contact the Office of Admissions or Testing
Services for information on Western's score
requirements and course credit.

Comprehensive Examinations
Each department has 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 300 or higher can be
used to meet the requirement that one-half
of all academic work must be completed at
Western Michigan University, of which fifty-
must be 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,
requires planning in advance of the registration period. Sufficient time, therefore, 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 contact, 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 to 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.

Interinstitutional Study

Western Michigan University undergraduate students may take classes at Davenport College, Kalamazoo College, and Kalamazoo Valley Community College through a cooperative program. Information and enrollment forms may be obtained from the Registrar’s Office, Room 3210, Seibert Administration Building. Participation is generally restricted to students in good academic standing and to courses not offered at WMU.

Repeated Course

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.

Only the most recent grade for a repeated course is used in calculating a student's grade point average beginning Fall 1989. The number of times a course can be taken is limited to three (including withdrawals). Approval by the department chairperson is necessary.

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.

University Policy On General Education

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 to 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 curriculum is applied toward a specified scope of content 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 breadth and balance of learning, and with the versatility that comes with proficiency in intellectual skills that have universal application. General education should develop the 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, to develop analytic, ethical, and aesthetic conventions of writing. The program, however, does 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 paragraphs and use appropriate transition devices, and the ability to employ the grammatical and mechanical conventions of standard written English. Papers in courses 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 descriptive and other 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 110 (not satisfied by Math 111), or its equivalent, as a prerequisite, or
- place into Math 122 (calculus) or higher on the Mathematics Placement Exam.

Courses which satisfy this requirement may be offered in the Department of Mathematics and Statistics or in other departments that offer courses satisfying the described criteria and requiring the use of the skills of Math 110 as part of the course content (Math 111 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 requirements 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 one of the following goals:

- provide skills 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 incoherent ways of exposing weak arguments.
- provide skills in resolving differences of opinion by locating common ground, by marshaling arguments, and by becoming sensitive to fallacies and other pitfalls of disputes.
- provide sensitization methods of overcoming differences of opinion 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.
- provide skills 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 in this area 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

The level of programming and applications required should be beyond the University’s requirements for computer usage (literacy). 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 the Distribution Areas

Area I, Fine Arts

Courses which meet the fine arts requirement are designed to 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. Courses may focus on the role of an art or the arts in a given time or on the enhancement of life they provide the individual.

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.

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.

Area IV, Other Cultures and Civilizations

Undergraduate education is based almost entirely on the Greco-Judaic-Christian tradition, commonly referred to as Western culture. Western achievements—especially in the realm of science and technology—have been overwhelming. In recent centuries, Western powers built vast overseas empires whose impact has been far-reaching and varied, sometimes devastating. As part of this legacy, our perceptions regarding the human condition are dominated by the world-view of the West. Students should be made aware that the Western experience forms but a part of the human experience. Courses in this area enable students to understand the Western impact, diverse perceptions of the human condition, and the bases of different world-views.

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, of the dynamics of individuals and groups.

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. 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.

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.

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 help students attain this understanding and promote the ability to evaluate and participate in the decisions of society regarding science and technology. A substantial portion of the course work will be devoted to the teaching of the relevant science and technology. 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.

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 health priorities regarding the reduction of preventable death, disease and disability among students and must include material on HIV/AIDS, and alcohol and substance abuse.

Courses which satisfy this requirement should improve a student’s capacity to make healthy life-style 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, life-style related diseases (primarily heart disease and cancer), and the principles of a healthy life-style.

Courses may be drawn from any department within the University. This area requirement supersedes all other courses that satisfy the sentence of University requirement no. 8 on page 31 of the 1993-95 Undergraduate Catalog. [The sentence reads: “A maximum of eight hours of general physical education may be counted toward graduation.”]

Students who have completed a minimum of two years United States military service through active, reserve, or national guard duty, 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.
Joseph G. Reish  
Assistant Dean

The mission of the Carl and Winifred Lee Honors College is to design and foster curricular and co-curricular programs for the academically talented student. These programs allow students to pursue their major areas of study and to join with other bright students in Honors courses, internships, research projects, community work, and social activities. Faculty who teach through the college are recognized by the University as individuals who are fine teacher/scholars and who enjoy working with students.

The Lee Honors College strives to create an environment for critical thinking and active learning. Bringing together students in small classes allows for a variety of educational approaches which depart from the traditional lecture/note taking format. Teachers are encouraged to broaden the areas for learning without compromising educational rigor. A variety of programs and activities is available to members of the Lee Honors College. Independent study, special Honors seminars, inter-university enrollment at local colleges, and undergraduate internships in the community may be arranged by Honors students. The Undergraduate Research and Creative Activities Award, administered by the college, provides financial support for a variety of supervised undergraduate projects.

Student involvement is an important aspect of Honors education. Students become involved with the college not only through courses but through the Honors Student Association and honors housing. The college sponsors trips, speakers, a newsletter, and other cultural and social activities. Through these activities students enhance their self-worth and prepare themselves for leadership positions in their professional lives.

A special focus for the Lee Honors College is community involvement and volunteerism. The Office of Student Volunteer Services housed in the college provides all University students with information and referral services. The College Volunteer Opportunities Fair, Trick-or-Treat For Food Shelf, and Into the Streets are some of the volunteer opportunities on campus and in the community. The College Volunteer Opportunities Fair, Trick-or-Treat For Food Shelf, and Into the Streets are some of the volunteer opportunities on campus and in the community.

The Lee Honors College is a member of the National Collegiate Honors Council and the Mid-East Honors Association. It is a founding member of the Michigan Honors Association. Honors students and administrators of the college have held office in these organizations and regularly participate on regional and national Honors committees, making presentations to other Honors colleagues.

THE ACADEMIC PROGRAM OF STUDY

The Carl and Winifred Lee Honors College admits students at all stages of their university education, including incoming freshman, transfer students, and on-campus students. Students are admitted to the college based on high school and university grade point averages, American College Test (ACT) scores, co-curricular activities, an essay and academic recommendations. Students may request an application by calling or writing the Dean of the Lee Honors College.

The purpose of the Lee Honors College academic program of study is to deepen and enrich a student's undergraduate experience in a way that coordinates with other University requirements. At the freshman-sophomore level, it consists of courses that earn General Education or major credit and which are clustered around a theme in order to allow students to explore relationships among various disciplines. In consultation with an Honors advisor, students enroll in two course clusters consisting of three courses each. At the junior and senior levels, students take two interdisciplinary seminars which examine critical issues within the fields housed in a particular college.

Upon successfully completing this academic program of study, students graduate from the Lee Honors College and the major college, with special Honors in a specific discipline. They are recognized as graduates of the Lee Honors College at graduation ceremonies. This honor is also noted on the transcript.

For further information on specific aspects of the Lee Honors College, call or write to the: Dean of the Carl and Winifred Lee Honors College, Western Michigan University, Kalamazoo, MI 49084. Telephone: 616-387-3230; email: Lee.Hnrs.Col@wmich.edu

BACCALAUREATE WRITING REQUIREMENT

Students who have been accepted into the Lee Honors College may satisfy the Baccalaureate Writing Requirement by successfully completing HNRS 499 Honors College Thesis.

Honors Courses (HNRS)

Each semester a variety of honors courses, course clusters, and seminars is offered. Many of these are applicable to General Education requirements and other curriculum requirements. These courses and seminars are described in the Lee Honors College course booklet, which is printed each semester. All Honors courses are so indicated on the transcript.

The following variable topic/variable credit courses enable the Lee Honors College to offer a wide range of additional seminar and experiential learning opportunities. Information and descriptions for specific semester offerings are available at the college office.

HNRS 290 Honors Seminar Variable Credit
An undergraduate seminar for first- and second-year Honors students. The content of the seminar varies and will be announced in advance.

HNRS 299 Independent Study Variable Credit
An opportunity to explore individually, under the guidance of a member of the faculty, a topic or problem in almost any area.

HNRS 399 Field Experience (Community Participation) Variable Credit
An organized association with a person or institution involving work and learning activities related to a significant academic interest of the student.

HNRS 490 Honors Seminar Variable Credit
An undergraduate seminar for upper level Honors students. The content of these seminars varies and will be announced in advance.

HNRS 492 Visiting Scholars Variable Credit
A seminar involving visiting scholars from other institutions and countries. The content of these seminars varies and will be announced in advance.

HNRS 495 Individual Studies Variable Credit
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.

HNRS 499 Honors College Thesis

3-6 hrs.

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. Prerequisite: Approval of the thesis project by the Dean.
College Mission Statement

The mission of the College of Arts and Sciences, in accordance with the traditional stewardship of the College, is to engender in students those skills, attitudes, and habits of mind which permit them to function responsibly in a profoundly complex and changing world. The College of Arts and Sciences at Western Michigan University offers undergraduate courses and programs of study in the humanities, the social and behavioral sciences, and the physical, biological and mathematical sciences. In addition to providing specialization in its many disciplines, the College contributes to the basic knowledge and the general liberal education of all students attending Western Michigan University. The goals of the College for the undergraduate student, while including professional, pre-professional or vocational training, are specifically focused on developing the liberally educated adult. To this end, the College seeks to ensure that its students learn the skills necessary for critical thinking, decision making, problem solving and adapting to change, that they explore broadly in areas that will encourage understanding of their western and/or global heritage, and that they develop a respect for diversity in the world and the pluralism in this society. The College strives to encourage the growth of persons who have the self-confidence that comes with knowledge and the ability to seek out, analyze and evaluate information; persons who are prepared to make their way in a changing world, who are competent, humane and sensitive to the human condition and to the physical environment in which they live, and who, therefore, will make effective and substantial contributions to society.

The College regards classroom attendance as an essential part of the educational experience of each student. Accordingly, the College has a strong expectation that students attend class, be punctual to class, and remain in attendance for the full class period unless there is a legitimate reason to be excused.

Liberal Education Curriculum (LEC)

The College of Arts and Sciences has a single, unified curriculum—Liberal Education Curriculum (LEC). All students who graduate from the College of Arts and Sciences will be enrolled in the LEC curriculum. For a list of Arts and Sciences majors, see the "Academic Programs" chapter in this catalog.

College Degree Requirements

1. The Liberal Education Curriculum. Students who enter with the 1997 and subsequent catalogs and who will graduate through the College of Arts and Sciences will complete the Liberal Education Curriculum (LEC) described below. Students who have entered under prior catalogs are encouraged to switch to the new LEC program.

2. Majors and Minors. Students who will graduate through the College of Arts and Sciences must have a major in one of the disciplines or programs of the College and a minor in Arts and Sciences or any other college in the University.

In order 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. Failure to do this may mean that a student will not be permitted to enroll in major core courses. Change of curricula during the junior or senior year will be accommodated where possible.

3. Students who will graduate from the College of Arts and Sciences may use courses offered through Self-instructional programs according to the following distribution of the 15 credits allowed in the Undergraduate Catalog. Up to 9 credit hours allowed taken through Self-instructional Programs may be used in fulfillment of the General Education Distribution, Academic Proficiency Areas, and LEC Core requirements; any or all of the 15 credit hours allowed may be used for electives. Under normal circumstances, Self-instructional courses may not be used for credit toward a major or minor in Arts and Sciences. Students in the Arts and Sciences curricula should consult with an advisor prior to registering for any Self-instructional course. The College Advising Office must give approval for Self-instructional courses to be used toward completion of the General Education Distribution, Academic Proficiency Areas, and LEC Core requirements; a departmental advisor must approve use of Self-instructional courses for prerequisites in a major or minor. Students with unusual circumstances rendering Self-instruction temporarily inappropriate for work in a major or minor in Arts and Sciences must have written approval from the department chairperson or department advisor before registering for those courses.

4. Students who will graduate from the College of Arts and Sciences in the Liberal Education Curriculum may not use the Credit/No Credit option except in elective courses.

5. Students who will graduate from the College of Arts and Sciences in the Liberal Education Curriculum may not use the College Level Examination Program (CLEP) except in elective courses.

The Liberal Education Curriculum Requirements

All students at Western Michigan University must satisfy the University General Education
requirements. The Liberal Education Curriculum (LEC) incorporates and expands upon the University General Education Program. Students who will graduate from the College of Arts and Sciences will satisfy the University General Education requirements as well as the additional Core requirements of the LEC.

The LEC is a comprehensive, unified program of study for the Bachelor of Arts and Bachelor of Science degrees in the College of Arts and Sciences. It reflects the traditional goals of liberal education in the humanities, the social sciences, and the natural sciences as articulated in the College of Arts and Sciences Mission Statement and provides a common academic experience for students in basic and advanced English composition, mathematics, foreign language, computer skills, humanities, and social science. The LEC focuses attention on contemporary issues and concerns, including the pluralism of society both at home and abroad. Completion of portions of the program through study abroad in Western Michigan University's International Programs or by transfer of course work from a foreign college or university, is encouraged.

In order to complete all the requirements of the LEC and fully realize the liberal arts experience, students must select their courses carefully by working closely with an advisor in the College's Academic Advising Office and possibly a departmental advisor. Students interested in this option should contact the Director of Advising in the College of Arts and Sciences or the Academic Advising Office.

The staff of the Academic Advising office is available to answer questions regarding requirements. Information and enrollment forms may be obtained from the Registrar's Office. Where credit toward a WMU degree is desired, prior approval must be obtained from the student's major and/or minor department. Individual courses may be used in fulfillment of some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program provided the content and scope of the course are appropriate. Students desiring to use study abroad in fulfillment of LEC or General Education requirements should bring a course description and syllabus to the Director of Advising in the College of Arts and Sciences Advising Office in the appropriate distribution area.

Academic Advising Office
Kate Hayes, Director
Kerrie Harvey
Kevin Knutson
Maria McGurn
Steven Miller
318 Friedmann Hall

Students interested in this option should contact the Director of Advising in the College of Arts and Sciences. Those entering the SPM should be scheduled during the student's first enrollment period in order to obtain information regarding requirements. Transfer students in the Liberal Education Curriculum should see a college advisor to plan their degree programs. The staff of the College of Arts and Sciences Advising Office advises students concerning Liberal Education Curriculum requirements as well as Intellectual Skills and other University requirements. An appointment with an advisor should be scheduled during the student's first enrollment period in order to obtain information regarding requirements.

Transfer students in the Liberal Education Curriculum, after they have received their credit evaluation forms from the Admissions Office, should have their transfer courses evaluated for credit toward their Liberal Education and other college or University requirements. The staff of the Academic Advising office will provide introductory information about the programs, majors and minors available within the College of Arts and Sciences and will make referrals to other advising facilities, such as departmental advisors, etc. Students seeking exploratory information about the programs and curricula of the College are encouraged to visit this office.

Students may stop by, or call 387-4366 for an appointment.
General Education Program provided the content and scope of the course are appropriate. Students desiring to use study abroad in fulfillment of LEC or General Education requirements should bring a course description and syllabus to the Director of Advising in the College of Arts and Sciences Advising Office, prior to enrollment when possible, for approval and placement in the appropriate Distribution Area and/or Proficiency. May be repeated for up to 32 credit hours.

A-S 390 Arts and Sciences Seminar
1–4 hrs.
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:** Permission of the instructor.

A-S 399 Field Experience (Community Participation)
2–8 hrs.
A program of independent study combining academic work with social, environmental, civic or political field work. May be used as elective credit only. **Prerequisite:** A written outline of the student's project, approved by a faculty supervisor, with approval from the office of the Dean.

A-S 400 Seminar in Nonprofit Leadership
3 hrs.
An advanced seminar in nonprofit leadership. Topics include nonprofit financial management, human resource development, nonprofit board relations and development, risk management, and environmental assessment. **Prerequisite:** A-S 200 and senior status.

A-S 496 Writing-Intensive Mentored Portfolio
3–6 hrs.
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 Centers and on the advising page of the College web site (http://www.wmich.edu/advising.html). **Prerequisites:** Approved application and permission of instructor.

A-S 498 Directed Independent Study
1–6 hrs.
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. **Prerequisite:** Approved application and permission of the instructor.

A-S 598 Directed Off-Campus Independent Studies
1–16 hrs.
A program of independent study 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 to a maximum of 16 hours. **Prerequisite:** Approved application and permission of the instructor(s) and Dean of the College.

FOREIGN STUDIES SEMINARS
Students may receive up to six hours of credit in any combination of departments as described provided the seminar is planned with that combination in mind. No student will receive credit under any of the course plans indicated here for work done in seminars planned and conducted by other institutions, or for work done independent of seminars planned by the College of Arts and Sciences.

A-S 404 Foreign Studies Seminar
1–6 hrs.
Seminars in the Social Sciences conducted outside the United States by WMU faculty or others associated with WMU. Students who complete such a seminar may receive credit in the Departments of Anthropology, Economics, Geography, History, Political Science, or Sociology if the credit is approved by the chairperson of the department prior to registering for the seminar. Individual courses may be designated as fulfilling some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program. May be repeated for up to 32 credit hours.

A-S 405 Foreign Studies Seminar
1–6 hrs.
Seminars in the Humanities conducted outside the United States by WMU faculty or others associated with WMU. Students who complete such a seminar may receive credit in the Departments of Asian and Middle Eastern Languages, Communication, Comparative Religion, English, Foreign Languages and Literatures, Philosophy, and departments in the College of Fine Arts if the credit is approved by the chairperson of the department prior to registering for the seminar. Individual courses may be designated as fulfilling some areas of the College of Arts and Sciences Liberal Education Curriculum or the University General Education Program. May be repeated for up to 32 credit hours.
INTERDISCIPLINARY PROGRAMS
1. Africana Studies: African Studies, Black Americana Studies, Canadian Studies, European Studies, Latin American Studies, Russian and East European Studies, World Literatures
2. Africana Studies
3. Program in African Studies
4. Criminal Justice Program
5. Environmental Studies Program
6. Dietrich H. Haenicke Center for International and Area Studies: Asian Studies, Canadian Studies, European Studies (British Studies, Germanic Studies, Romance Studies), Latin American Studies, Russian and East European Studies
7. Medieval Studies
8. Professional Studies Program
9. Science and Mathematics Teaching
10. Social Studies Teaching
11. Women's Studies
12. World Literature

AFRICANA STUDIES

Ben C. Wilson, Director
331 Moore Hall
(616) 387-2667

The Africana Studies programs include the African Studies coordinate major, the African Studies minor, the Black Americana Studies coordinate major, and the Black Americana Studies minor. All the programs are interdisciplinary, involving courses taught by faculty from several departments.

AFRICAN STUDIES

The African Studies Program is an interdisciplinary international education program of concentrated study leading to a coordinate major or regular minor in African studies as part of the student's overall bachelor's degree program. Its specific aims are to develop a greater appreciation of the rich variety of African cultures and their achievements, to stimulate acquisition of languages spoken in Africa and knowledge about contemporary African affairs, and to provide a forum for the exchange, analysis, and evaluation of information and ideas concerning U.S.—African relations and the importance of Africa in the world. This program is ideally organized for the student who wishes to take advantage of the Student-Planned Curriculum available at Western. A student who enrolls for the coordinate major in African studies must also have a disciplinary major in any college of the University. The program requires 24 semester hours to be taken in conjunction with a disciplinary major. Course work in the African Studies program consists of a core of courses in African studies including one with a methodological focus (see offerings below marked with asterisk), a selection of courses from other departments as listed, and a concluding capstone experience. Students must meet with the program advisor to declare a major before registering for the third course in the core.

CORE COURSES

The BAS core courses listed below will provide the necessary background to better comprehend the nature and history of the African experience in the Americas. Students will choose at least three from the courses listed below. Selection of courses from other departments as listed, and a concluding capstone experience. Students must meet with the program advisor to declare a major before registering for the third course in the core.

BAS 200 Black Presence
BAS 210 Black Nationalism
BAS 300 Black Experience: The African Beginnings to 1865
BAS 301 Black Experience: From 1865 to the Present
BAS 310 Black Woman: Historical Perspective and Contemporary Status
BAS 314 Black Community
BAS 320 Ecology and the Black Community
BAS 330 History and Significance of Black Popular Culture
BAS 350 Blacks in Michigan
BAS 360 Black Woman / Black Man Relationships
BAS 400 Blacks in the Arts

ELECTIVES

Students must choose at least four courses from the two areas below. The choice must include at least one course from the Social Sciences and one from the Humanities.

Social Science Courses
ANTH 341 Cultures of Africa
GEOG 361 Population: The Crowding World

Electives

GEOG 386 Sub-Saharan Africa: Man, Environment, Resources
HIST 210 American History to 1865
HIST 211 American History since 1865
HIST 250 Michigan History
HIST 328 African American Culture and History
HIST 388 Introduction to African Civilization
HIST 434 American Indians to 1887
HIST 435 American Indians since 1887
HIST 436 Topis in African American History
PSCI 300 Urban Politics in the United States
PSCI 341 African Political Systems
PSCI 346 Women in Developing Countries (Africa)
SOC 200 Principles of Sociology
SOC 210 Modern Social Problems
SOC 314 Ethnic Relations
SOC 353 The City and Society
SOC 454 Juvenile Delinquency
SOC 456 Social Stratification (both SOC 454 and SOC 456 require either SOC 200 or SOC 210 as a prerequisite)
WMS 401 Foundations of Feminist Theory

HUMANITIES COURSES

COM 305 Special Topics—African-American in Mass Communication
COM 474 Intercultural Communication
ENGL 223 Black American Literature
ENGL 314 African Literature
ENGL 484 Multicultural American Literature
ENGL 583 Multicultural American Literature for Adolescents
LANG 375 Foreign Language in English Translation
MUS 151 Music Appreciation
REL 100 Religions of the World
REL 107 The Islamic Tradition
REL 304 African Religions
THEA 105 Introduction to Black Theatre

CAPSTONE EXPERIENCE

The Capstone Experience is an opportunity for the student to utilize the skills that have been accumulated in the program. The experience involves participation in an internship or independent research where knowledge would be directly put into practice. Students will be guided through this experience with a seminar led by a member of the BAS core faculty and an appropriate person(s) from the student's disciplinary major department. Students must have completed a minimum of 15 credit hours toward the BAS major before enrolling for the Capstone Experience and must apply for admission to the program advisor.

BAS Minor

A minor will consist of the four undergraduate courses (BAS 200, 300, 500, and 314 or 320) and at least 8 hours of departmental courses. The student will select the general minor in consultation with the Director of Black Americana Studies and an advisor.

Black American Studies Courses (BAS)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.
BAS 200 Black Presence 3 hrs.
A survey of the impact of the physical presence of people of African ancestry and descent in the Western Hemisphere from the earliest days of the age of exploration to the present. Historically oriented, the course is designed to be interpretive rather than chronological; to deal with Black presence as party to the expansion of Western Europe in the New World: an active participation in settling and developing the colonies; as a people apart or of contrast. How did the presence of Africans influence the development of the life and institutions of the country in Colonial, National and later years?

BAS 210 Black Nationalism in America 3 hrs.
An interdisciplinary study of Black Nationalism as an important, persistent and substantive ideology of Black America. This course analyzes and explores ideas and programs of Black leaders.

BAS 223 African American Literature/Criticism and Culture 4 hrs.
This course is designed both to introduce students to key issues, themes, and methods in African American literature/criticism and culture as well as to pique interest in an effort to encourage a further study of the discipline. It surveys texts by African American authors and examines the relationship between the literature, criticism, and theories serving to explain it. Prerequisite: One of the following: BAS 200 or ENGL 110, 111, 222.

BAS 300 Black Experience: From the African Beginnings to 1865 3 hrs.
This course will examine the myriad patterns of adaptation and adjustments made by the enslaved Africans and free people of color to the continuing oppressive character of American society prior to 1865. SlAVE narratives and abolitionists tracts written by freed people reveal much about the African-Americans’ interpretation of their presence in the New World. The Black presence created a commonality of experience, the characteristics of which became and remain a distinctive American culture. Students will examine how the Black presence altered the idea of race and how this alteration became a function of the institutional forms that Black Americans have shaped to survive in a hostile environment.

BAS 301 Black Experience: From 1866 to the Present 3 hrs.
The Black Experience 1866 to the present will concentrate on the plight of the newly freed African-American. The development of the family in post-bellum years, the Euro-American reaction to the change in status, the rise of pseudo-scientific racist thought, the long-term psychological effects of slavery on both the victims and the victimizers, the search and the rise of Black Messianic leaders, the migration from the rural-agricultural South to the urban-industrialized North, the emergence of Black Nationalism-Civil Rights Movement and the non-Black backlash. BAS 300 is highly recommended.

BAS 310 The Black Woman: Historical Perspective and Contemporary Status 3 hrs.
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.

BAS 314 The Black Community 3 hrs.
An investigation of the social forms and structures within the Black community from the unique Black perspective. The course will focus on the sociological, political, economic, psychological, and physical aspects of community building by a subordinated group.

BAS 315 The Underground Railroad in the Midwest 3 hrs.
During the mid to late 19th century, Calhoun County, Michigan was an active human rights center. This area was one stop on the Central Michigan route of the Underground Railroad. Slaves would begin their journey in one of the upper southern states, and go from stop to stop, ultimately reaching “their Canaan lands.” There was a large group who participated in this pursuit of freedom for the enslaved Africans. They were considered subversive fanatics by slaveholders and righteous reformers by other. The aim of this class is the examination of the Underground Railroad system and the people involved. Of particular interest will be the role played by Michiganders in this freedom movement.

BAS 320 Ecology and the Black Community 3 hrs.
This course is the study of the relationships of local Black residents within their social and physical environments. The course focuses on the individual’s status in the community through an evaluation of the social, political, economic and physical aspects of the environment as influenced by the social order of American society and its philosophy. Students are expected to complete a research study of a special ecological issue and to document the contributions of African Americans to Western Michigan University through the Annual W.E.B DuBois Conference.

BAS 330 History and Significance of Black Pop Culture — 1906 to Present 3 hrs.
This course will focus on the continuum to Black Pop Culture in the twentieth century, its developmental stages and its emergence as the nucleus of Culture in "mainstream" America. Students will survey Black theatre, art, music, and literature in twenty-first century America and study the institutions, persons, sites, and traditions that it inspired.

BAS 350 Blacks in Michigan 3 hrs.
A survey of the significance of Blacks in the making of Michigan history. We will trace the movement of Blacks into Michigan, investigate patterns of settlement, reactions to the émigrés, and the development of the Black families and church as principal forces in the Black community. We will study the political, social, and economic implications of being Black in Michigan, both in urban and rural areas from 1790 to the present. The student will be introduced to the histories of varieties of historical sources available for such study.

BAS 360 Black Woman-Black Man Relationships 3 hrs.
This course is a study of the dynamics of the Black male-female-feminine dynamics in relationships in a variety of contemporary settings. Students are expected to assist in the conduct and documentation of the proceedings of the annual Black Male-Female Panel Discussion of social issues of special interest to the Black community, including family dynamics, male-female relationships and strategies for the improvement of those relationships.

BAS 370 Black Historical Movements/Moments 4 hrs.
This spring travel-course is designed to examine Black historical movements related to the African diaspora (African American, African, and Caribbean). Students will have the opportunity to interface with historical locations, sites, and documents relevant to the era of study. Topics will vary each spring offered and may be repeated under different topics with approval of the advisor/professor from BAS. Prerequisite: One of the following: BAS 223, 310, 330, or ENGL 223, 308, 321; or HIST 211, 212, 314, 328.

BAS 380 Special Topics in Africana Literature and Culture 4 hrs.
This seminar is designed both to examine critical issues central to the African diaspora and to produce quality research through investigating African, African American, and diaspora literature, history, philosophy, and culture from an African-centered or Afrocentric perspective. This course may be repeated once under different topics with approval of the advisor. Prerequisite: One of the following: BAS 223, 310, 330, ENGL 223, 308, or 314.

BAS 400 Blacks in the Arts 3 hrs.
An examination of the creative dimension of the Black Experience as found in music, art, literature, religion, and dance. This course will also explore the influence of science and technology on the arts and identify the universal elements in these areas.

BAS 410 Bridging the African Diaspora in the New Millennium: An Interdisciplinary Approach 3 hrs.
The African presence in Asia, Europe, and the Americas is not a recent phenomenon. The dynamic, continuous, and complex phenomenon of the African Diaspora also reveals the voluntary and involuntary dispersion of Africans throughout history, the emergence of a cultural identity based on origin and social condition, and the physical or psychological return to the African homeland.

BAS 465 BAS Internship/Seminar 3-6 hrs.
Students will participate in an internship/practicum where their knowledge will be put directly into practice. They will be led through this experience with a seminar led by an approved faculty member from the BAS core faculty and, where appropriate, a person from the student’s disciplinary major department. Prerequisite: A minimum of 15 credits in the BAS coordinate major.

BAS 496 Directed Independent Study 1-6 hrs.
A program of independent study, directed by an approved BAS faculty member, that allows the student to pursue readings relating to the Black Experience not dealt with in other courses. The initiative for describing the project, planning the method(s) of investigation, determining the appropriate results, and securing the cooperation of a faculty member to advise the work must come from the student. Applications are available in the BAS office and must be approved by the director.

AMERICAN HUMANICS PROGRAM
The American Humanics program is designed to prepare students for entry-level professional positions in nonprofit organizations. The certificate that the student receives is awarded by American Humanics, Inc., a national organization of over 70 collaborating institutions.
universities and national nonprofit organizations. The WMU American Humanics director and the national American Humanics office assist students in finding employment and internship programs in nonprofit organizations. Additional information about American Humanics web site (www.wmich.edu/ahumanics) or by contacting the American Humanics director at the School of Public Affairs and Administration, 387-8930.

The American Humanics program is offered in conjunction with a student's major or minor at the university. The requirements of the program are as follows:

1. The student must complete a sequence of courses that demonstrates fulfilling the American Humanics competency requirements. These can be in the student's major, minor, general education requirements or electives.

2. The student must fulfill the extra-curricular requirements prescribed by American Humanics, Inc. These requirements include participation in an American Humanics Student Organization, attending the national AH Management Institute, and participating in prescribed workshops.

3. The student must complete a minimum internship of 300 hours (6 credit hours) in a nonprofit organization. This internship is typically completed in the student's major or minor, although it can also be supervised by the American Humanics director as an Arts and Sciences internship (A-S 399).

4. The student must complete the following three courses:
   
   A. A-S 200 Introduction to Nonprofit Leadership
   B. A-S 300 Nonprofit Advancement
   C. A-S 400 Seminar in Nonprofit Leadership

5. The student must earn a grade of "C" or better in all courses that count toward fulfilling American Humanics requirements.

The American Humanics competency requirements include communication skills, employability skills, a demonstrated understanding of history and philosophical foundations of nonprofit organizations, youth and adult development, nonprofit board and committee development, fundraising principles and practices, human resource development and supervision, nonprofit leadership and financial management, nonprofit advancement, program planning, and risk management.

The national nonprofit partners of American Humanics are American Red Cross, Big Brothers/Big Sisters of America, Boy Scouts of America, Boys & Girls Clubs of America, Camp Fire Boys and Girls, Catholic Charities USA, Girls Inc., Girl Scouts of the USA, Habitat for Humanity International, Junior Achievement, Inc., National Network for Youth, National Urban League, Special Olympics, Inc., United Way of America, Volunteers of America, YWCA and YMCA of the USA, and the local affiliates of these organizations. These national partners guide and support the national American Humanics students.

**PROGRAM IN AMERICAN STUDIES**

Katherine Joslin, Director
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Associate Faculty:
Linda Borish, History
Michael Chierapa, History
James Ferreira, History -
Rick Gershon, Communications
Yvacheslav Karpov, Sociology

Ashlyn Kuersten, Political Science
Michael Nassaney, Anthropology
James Peterson, Sociology
Gwen Raaberg, Women's Studies
Chey Rogers, Political Science
John Saillant, English
Kristin Stivilian, History
Brian Wilson, American Studies
Brian Wilson, Comparative Religion

The American Studies curriculum looks at America from a variety of perspectives, beginning with the individual student and moving outward into the world. The program offers students classes in American history and culture that exist in a region, as they function throughout the nation, and as they interact with other histories and cultures in the world. This interdisciplinary program imparts an important lesson: that human life, like many individual lives, grows outward from a region into larger contexts.

The program in American Studies consists of an undergraduate major and a minor designed to be interdisciplinary in theory and method. The program brings together WMU faculty from many departments and programs within the College of Arts and Sciences who are scholars and teachers specializing in aspects of American Studies, covering such topics as the exploration and settlement of the Americas, American government in theory and in practice, various movements within American literature, elements of popular culture such as folklore, sport, and film, the experience of American women, African American and Native American history and culture, anthropology and archaeology, environmental history, American dialects and ethnic groups, and the history of parts of the world with deep-trooted ties to the USA. An interdisciplinary course of study in American history and culture can provide a solid background for students preparing for careers in journalism, research organizations, publishing houses, politics, public relations, mass communications, the foreign service, or for graduate work in the humanities or law.

**MAJOR IN AMERICAN STUDIES (36 hours)**

Students must select courses in at least four (4) departments participating in the program and must concentrate twelve (12) hours of study in one department; at least sixteen (16) hours must be taken at the 400-level or above.

**REQUIRED COURSES (6 hours)**

AMS 200 Introduction to American Studies .................. 3
AMS 300 Regional Culture in America .................. 3

**CORE COURSES FROM PARTICIPATING DEPARTMENTS AND PROGRAMS (18 hours)**

Students will work with the director to create a program of study that will focus attention on three perspectives: regional, national, and global. Students must select courses from at least four departments.

**Regional Perspectives** Select two of the following courses:

ANTH 405 Archeology of the Great Lakes States
BAS 315 The Underground Railroad in the Midwest
ENGL 320 American Literature I
HIST 315 Popular Art and Architecture
PSCI 300 Urban Politics in the United States

**National Perspectives** Select two of the following courses:

ANTH 544 Indians and Eskimos

**ELECTIVE COURSE (3 hours)**

**CORE ELECTIVE COURSES (12 hours)**

Students must select four (4) courses from different departments, including at least one from each perspective: regional, national, and global.

**ELECTIVES (9 hours)**

Students may choose electives from the approved list of courses. Courses from other departments and colleges may be elected with the approval of the program director.

**OPTIONAL AMERICAN STUDIES COURSES**

AMS 390 Internship
AMS 500 Special Topics in American Studies
AMS 590 Interdisciplinary Theory and Methods
AMS 598 Independent Study

**American Studies Abroad**

The director will arrange for WMU students to study American culture from the perspective of another country at a university outside the United States. Consult the director for more information about this option.

**MINOR IN AMERICAN STUDIES (24 hours)**

**REQUIRED COURSES (6 hours)**

AMS 200 Introduction to American Studies .................. 3
AMS 300 Regional Culture in America .................. 3

**REQUIRED CAPSTONE SEMINAR (3 hours)**

AMS 490 American Studies in a Global Context .................. 3

**ELECTIVES (9 hours)**

Students may choose electives from the approved list of courses. Courses from other departments and colleges may be elected with the approval of the program director.

**AMERICAN STUDIES MAJOR**

Students who have chosen the American Studies major will satisfy the Baccalaureate Writing Requirement by successfully completing the following course:

AMS 490 American Studies in a Global Context .................. 3
Approved Elective Courses

Regional

BAS 330 Blacks in Michigan
COM 343 American Film History
ENGL 223 Black American Literature
ENGL 410 Special Topics: Native American Literature
HIST 250 Michigan History
HIST 318 Environment and the American Experience
HIST 322 The American West
HIST 324 Everyday Life in America
HIST 326 American Indian Cultural History
HIST 330 History of Canada
HIST 412 Local History Techniques
HIST 416 Topics in Michigan History
HIST 434 American Indians to 1877
HIST 515 Topics in Public History
PSCI 202 State and Local Government
SOC 353 The City and Society
SOC 568 Race, Ethnicity, and Justice

National

BAS 330 History and Significance of Black Popular Culture
COM 444 Mass Communication, Prostitution, and Public Affairs
COM 541 Telecommunications Law and Policy
ENGL 311 Our Place in Nature
ENGL 416 Women in Literature
HIST 204 Business History
HIST 210 American History to 1800
HIST 211 American History since 1890
HIST 314 American Minorities
HIST 316 Women in United States History
HIST 328 African-American Cultural History
HIST 420 Colonial America
HIST 421 The New Nation: American Revolution and Independence
HIST 422 Antebellum America
HIST 424 The Civil War and Reconstruction
HIST 425 United States, 1877-1919
HIST 426 United States, 1920-1940
HIST 427 United States, 1940-1960
HIST 428 United States since 1940
HIST 432 Women in America to 1870
HIST 433 Women in America since 1870
JRN 330 Cultural History of Journalism
PHIL 307 Philosophy in the American Context
PSCI 311 American Politics and the Media
PSCI 363 American Political Thought
PSCI 420 American Constitutional Law
WMS 300 Working Women, Past and Present
WMS 310 Women and Social Institutions

Global

ENGL 210 Film Interpretation
HIST 320 American Military History
SPAN 275 Latino Writing/Latino Culture

American Studies Courses (AMS)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

AMS 200 Introduction to American Studies 3 hrs.
This course introduces students to the interdisciplinary study of American culture and history, focusing on the theme of the place of the individual in the community. Students will gain an understanding of the social forces that have shaped men and women's experiences in American culture such as region, gender, ethnicity, and race. The course explores American culture in such areas as religion, politics, art, literature, labor, popular culture, and social reform.

AMS 300 Regional Culture in America 3 hrs.
This course looks closely at a region in America, considering ways scholars work across traditional disciplinary boundaries to construct a coherent understanding of what is meant by culture. The region studied will vary but students will take up similar questions about the history and culture, including native and immigrant populations, rural and urban spaces, diversity in its many forms, as well as regional uniformity and sense of identity in juxtaposition to notions of the nation as a whole. Prerequisite: AMS 200.

AMS 390 Internship 3–6 hrs.
After completing at least 18 hours of course work in the AMS program, a student may choose to work outside the University on a regional or national project, such as an archaeological field school, or work as an intern for the Maritime Museum, a political party, or a social service agency. The program director will help to make arrangements and will evaluate the student's performance.
Prerequisite: 18 hours of AMS course work.

AMS 490 American Studies in a Global Context 3 hrs.
This final seminar for the American Studies major and minor is designed to broaden students' conception of American Studies by challenging them to place their knowledge of the culture of the United States within a global context. Students will be asked to compare some element from American culture to similar elements in other cultures from around the globe. In this way, students will come to better appreciate what is unique and what is universal in American culture. Prerequisites: At least 20 hours of work in the American Studies major or minor, including AMS 200 and AMS 300.

AMS 500 Special Topics in American Studies 3 hrs.
This course provides group study of special topics in American Studies. Topics will vary with the training and scholarship of the professor or professors involved.
Prerequisites: At least 18 hours of courses approved in the American Studies Program, including AMS 200 and AMS 300, or graduate-student status in any participating department.

AMS 590 Interdisciplinary Theory and Methods 3 hrs.
This course will allow students to understand the development of American Studies from the early history and literature syntheses to the symbol and myth school to the social and cultural studies approaches that have drawn their techniques from anthropologists and other social and natural scientists.
Prerequisites: At least 18 hours of courses approved in the American Studies Program, including AMS 200 and AMS 300, or graduate-student status in any participating department.

AMS 598 Independent Study 1–3 hrs.
An individual project is available to advanced students by special permission from the director of American Studies. Prerequisites: At least 18 hours of coursework approved in the American Studies Program, including AMS 200 and AMS 300, or graduate-student status in any participating department.

Environmental Institute

Charles Ide, Director
3001 Haenicke Hall
(616) 387-5159

The Environmental Research Center was established in 1997 as a collaborative center for environmental research and training. The Center's faculty includes more than 35 faculty with a broad spectrum of the disciplines. The goal of this center is to develop interdisciplinary approaches to the study of environmental problems. The Center includes faculty from the Departments of Biological Sciences, Chemistry, Economics, Environmental Studies, Geography, Geology, Political Science, Mathematics and Statistics, and Sociology.

Central to the Environmental Studies Program is a concern for the long-term health and well-being of the planet and its inhabitants (sustainability in the broadest sense of the term), and a commitment to thoughtful action designed to protect and promote that state of health and well-being. An interdisciplinary program, it provides students with a variety of intellectual and practical experiences that provoke thought about the complex interrelationships that exist among humans, the social and technological systems they develop, and the natural environment in which they are embedded. It encourages students to develop an appreciation for the many elements of planetary health and to devise creative solutions to environmental problems. It offers students an opportunity to prepare for a professional role in one of the many environmentally-oriented fields (involving conservation, remediation, development, public policy, planning, regulation, education or appreciation), to assume a position of leadership in the area of environmental advocacy, or to develop the attitudes and skills commensurate with a personally fulfilling, environmentally responsible way of living.

In addition to traditional course work, students in the Environmental Studies Program are encouraged to become actively involved in community environmental affairs by participating in an internship with a local...
organization or government agency, or by designing an independent project. Academic credit can be obtained for such experiences through ENVS 420 Internship, or ENVS 430 Environmental Projects.

ENVIRONMENTAL STUDIES

Charles Ide, Director
3924 Wood Hall
Program Coordinator
3930 Wood Hall
(616) 387-2716

John Cooley
Harold Glasser
Johnson Haas
David Hargreave
Lynne Heasley
Virginia Jones SSJ

Advising

Given the interdisciplinary nature of the program, it is very important that students work with one of the program advisors on an ongoing basis. Enrollment in ENWS courses is controlled by the advisors and is inaccessible to students using the Touchtone registration program. Program advisors are also available to help students clarify their career goals and assist them in their choice of a second disciplinary major. Information about internships, international experiences, summer jobs, graduate programs, and career opportunities is also available in the program office.

Academic Standards

Students in all options of the Environmental Studies Program must earn at least a grade of "C" in all courses counted for their major/minor.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen an Environmental Studies major will satisfy the Baccalaureate Writing Requirement by successfully completing ENVS 330 Major Environmental Writings.

LIBERAL EDUCATION/GENERAL EDUCATION REQUIREMENTS

Students in any curriculum who successfully complete the Environmental 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

Since the Environmental Studies Program is broadly interdisciplinary in scope, students opting for a major in the program are required to take a second major, chosen from any college of the University at the student's discretion, to provide requisite depth in a particular discipline.

Those choosing their disciplinary major from within the College of Arts and Sciences have the option of selecting either major as their first or degree major. If the Environmental Studies major is selected as the degree major, the student will graduate with either a Bachelor of Science or Bachelor of Arts degree in Environmental Studies depending on whether their other major is in one of the sciences or not. Students opting to have the disciplinary major be their first or degree major will graduate with a Bachelor's degree in that discipline.

Those choosing a disciplinary major from outside the College of Arts and Sciences must consider that their disciplinary major to be their first degree major, with the EVS major being their second major.

In all instances the student must fulfill the following program requirements:

1. Successful completion of a minimum of 37 semester hours of approved course work in ENVS courses as listed below. 2. Selection of a second, disciplinary major, appropriate to the student's career goals.

In addition to these program requirements, students selecting the EVS major as their first major must satisfy the College of Arts and Sciences curriculum requirements as well as all University degree requirements. Those selecting the disciplinary major as their first major must satisfy the curriculum requirements identified by that disciplinary major as well as all University degree requirements.

Environmental Studies Major

37-38 hrs.

PROGRAM INTRODUCTION

ENVS 110 Introduction to Environmental Studies 4

CONCEPTUAL FOUNDATIONS

The prerequisites for all four courses below is ENVS 110 or approval of a program advisor. In addition, ENVS 215 must be taken before ENVS 225. Students whose disciplinary major is in Cultural Anthropology, Biology, Geosciences, or Political Science may, with the approval of a program advisor, replace the appropriate course from the list below with either ENVS 401, ENVS 410, or ENVS 500.

ENVS 215 Environmental Systems and Cycles 4
ENVS 225 Environmental Ecology 4
ENVS 240 Cultures and Global Change 3
ENVS 250 Political Economy of the Environment 3

SKILLS AND VISION

The prerequisites for all three courses below are ENVS 110 and all 200-level courses listed above, or approval of a program advisor.

ENVS 350 Major Environmental Writings (should be taken before ENVS 360) 3
ENVS 360 Values and Sustainable Society 4

APPLICATIONS

A minimum of six semester hours required from the 400- or 500-level courses listed below. With the approval of a program advisor, appropriate courses offered by other academic units outside the program may be used to satisfy some or all of this six-hour requirement.

ENVS 401 Selected Environmental Topics 3
ENVS 410 Appropriate Technologies and Sustainability 3
ENVS 420 Internship 1-3
ENVS 430 Environmental Projects 1-4
ENVS 440 Field Experience 1-4
ENVS 500 Advanced Environmental Topics 3

CAPSTONE

The prerequisites are ENVS 350 and ENVS 420, or approval of a program advisor.
ENVS 450 Senior Seminar in Environmental Studies 3

The Non-teaching Minor (21-22 hrs.)

This minor is offered for students who are unable to pursue a major but still seek some insights into the nature of environmental concerns.

PROGRAM INTRODUCTION

ENVS 110 Introduction to Environmental Studies 4

CONCEPTUAL FOUNDATIONS

The prerequisites for all four courses below are ENVS 110, or approval of a program advisor. In addition, ENVS 215 must be taken before ENVS 225. Students whose disciplinary major is in Cultural Anthropology, Biology, Geosciences, or Political Science may, with the approval of a program advisor, replace the appropriate course from the list below with either ENVS 401, ENVS 410, or ENVS 500.

ENVS 215 Environmental Systems and Cycles 4
ENVS 225 Environmental Ecology 4
ENVS 240 Cultures and Global Change 3
ENVS 250 Political Economy of the Environment 3

SKILLS AND VISION

The prerequisites are ENVS 110 and all 200-level courses listed above, or approval of a program advisor.
ENVS 360 Values and Sustainable Society 4

The Teaching Minor (24 hrs. minimum)

This option is available only to those enrolled in the secondary education curriculum with approved majors. Those electing a teaching minor in Environmental Studies must successfully complete all of the requirements for the non-teaching minor (see above), plus an approved environmental/outdoors education course (2-4 hours) chosen in consultation with a program advisor.

Environmental Studies Courses (ENVS)

ENVS 110 Introduction to Environmental Studies 4 hrs.

This course is an interdisciplinary introduction to the study of environmental concerns open only to those enrolled as majors or minors in the Environmental Studies Program. Through the use of case studies and other means, students will be introduced to the broad array of local, regional and global environmental problems confronting humankind. They will learn to identify the many scientific, technological, social/cultural, economic, political, ethical and other elements in those problems.
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 chemical and their biological effects, the chemistry of natural and polluted water, food production and population, acid rain, ozone depletion, and global climate change. **Prerequisite:** ENVS 110 or approval of a program advisor.

**ENVS 225 Environmental Ecology** 4 hrs.

This course focuses upon the study of living systems of various sizes and degrees of complexity. Drawing from the disciplines of ecology and human biology, it emphasizes how individual organisms, natural populations, biotic communities, and ecosystems vary, how they are interconnected, and how human activities influence the complex interrelationships that exist within and among them. Includes a field-oriented laboratory component. **Prerequisite:** ENVS 110 and 215 or approval of a program advisor.

**ENVS 240 Cultures and Global Change** 3 hrs.

A global cross-cultural overview of various techno/economic systems. Various types of past and present cultural and technological systems, from small-scale rural tribal communities to large-scale industrial societies, will be discussed in terms of their adaptiveness. Global threats to current societies will be reviewed in terms of the debates over global warming and the loss of biodiversity. Case studies of different approaches to development will be used to develop criteria to evaluate which will better mitigate global threats and be socially sustainable. **Prerequisite:** ENVS 110 or approval of a program advisor.

**ENVS 250 Political Economy of the Environment** 3 hrs.

This course reviews the political and economic assumptions underlying twentieth century political and economic systems. It analyzes the political economy of environmental policy-making and regulation in the United States. It discusses emerging alternatives that are based upon principles of sustainability and the challenges involved in institutionalizing them. **Prerequisite:** ENVS 110 or approval of a program advisor.

**ENVS 300 Environment, Technology, and Values** 4 hrs.

An introduction to the physical and biological bases of the environment and the historical, anthropological relation of Homo Sapiens within those parameters, the impacts of the rise of industrial societies and human populations with an examination of the driving values causing and caused by these developments, the environmental movement and the alternative projected futures. At the discretion of a program advisor, ENVS 300 may be substituted for ENVS 110 for those students wishing to take an environmental studies major or minor. Students may not enroll in ENVS 300 after successfully completing ENVS 110.

**ENVS 320 Major Environmental Writings** 3 hrs.

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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. **Prerequisite:** Required conceptual foundations courses or approval of a program advisor.

**ENVS 350 Environmental Problem Solving** 4 hrs.

This course develops an approach to solving complex problems, together with specific skills for analyzing problem situations and making decisions. It introduces students to the structure and behavior of complex systems and to the elementary techniques for systems analysis. It also explores the elements of, and problems surrounding, risk benefit analysis utilized in decision making. **Prerequisite:** Required conceptual foundations courses or approval of a program advisor.

**ENVS 360 Values and Sustainable Society** 4 hrs.

This course explores and seeks to clarify individual, group, and social values as they relate to the decisions that we make and to determine the impact of those decisions on the sustainability of our natural and social systems. It pursues this through the examination of historical and literary concepts of sustainable societies, and examines varying definitions of sustainability and the underlying values and elements which may favor sustainable futures. **Prerequisite:** Required conceptual foundations courses of approval of a program advisor.

**ENVS 401 Selected Environmental Topics** 3 hrs.

An intensive, focused study of an environmental topic such as solid waste management and resource recovery, energy management, environmental law, or environmental communications. Topic to be announced in the Schedule of Classes. This course may be repeated for credit with a second topic. **Prerequisite:** Required conceptual foundations courses or approval of a program advisor.

**ENVS 410 Appropriate Technologies and Sustainability** 3 hrs.

In the light of the debates on sustainability, the course analyzes how technologies and technological systems have interacted with and influenced social change for 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:** Required conceptual foundations courses or approval of a program advisor.

**ENVS 420 Internship** 1–3 hrs.

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 430 Environmental Projects** 1–4 hrs.

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.

**Prerequisite:** Consent of instructor and approval of a program advisor.

**ENVS 440 Field Experience** 1–4 hrs.

This course is a vehicle to provide academic credit for students participating in legitimate off-campus environmental field programs and foreign exchange programs. The course is repeatable for up to eight hours of academic credit. **Prerequisite:** Approval of a program advisor.

**ENVS 450 Senior Seminar in Environmental Studies** 3 hrs.

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. **Prerequisites:** ENVS 350 and ENVS 360, or approval of a program advisor.

**ENVS 500 Advanced Environmental Topics** 3 hrs.

An intensive, focused study of a current environmental issue. The course may be interdisciplinary in nature and the focus will be on interdisciplinary research in addressing such issues will be explored through examples drawn both from the different disciplinary backgrounds of the students and especially from the current research of the faculty instructor. Course may be repeated under different topics. Topics will be announced in the Schedule of Classes. **Prerequisite:** Required conceptual foundations courses or approval of a program advisor.

**INTERNATIONAL AND AREA STUDIES PROGRAMS**

The College of Arts and Sciences houses a family of interdisciplinary programs devoted to the study of major areas and regions of the world, and to global and international developments and institutions. These programs include coordinate majors (which must be taken in conjunction with a standard major) and minors. Although course offerings for these programs are primarily in the College of Arts and Sciences, other departments and colleges also provide appropriate courses. Each coordinate major requires a minimum of 24 hours, each minor requires a minimum of 15 hours.

In addition to their interdisciplinary structure, international and area studies programs also stress foreign language studies and academic experiences outside the United States. Although most of the coordinate major and minor programs can be completed without them, most students include courses in foreign languages in these programs as appropriate. With advisor approval, courses taken at colleges and universities in other countries, either in English or in foreign languages, may be included in program requirements.

Aiding, lists of available courses, and current information on international and area studies coordinate majors and minors, as well as other activities related to these programs, are available through the Dietrich H. Haenicke Institute for International and Area Studies, 3-200 Environmental Hall, at (616) 387-5890. Also, see the “International Programs” section of this catalog.
THE MEDIEVAL INSTITUTE

Paul E. Szarmach, Director and Advisor
104E Walvoord Hall
387-8745

Knowledge of medieval and Renaissance culture is being increasingly recognized as 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.

Western Michigan University has library resources and faculty to provide a good academic environment for the study of the Middle Ages and Renaissance. The Institute organizes and hosts the annual International Congress on Medieval Studies which has brought the University wide recognition throughout the United States, Canada, and Europe. The Institute's publishing program, Medieval Institute Publications, publishes significant current research in all areas of medieval studies.

MEDIEVAL STUDIES MINOR (24 hours)

Students with an undergraduate minor must complete twenty-four hours, to include the following:

1. MDVL 145 Heroes and Villains of the Middle Ages 3 hrs.
2. HIST 360 The Medieval World: Society and Culture 3 hrs.
3. MDVL 500 Interdisciplinary Studies in Medieval Culture 3 hrs.
4. Fifteen additional hours of course work selected from the list below, with the approval of the Director. The student should take care that the courses selected represent the interdisciplinary nature of Medieval Studies; therefore, a maximum of two courses from each category may be credited toward the minor.

APPROVED COURSES

Fine Arts
ART 583 History of Medieval Art 3 hrs.
MUS 517 Collegium Musicum 1 hr.
MUS 585 Medieval Music 2 hrs.

Philosophy and Religion
PHIL 300 Ancient and Medieval Philosophy 4 hrs.
REL 305 The Christian Tradition 4 hrs.
REL 306 The Jewish Tradition 4 hrs.
REL 307 The Islamic Tradition 4 hrs.

Language and Literature
ENGL 410 Special Topics (when appropriate) 3 hrs.
ENGL 530 Medieval Literature 3 hrs.
ENGL 555 Studies in Major Writers (when appropriate) 3 hrs.
FREN 560 Advanced Readings in French (when appropriate) 3 hrs.
LANG 375 Spanish Literature in Translation (when appropriate) 3 hrs.
LAT 560 Medieval Latin 4 hrs.
SPAN 560 Studies in Spanish Literature (when appropriate) 3 hrs.

History
HIST 442 Byzantine Civilization 3 hrs.
HIST 444 Early Medieval History 3 hrs.
HIST 445 Later Medieval History 3 hrs.
HIST 550 Studies in Medieval History 3 hrs.

Medieval Courses (MDVL)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

MDVL 145 Heroes and Villains of the Middle Ages

3 hrs.

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.

MDVL 500 Interdisciplinary Studies in Medieval Culture

3 hrs.

An interdisciplinary course organized around selected topics in Medieval and Renaissance Studies. The focus may be in a specific period (The Twelfth Century), a religious movement (Monasticism) a political structure (Venice-Antwerp City-state), or the social fabric (Medieval Man: Image and Reality).

The overall aim of the course is to demonstrate to students why one needs to acquire a variety of disciplines to understand a single complex problem, and how to put traditional building blocks together in new ways. The course may be repeated for credit with a different topic.

MDVL 597 Directed Study

1-3 hrs.

Research on a selected topic in the field of Medieval Studies directed and supervised by a faculty member. This credit requires at least junior standing and approval by the Director of the Medieval Institute. May be repeated for credit. Prerequisite: Approval application required.

PROFESSIONAL STUDIES PROGRAM

PROFESSIONAL STUDIES MAJOR

The major in Professional Studies leads to a Bachelor of Arts. This major would be of particular interest to those adults who, through previous formal study and practical experience are eligible for promotion to positions of supervisory, administrative or executive responsibility, but who lack the formal education qualifications necessary for such advancement. No minor is required for students completing the major in Professional Studies.

GENERAL DEGREE REQUIREMENTS

1. Completion of at least 122 hours of credit with a minimum 60 hours from a four-year institution. At least 30 hours of credit must be through Western Michigan University, including WMU residency requirement.
2. Completion of the College of Arts and Sciences Liberal Education Curriculum.
3. Completion of the University's Computer Usage, Intellectual Skills, and Baccalaureate Writing requirement.
4. Completion of the 50 hours of major course work.
5. Up to 15 hours of Self-Instructional credits can be used, upon approval by the advisor.

MAJOR REQUIREMENTS

1. Area Requirements—44 hours
A minimum of 44 hours is required for the major, with at least two courses to be taken in each area and at least 12 hours in one area. Up to 5 courses can be double counted for Liberal Education Curriculum and the forty-four-hour Professional Studies. Twenty-five hours of the program must be at the 300-level or above.

The areas are as follows:
B. Communication Skills—Asian and Middle Eastern Languages, Communication, English, Foreign Languages and Literatures.
C. Community Concerns—Anthropology, Black American Studies, Geography, History, Institute of Government and Politics, Political Science, Sociology.
D. Administrative Concerns—Business, Economics, Philosophy (ethics), Psychology.

2. Capstone Requirement—6 hours
The six-hour capstone requirement can be fulfilled by any of the following ways, subject to approval by an advisor:
A. The student who has not taken a baccalaureate level writing course must take A-S 496 Writing Intensive, Mentored Portfolio for at least three of the six credit hours.
B. The student can complete an independent research or internship course offered by an academic department. The project must equal at least three credit hours.
C. The student can complete A-S 399 Field Experience (Community Participation) or A-S 498 Directed Independent Study for at least six credit hours.
D. The student can enroll in A-S 497 Mentored Portfolio for 3-6 credit hours.
E. The student may use a combination of the above to total at least 6 hrs.

(Does not require that business courses be offered, but that business courses may be transferred into this Area. No more than 29 hours of business courses may be used in the program.)
SCI 170 Life Science for Elementary Educators I 3 hrs.
SCI 270 Life Science for Elementary Educators II 3 hrs.
SCI 180 Physical Science for Elementary Educators I 3 hrs.
SCI 280 Physical Science for Elementary Educators II 3 hrs.
SCI 190 Earth Science for Elementary Educators I 3 hrs.
SCI 290 Earth Science for Elementary Educators II 3 hrs.
MATH 150 Number Concepts for Elementary/Middle School Teachers 4 hrs.
MATH 151 Geometry for Elementary/Middle School Teachers 3 hrs.
MATH 265 Probability and Statistics for Elementary/Middle School Teachers 4 hrs.

THE INSTITUTE FOR SCIENCE EDUCATION
Julie Henderleiter Aldrich, Chemistry
William Cobern, Teaching, Learning, and Leadership
Marcia Fields, Teaching, Learning, and Leadership
Leonard Ginsberg, Biological Sciences
Mark Jenniess, SAMPI
Robert H. Poel, Physics
David W. Rudge, Biological Sciences
David Schuster, Physics
Kamlesh Sharma, Biological Sciences
Joseph Stoltman, Geography
Aletta Zietman-Thomas, Physics

The 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 Institute has four components:

1. The faculty teaches courses leading to a Master of Arts and a Doctor of Philosophy in Science Education. See the graduate catalog for more information.
2. The Institute conducts undergraduate programs as part of the elementary education science and mathematics teaching minor. See the College of Education section of this catalog for more information.
3. Professional development courses, workshops, and related opportunities for K-12 science teachers and school districts coordinated and offered by the Center for Science Education. In addition, the Center provides curriculum development expertise and services for science curriculum projects from the national to the school district level.

Science Courses (SCI)
A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

SCI 132 Aims and Achievements of Science 4 hrs.
This course is designed as a broad philosophical and historical view of science as a human endeavor. It examines the aims or goals of science and compares these to the achievements of the scientific enterprise, as well as demonstrating the methods of science and other methods of obtaining reliable information. The course, designed for the non-scientist, is a non-mathematical examination of science and the way it affects and is affected by culture. The interrelationships between science and other disciplines and some of the important issues of our day are discussed.

SCI 133 Issues in Social Biology 4 hrs.
This course involves a study of some recent advances in biology and medicine, their social and ethical implications, and the public policy problems raised by such questions as organ transplantation, drugs, population control and size, genetic engineering, pollution, and the ethical and moral concerns implicit in these.

SCI 170 Life Science for Elementary Educators I 3 hrs.
This is a laboratory-based course specifically designed for prospective elementary teachers.

SCI 180 Physical Science for Elementary Educators I 3 hrs.
This is a laboratory-based course specifically designed for prospective elementary teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key physics concepts and their interrelations; to provide students with open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternate conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science.

SCI 190 Earth Science for Elementary Educators I 3 hrs.
This is a laboratory-based course specifically designed for prospective elementary teachers. The objectives of the course are to aid students in developing meaningful and functional understanding of key earth science concepts and their interrelations; to provide students with open-ended problem solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternate conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science.
SCI 404 Teaching of Secondary Science 3 hrs.
This course addresses the topics of teaching and learning of science at the secondary level. It is designed for those 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.
Prerequisites: 15 hours of science in a certifiable science discipline and ED 302 which may be taken concurrently with this course. Cross-listed with CHEM 404 and PHYS 404.

SOCIAL STUDIES

GROUP SOCIAL STUDIES
MINOR (ELEMENTARY, MIDDLE SCHOOL-JUNIOR HIGH SCHOOL, OR SPECIAL EDUCATION CURRICULA)

Advisor: College of Education
Office of Admissions and Advising
2504 Sangren Hall
387-2510

WMS 200 Introduction to Women's Studies ............... 4
WMS 401 Foundations of Feminist Theory ............. 3
WMS 410 Feminist Theory and Social Change............ 3
WMS 411 Gender and Social Change................. 3
WMS 450 Male/Female Psychological Perspectives....... 3
WMS 500 Seminar in Women's Studies............. 3
WMS 510 Internship .................................. 3
WMS 598 Readings in Women's Studies.............. 3

The following selected from the list of WMS Approved Electives at the 300 or 400 level. At least:

• One course in Multicultural or Global Studies:
• One course selected from the list in Humanities or Arts
• One course selected from the list in Social Sciences or Sciences.

MINOR (16 hours)

REQUIRED COURSE
WMS 200 Introduction to Women's Studies .......... 4

COURSES TO BE SELECTED FROM THE LIST OF WMS APPROVED COURSES

WMS APPROVED ELECTIVES
For specific descriptions of the courses, consult the departmental sections of the catalog. For approval of variable topics courses, see Women's Studies advisor.

ANTH 309 Archeology of Inequality and Social Change
ANTH 345 Topics in Anthropology:
Gender Issues (variable) .......... 3
ANTH 360 Sex, Gender and Culture ........ 3
ANTH 545 Topics: Feminist Theory .............. 3
ART 521 Women in Art .................. 3
BAS 310 The Black Woman: Historical Perspective and Cultural Status ........ 3
BAS 360 Black Woman-Black Man Relationships ... 3
COM 307 Freedom of Expression .................. 3
COM 475 Family Communication ............... 3
COM 479 Female/Male Interaction .............. 3
ECON 309 Women and the Economy .......... 3
This course focuses on the interrelationship of women, multiculturalism, and social change. The course pursues an interdisciplinary analysis of multicultural gender roles and change in social institutions, such as law, medicine, education, media, business, and politics. Study will consider gender, ethnicity, class, and cultural experience in the context of national and global forces. Prerequisite: WMS 200.

WMS 330 Gender Issues in Education 3 hrs.
Various gender issues in education are studied from both an historical and a contemporary perspective. The course will analyze current research on self-esteem and gender inequities in education and seek solutions. Attention will be given to theoretical and pedagogical concerns and to development issues affecting students.

WMS 350 Male/Female Psychological Perspectives 3 hrs.
The course investigates the similarities and differences in male and female psychological perspectives in diverse segments of American society. The course provides a theoretical and practical analysis of the psychological behavior of individuals and social groups, and works toward descriptions adequate to the complexity of human beings and their institutions. Prerequisite: Junior or senior status.

WMS 401 Foundations of Feminist Theory 3 hrs.
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. Fulfills baccalaureate-level writing requirement. Prerequisite: WMS 200.

WMS 410 Special Topics in Women's Studies 3 hrs.
Variable topics in Women's Studies; may be repeated for credit when topic varies.

The prerequisites for admission to undergraduates to 500-level Women's Studies classes are twelve hours of coursework from the Women's Studies approved list (including WMS 200) and at least junior level status, or departmental approval.

WMS 500 Seminar in Women's Studies 3 hrs.
A seminar offering variable topics that focus on special problems or issues in Women's Studies. Emphasis will be placed on developing skills in research approaches and on writing a research paper integrating the theoretical, critical, or practical issues in the course. 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 Foreign Languages and Literatures 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 (620 Sprau: 387-2570) or the Department of Foreign Languages and Literatures (410 Sprau: 387-3001).

WORLD LITERATURE

WORLD LITERATURE MINOR

Robert Fekel, Advisor
Department of Foreign Languages and Literatures

This is an interdepartmental program administered jointly by the Department of English and the Department of Foreign Languages and Literatures.

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 Foreign Languages and Literatures, may elect the world literature minor. The minor should 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 major 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 Foreign Languages and Literatures 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 (620 Sprau: 387-2570) or the Department of Foreign Languages and Literatures (410 Sprau: 387-3001).

REQUIREMENTS

1. Twenty hours, with the following distribution:
   ENGL 312 Western World Literature or 313 Asian Literature or 314 African Literature . . . 3
2. Two or three courses (i.e. at least eight semester hours) selected from the following list:
ENGL 110 Literary Interpretation 4
ENGL 210 Film Interpretation 4
ENGL 252 Shakespeare 4
ENGL 312 Western World Literature, if not used under Requirement (1) 3
ENGL 313 Asian Literature, if not used under Requirement (1) 3
ENGL 314 African Literature, if not used under Requirement (1) 3
ENGL 315 The English Bible as Literature 3
ENGL 410 Special Topics in Literature (If the topic is appropriate it may be approved by the minor advisor) 4
ENGL 442 Modern Drama 4
ENGL 530 Medieval Literature in English Translation 3
ENGL 538 Modern Literature 3
ENGL 555 Studies in Major Writers (If the authors studied are appropriate, this course may be approved by the minor advisor) 3
ENGL 598 Readings in English: Independent Study (with the approval of the minor advisor) 1-4

3. Three courses selected from the following list:
   LANG 350 Classical Greek and Roman Mythology 3
   LANG 375 French Literature in English Translation 3
   LANG 375 German Literature in English Translation 3
   LANG 375 Russian Literature in English Translation 3
   LANG 375 Spanish Literature in English Translation 3
   LANG 375 Spanish-American Literature in English Translation 3
   LANG 375 Classical Literature in English Translation 3

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 370, 371, Theatre Backgrounds I, II 3
   THEA 570 Devel. of Theatre Arts 3

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.

AFRICANA STUDIES
See "Interdisciplinary Programs" in the College of Arts and Sciences.

AFRICAN STUDIES PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences.

AMERICAN HUMANICS PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences.

AMERICAN STUDIES PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences.

ANTHROPOLOGY
Robert Ulin, Chair
Robert Anemone
William Cremin
Arthur Helweg
Laura Junker
Vincent Lyon-Calbo
Ann Miles
Michael Nasseney
Tai Simmons
Laura Spielvogel
Pamela Stone
Belinda Straight
Allen Zagarell

The anthropology program is designed to provide students with an understanding of the human condition based on the integration of historical, cultural, and biological perspectives. Through course offerings, students will (1) broaden their familiarity with diverse ways of human life, past and present; (2) gain knowledge of human adaptation and variation from our earliest ancestors to modern peoples; (3) be exposed to employment opportunities in a variety of applied fields; and (4) be prepared for graduate study in anthropology.

All major and minor programs must be approved by one of the department's undergraduate advisors. Students are expected to meet with their 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.

ANTHROPOLOGY MAJOR
A major in anthropology consists of a minimum of 34 hours of anthropology courses and must include:

1. ANTH 210, ANTH 240, and ANTH 250
2. one writing intensive course in anthropology as designated in the catalog
3. six (6) additional hours of course work at the 400-level or above
4. no more than three (3) hours of course work at the 100 level
5. a grade of "C" or better in every anthropology class counted toward the major

A student with a major in anthropology is strongly encouraged to take a broad range of courses in all three subdisciplines of anthropology: archaeology, cultural anthropology and biological anthropology.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the anthropology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

ANTH 439 Issues in South American Ethnography
ANTH 440 Ethnography
ANTH 450 Primate Behavior and Ecology

ANTHROPOLOGY MINOR
A minor in anthropology consists of a minimum of 21 hours of anthropology courses and must include:

1. ANTH 210 or 110
2. ANTH 250 or 150
3. ANTH 240
4. six (6) hours of course work at the 400-level or above
5. no more than six (6) hours of course work at the 100 level
Anthropology Courses (ANTH)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

ANTH 110 Lost Worlds and Archaeology 3 hrs.
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.

ANTH 120 Peoples of the World 3 hrs.
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.

ANTH 150 Race, Biology, and Culture 3 hrs.
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.

ANTH 210 Introduction to Archaeology 3 hrs. Fall, Winter
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.

ANTH 240 Principles of Cultural Anthropology 3 hrs. Fall, Winter
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.

ANTH 250 Introduction to Biological Anthropology 4 hrs. Fall, Winter
A survey of physical anthropology: evolutionary theory; hominid and primate evolution; the living primates, human osteology, human genetics and population variation.

ANTH 300 Ancient America 3 hrs.
This course examines the archaeological sequence (or a segment thereof) in the Americas prior to European contact. The aim is to explore contemporary thinking regarding the subsistence practices, settlement patterns, economy, sociopolitical organization, and ideology of ancient Americans. The geographic focus may vary from the culture area to a broader continental survey depending on the interests of the students and the instructor. Prerequisite: ANTH 110 or 210.

ANTH 301 Anthropology through Film 3 hrs.
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 world economic system.

ANTH 303 Historical Archaeology 3 hrs.
Investigates the role of the material world in the colonial encounter and the development of capitalism. Students will engage in theoretical, methodological and substantive issues with an emphasis, though not exclusive focus, on North America. Prerequisite: ANTH 210 or consent of instructor.

ANTH 306 Archaeology of Civilization 3 hrs.
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 characteristics and innovative pathways, social accomplishments and social costs, New World and Old World, far-flung and more recent past. Prerequisite: ANTH 210 or consent of instructor.

ANTH 309 Archaeology of Inequality and Resistance 3 hrs.
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 210 or consent of instructor.

ANTH 310 Environmental Archaeology 3 hrs.
An examination of the objectives and methodologies of environmental archaeology in seeking to identify and explain the interrelationships between human communities and their biophysical environment. Prerequisite: ANTH 210 or consent of instructor.

ANTH 339 Cultures of Latin America 3 hrs.
This course offers an introduction to contemporary life in Latin America from an anthropological 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.

ANTH 340 Cultures of Asia 3 hrs.
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.

ANTH 341 Cultures of Africa 3 hrs.
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 place-making and dispelling long-held myths and negative stereotypes about Africa.

ANTH 342 Cultures of Middle East 3 hrs.
A problem-oriented approach to the study of peoples and cultures of the Middle East, dealing with rural, urban, peasant, and elite groups. Topics such as social structure, religion, and culture change may be included.

ANTH 343 Cultures of Europe 3 hrs.
Students are introduced to the anthropology of Europe through a critical reading of selected ethnographies and essays. The importance of nationalism, self-identity, and the role of the nation-state in contemporary European politics and social life will be emphasized. Students will also be exposed to literature on subaltern populations such as peasants and small-scale farmers and the political, economic and cultural dynamics to which they are subject.

ANTH 344 The First Americans 3 hrs.
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 illustrate the ingenuity and diversity of human responses to both changing landscapes and social circumstances over time and in space will be presented.

ANTH 345 Topics in Anthropology 3 hrs.
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 347 Ethnicity/Multiculturalism 3 hrs.
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. Prerequisite: ANTH 120 or 140 or 240.

ANTH 349 Power and Conflict 3 hrs.
This course takes an anthropological approach to the study of power, dominance, control, and conflict in various forms and in a number of different contemporary sociocultural contexts. Prerequisite: ANTH 240 or consent of instructor.

ANTH 350 Primate Evolution 3 hrs.
An introduction to the functional and evolutionary biology of the primates. An emphasis will be placed on the morphological adaptations characterizing primates throughout their nearly 60 million year evolutionary history. Prerequisite: ANTH 250 or permission of the instructor.

ANTH 351 Human Osteology 4 hrs.
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 250 or consent of instructor.

ANTH 352 Faunal Analysis 4 hrs.
A hands-on undergraduate methodology course in the identification, analysis, and
interpretation of animal bone found in archaeological contexts. Topics will include: taphonomy, quantitative estimation techniques, the examination of animal behavior to hunting, predator-prey relationships, food transport, behavior, subsistence and seasonality, reconstructing the palaeoenvironment, and the meanings of animal remains. The course will include both a lecture and a lab component. **Prerequisite:** Either ANTH 210 or ANTH 250, or permission of the instructor.

**ANTH 353 Bioarchaeology**

3 hrs.

This course is an issues oriented undergraduate methodology course concerned with the analysis of human remains recovered from archaeological contexts. Topics will include: mortuary practices, age categories and cohorts, assessing growth and development rates, indicators of population health, paleodemography, palaeopathology, trauma and warfare, occupational indicators, trace elements, and problem solving with metric and/or non-metric variation. The focus of the course will be on extracting information from a human skeletal population in order to reconstruct features such as status differences and the reasons for population increase/decline. **Prerequisite:** ANTH 250 and ANTH 210, or permission of instructor. ANTH 351 is also recommended.

**ANTH 354 Growth and Development**

3 hrs.

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. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.

**ANTH 355 Anthropology and Marxism**

3 hrs.

This course will provide a critical analysis and historical overview of the Marxist tradition. Special attention will be given to comparing the various Marxist schools as well as charting the neo-Marxist project and its importance for anthropology in particular and social sciences and humanities in general. **Prerequisite:** ANTH 240 or permission of instructor.

**ANTH 360 Sex, Gender, Culture**

3 hrs.

Sexual differences around the world are culturally elaborated into gender-specific behaviors, normed relationships, 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.

**ANTH 380 Highlighting Anthropology**

1-3 hrs.

Topics of special interest to people outside anthropology will be emphasized using the workshop or short course format. Examples include: Ancient Americans; Archaeology and You；Forensic Anthropology; Michigan at the Dawn of History. 1-3 credit hours. Credit cannot be counted toward the major or minor in anthropology. (May be repeated for credit with a change in topic.)

**ANTH 390 Archaeological Field School**

6 hrs.

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 planning a 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 210 or consent of instructor.

**ANTH 400 Midwest Prehistory**

3 hrs.

A survey of developments in the midcontinent from the arrival of human populations during the Ice Age to their first contact with European contact. Emphasis will be on changing adaptive requirements of the environment over time as reflected in subsistence-settlement behavior, interaction through exchange and sociopolitical complexity. **Prerequisite:** ANTH 210 or consent of instructor.

**ANTH 404 Early Technologies**

3 hrs.

This course deals with the analysis and interpretation of artifacts, and technological organization and their relationship to social, political, and economic dimensions of cultural systems. **Prerequisite:** ANTH 210 or consent of instructor.

**ANTH 405 Archaeology of the Great Lake State**

3 hrs.

Current interpretations of Native American lifeways in the western Great Lakes from the Paleo-Indian through Early Historic periods will be reviewed with special attention to the State of Michigan. Cultural patterns observed by explorers, traders, and missionaries entering this region in the 17th century provide the frame of reference for an examination of changing strategies for survival reflected especially in the distribution of sites (communities) across the landscape and the nature of activities undertaken from then until the present. **Prerequisite:** ANTH 210 or consent of instructor.

**ANTH 439 Issues in South American Ethnography**

3 hrs.

Employing ethnographies about South America, this course is designed to acquaint students with various methodological, theoretical, and topical orientations in ethnography. Specific issues to be considered may include the cultures of indigenous peoples, religious practices and conversions, the lives of women in indigenous and cosmopolitan settings, ethnicity and race, and the effects of “modernization” on families, children, and health. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. **Prerequisite:** ANTH 240 or consent of instructor.

**ANTH 440 Ethnography**

3 hrs.

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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. **Prerequisite:** ANTH 240 or consent of instructor.

**ANTH 450 Primate Behavior and Ecology**

3 hrs.

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. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. **Prerequisite:** ANTH 250 or consent of instructor.

**ANTH 488 Independent Readings in Anthropology**

1–3 hrs.

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 which is not offered in a formal course. **Prerequisites:** Junior or senior standing and a declared major or minor in anthropology.

**ANTH 499 Independent Research in Anthropology**

1–3 hrs.

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. **Prerequisites:** Junior or senior standing and a declared major or minor in anthropology.

All 500-level courses:

The prerequisites to 500-level courses are: Junior status and 12 hours of course work in anthropology, including the specified prerequisite for each class.

**ANTH 500 Topics in Archaeology**

3 hrs.

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.) **Prerequisite:** ANTH 110 or 210.

**ANTH 501 The Rise of Civilization**

3 hrs.

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. **Prerequisites:** Junior standing, 12 hours of anthropology and ANTH 210 or consent of instructor.

**ANTH 502 The Origins of Agriculture**

3 hrs.

An intensive study of the human transition from hunting-gathering to cultivation during the post-Pleistocene period. Topics to be treated include: both archaeological and botanical models to explain these processes; the comparison of agricultural systems in various parts of the world; the geographic distribution and biosystematics of selected cultivars; and the cultural systems which have arisen from the economic foundations of plant domestication. **Prerequisite:** Junior standing, 12 hours of anthropology, and ANTH 110 or 210. **Prerequisite:** An introduction to a specific area of special instruction or major.

**ANTH 505 Social Archaeology**

3 hrs.

Investigates the mechanisms of social, political, and economic integration within human social groups by analyzing and interpreting the material world. Focus will vary between communal and complex social forms. **Prerequisites:** Junior standing, 12 hours of anthropology, and ANTH 210 or consent of instructor.
ANTH 506 The Archaeology of Gender 3 hrs.
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. Prerequisites: ANTH 210, junior standing, and 12 hours in anthropology.

ANTH 510 Human Biology 3 hrs.
An advanced course in the method and theory involved in the study of the biology of Homo sapiens. Aspects of Human Biology that will be studied from a biocultural perspective include growth and development, infectious disease, nutrition, adaptation to stressful environments, genetics, and demography. Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 250 or consent of instructor.

ANTH 520 Anthropological Theory 3 hrs.
Students are introduced to anthropological theory as a means of raising questions that are significant to the social sciences in general. The importance of theory to ethnographic research and a critical understanding of the social world will be emphasized. The course will also focus on the historical and political roots of anthropology through comparing select theorists from the early British, French, and American schools. Special attention will be given to current theoretical controversies that continue to define the political and ethical concerns of working with human subjects. Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 240 or social science equivalent.

ANTH 521 Nationalism, Invented Tradition, and Self-Identity 3 hrs.
This course introduces students to the theoretical debates concerning nationalism by evaluating the works of authors such as Anderson, Hobsbawn, and Gellner and by examining select case studies of nationalism in a number of world areas. Emphasis will be on nationalism as a cultural as well as political process so its relation to invented tradition and self-identity will be highlighted. Prerequisites: ANTH 240, graduate standing or consent of instructor.

ANTH 522 Poverty, Power, and Privilege 3 hrs.
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.

ANTH 530 Research Methods 3 hrs.
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. Prerequisites: Junior/senior status 12 hours of Anthropology.

ANTH 531 Medical Anthropology 3 hrs.
This course starts with the premise that illness is as much a cultural as it is a biological phenomena and explores the ways in which different societies, including our own, perceive and manage illness and disease. The primary focus of the course is to understand the intersection of cultural, social, and political variables in the experience of illness and the practices associated with healing. Specific topics include: ethnomedicine, spiritual healing, primary health care in the developing world, the symbolism of modern medicine, the political economy of health care and AIDS, and inequality. Prerequisites: Junior status, 12 hours of anthropology, and ANTH 240 or consent of instructor.

ANTH 542 Development Anthropology 3 hrs.
An examination of the role of social science when applied to the solution of specific development problems, particularly in the Non-Western World. Explores a wide range of applied or adaptive research techniques designed to insure that directed social change actually benefits those for whom it is intended. Also surveys numerous research strategies, methods, and constraints involved in conducting research for national or international development agencies. Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 240 or consent of instructor.

ANTH 545 Topics in Sociocultural Anthropology 3 hrs.
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.) Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 240 or consent of instructor.

ANTH 550 Human Evolution 3 hrs.
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. Prerequisite: ANTH 250, junior standing and 12 hours anthropology.

ANTH 551 Evolution of Human Culture 3 hrs.
This course is designed to provide a platform for discussion of hominid and early modern human culture. Questions for discussion include: Do non-human primates have culture? Is reproductive behavior related to the development of human culture? How can early hominid behavior be modeled? What constitutes modern human behavior in the archaeological record? The course will focus on three problem areas in Old World Prehistory: 1) Chimpanzee material culture and early hominid Oldowan assemblages, 2) the Middle Paleolithic and the origin of modern humans; and 3) the Upper Paleolithic and the cultural revolution. Prerequisites: Junior/senior status and 12 hours of Anthropology, including ANTH 210 or ANTH 250 or permission of instructor.

ANTH 552 Forensic Anthropology 3 hrs.
The study of biological anthropology as it applies to the legal system. Primary emphasis will be on skeletal and dental identification, facial reconstruction, and analysis of time since death. Courtroom procedures and responsibilities of the expert witness in the legal system will be covered. Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 250 or consent of instructor.

ANTH 555 Topics in Biological Anthropology 3 hrs.
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. Prerequisites: Junior standing, 12 hours of anthropology, and ANTH 250 or consent of instructor.

ANTH 583 Anthropology and History 3 hrs.
The course evaluates the relationship between anthropology and history through reading selected works in each discipline. Theoretical and methodological similarities and differences will be addressed as well as how each discipline writes about the "other." Special attention will be given to the rhetorical devices employed to make ethnographic and historical accounts convincing and the potential to critical scholarship that the ongoing exchange between the two disciplines offers. Prerequisites: ANTH 240, graduate standing or consent of instructor.

ANTHROPOLOGY 49
ASIAN AND MIDDLE EASTERN LANGUAGES

The department offers undergraduate instruction in the principal non-European languages: Arabic, Chinese, and Japanese. It collaborates with other University units requiring non-European language instruction for students in their programs and connects students with opportunities for advanced study through study-abroad programs or through extensive summer programs. The department also conducts research into language pedagogy, language acquisition, and applied linguistics with the aim of improving techniques of instruction in non-European languages.

The department was established to meet three pressing needs:
1. The needs of students who are asking for languages that have not been offered in traditional language programs
2. The needs of WMU units whose commitments to international studies have led them to require students to learn such languages
3. The needs of those teaching non-European languages for improved pedagogical methods and tools

Only courses in which a grade of "C" or better is obtained can be counted toward a major or minor.

CHINESE MINOR
The minor in Chinese requires the completion of twenty-three hours, including 100-level to 200-level, and CHIN 316, 317 or equivalent courses. Completion of CHIN 477 or 550 beyond 200-level is an option.

JAPANESE MINOR
The minor in Japanese requires the completion of twenty-three hours, including 100-level to 200-level (basic) courses or equivalent.

Arabic (ARAB)
ARAB 100 Basic Arabic I 4 hrs.
Fundamentals of modern Arabic with emphasis on listening and speaking skills.

ARAB 101 Basic Arabic II 4 hrs.
Continuation of ARAB 100. Prerequisite: ARAB 100 or equivalent.

ARAB 200 Intermediate Arabic I 4 hrs.
The development of written and spoken expression in modern Arabic with an emphasis on grammar review. Prerequisite: ARAB 101 or equivalent.

ARAB 201 Intermediate Arabic II 4 hrs.
Continuation of ARAB 200. Prerequisite: ARAB 200 or equivalent.

ARAB 275 Life and Culture of the Arabs 3 hrs.
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.

Chinese (CHIN)
CHIN 100 Basic Chinese I 4 hrs.
Fundamentals of Chinese. Background and practice in listening comprehension, speaking, reading and writing.

CHIN 101 Basic Chinese II 4 hrs.
Continuation of CHIN 100. Prerequisite: CHIN 100 or equivalent.

CHIN 200 Intermediate Chinese I 4 hrs.
The development of spoken and written expression in Chinese. Review of fundamental grammar and skills. Prerequisite: CHIN 101 or equivalent.

CHIN 201 Intermediate Chinese II 4 hrs.
The continued development of spoken and written expression in Chinese. Readings and discussions of civilization and culture materials. Prerequisite: CHIN 200 or equivalent.

CHIN 275 Chinese Life and Culture 3 hrs.
This course is designed to introduce selected themes of Chinese life and culture, past and present. The course is 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.

CHIN 316 Chinese Composition 3 hrs.
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. Prerequisite: CHIN 201 or equivalent.

CHIN 317 Chinese Conversation 4 hrs.
Advanced study of conversation in Chinese. Students practice spoken Chinese through role-playing, the viewing of films, discussion, and other oral activities. Emphasis is upon both listening and speaking of the language. Prerequisite: CHIN 201 or equivalent.

CHIN 477 Foreign Study 1–16 hrs. Fall/Winter
Prerequisite: CHIN 317 or equivalent.
Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson.

Japanese (JPNS)
JPNS 100 Basic Japanese I 4 hrs.
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 Japanese characters, and some aspects of the Japanese culture and people. Introduction to computer-assisted Japanese language learning, including basic word-processing in Japanese.

JPNS 101 Basic Japanese II 4 hrs.
Continuation of JPNS 100. Acquisition of another 75 kanji. Prerequisite: JPNS 100 or equivalent.

JPNS 200 Intermediate Japanese I 4 hrs.
Continuation of JPNS 101. Achievement of intermediate level communicative competence of the Japanese language in four skills. Acquisition of another 75 kanji. Prerequisite: JPNS 101 or equivalent.

JPNS 201 Intermediate Japanese II 4 hrs.
Continuation of JPNS 200. Learning of another 75 kanji. Completion of basic Japanese grammar and structures. Prerequisite: JPNS 200 or equivalent.

JPNS 316 Japanese Composition 3 hrs.
Fundamental skills of Japanese writing both in hand-writing and on the computer. Study of more complex Japanese grammar and structures. Acquisition of another 100 kanji. Prerequisite: JPNS 201 or equivalent.

JPNS 317 Japanese Conversation 4 hrs.
Intensive study of speaking skills. Emphasis is upon increasing the student's command of conversational Japanese. The course includes role play, film viewing with discussion, making speeches, debates, and other communicative activities. Prerequisite: JPNS 201 or equivalent.

JPNS 451 Advanced Japanese Language 3 hrs.
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. Prerequisites: JPNS 316 and 317 or equivalent.

JPNS 477 Foreign Study 1–16 hrs. Fall/Winter
Prerequisite: Prior permission of departmental advisor and chairperson.

500-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 towards a minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

CHIN 560 Independent Study in Chinese 1–3 hrs.
Directed individual study of a specific topic in Chinese language, literature, or culture. May be repeated for credit to a maximum of three hours. Prerequisite: Completion of four courses in Chinese or equivalent; minimum grade point average of 3.0 in Chinese; departmental approval required.
who have satisfactorily completed a minimum of four courses, or equivalent, applicable towards a minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

JPNS 550 Independent Study in Japanese
1-3 hrs.
Directed individual study of a specific topic in Japanese language, literature, or culture. May be repeated for credit. Prerequisite: Completion of four courses in Japanese or equivalent; minimum grade point average of 3.0 in Japanese; departmental approval required.

BIOLOGICAL SCIENCES
Leonard J. Beuving, Chair
Todd Barkman, Bruce Bejcek
Christine Byrd
David P. Cowan
Alexander J. Enyedi
Karim Essani
Kenneth Fisher
John R. Geiser
Leonard C. Ginsberg
Charles Ida
William F. Jackson
John A. Jellies
David Karowe
Cindy L. Linn
Stephen B. Malcolm
Michael K. McLeod
Jay C. Means
Richard W. Pippen
Hector D. Quemada
Silvia Rosebach
David W. Rudge
Kamlesh Sharma
DeWayne Shoemaker
John Spitsbergen

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 clinics 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., 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.

Students interested in pursuing a teaching career in the biological sciences should follow the special guidelines for the Biology Major-Secondary Education Curriculum 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, 616-387-5617 during hours of operation or variations from the above that may pertain to particular medical or dental schools to which you are applying for admission.

Only departmental courses in which a grade of "C" or better is obtained may be counted towards a major or minor in Biological Sciences.

BIOLOGY MAJOR
A Major in Biology consists of a minimum of 32 credits of Biological Sciences courses, as well as cognates in chemistry, physics and mathematics. This course work includes two introductory courses, four intermediate level courses, two advanced interest courses, and a capstone experience. Only three credit hours may be BIOS 498 and only four hours may be BIOS 499.

INTRODUCTORY COURSE REQUIREMENTS
BIOS 150 and 151

INTERMEDIATE LEVEL COURSES
BIOS 202 or 312, 250, 301, 319 or 350

TWO ADVANCED INTEREST COURSES FROM THE FOLLOWING:
BIOS 312, 415, 425, 427, 430, 439, 441, 455, 456, 457, 458, 498, 499, 518, 524, 529, 530, 534, 536, 542, 547, 549, 553, 557, 559, 560, 574, 597 (minimum 6 hrs.).

CAPSTONE EXPERIENCE
BIOS 497 or BIOS 499

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Biology major may satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 319 or 350.

COGNATE REQUIREMENTS
Chem 110 and 111; 112 and 113; 370 with 371 or 375 with 376 and 377 with 378; 355 with 356.

MAT-H a calculus course (122 or 200) and a statistics course (STAT 260 or 366).

PHYSICS, 2 semesters with labs. In addition, GEOL 130 is recommended for those who plan to pursue advanced degrees in Biology, Botany, and Zoology (especially in the areas of ecology and field biology).

BIOLOGY MAJOR—SECONDARY EDUCATION CURRICULUM
A major in secondary education (SED) consists of a minimum of 36 hours of BIOS courses. The major includes two introductory courses, six intermediate level courses, one advanced interest course, and a capstone course, SCI 404. Three credit hours of BIOS 498 and/or 499 may be used as the advanced interest course.

INTRODUCTORY COURSES
BIOS 150 and 151

INTERMEDIATE LEVEL COURSES
BIOS 202, 211, 250, a Microbiology course (232 or 312), BIOS 301, and a Physiology course (BIOS 319 or 350).

ONE ADVANCED INTEREST COURSE FROM THE FOLLOWING:
BIOS 420, 425, 427, 430, 439, 441, 455, 456, 457, 458, 498, 499, 518, 524, 529, 530, 534, 536, 542, 547, 549, 553, 557, 559, 574, 597 (minimum 3 hrs.).
CAPSTONE EXPERIENCE
BIOS 404

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Biology major in Secondary Education can satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 319 or 350.

COGNATES
MATH, 8 hours starting at MATH 118 or above

GROUP SCIENCE MINOR
The Group Science Minor, which is required of all majors, consists of CHEM 100 and 111; 112 and 113; 370 with 371 or 375 with 376 and 377 with 378; PHYSICS, 2 semesters with labs, and GEOG 130.

BIOMEDICAL SCIENCES MAJOR
A major in Biomedical Sciences (BMS) consists of a minimum of 34 credits of course work. This course work includes two introductory courses, two intermediate level courses, two advanced interest courses, and a capstone experience. Three credit hours may be BIOS 498 and four credit hours may be BIOS 499.

INTRODUCTORY COURSES
BIOS 150 and 151

INTERMEDIATE LEVEL COURSES
BIOS 211, 250, 312 and 350.

TWO ADVANCED INTEREST COURSES FROM THE FOLLOWING:
BIOS 420, 425, 430, 437, 496, 499, 507, 512, 518, 524, 531, 534, 536, 559, 560, 561, 570, 574, 587 (minimum 6 hrs.).

CAPSTONE EXPERIENCE
BIOS 497 or 499

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Biomedical Sciences major can satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 350.

COGNATE REQUIREMENTS
CHEM 110 and 111; 112 and 113; 375 and 376; 377 and 378; 355 and 356
MATH, a calculus course (122 or 200), and a statistics course (STAT 260 or 366).

BIological SCIENCES MAJOR
The Biological Sciences Minor consists of a minimum of 20 credits of biological science courses. Twelve of these credits must be from 200 or higher level courses. One advanced elective, such as BIOS 531 or BIOS 507. Minors interested in other areas of biology are advised to take BIOS 150 and 151, in order to have a greater selection of courses.

BIOLOGY MINOR—SECONDARY EDUCATION CURRICULUM
The Biology Minor-SED curriculum consists of a minimum of 24 hours of course work in the Biological Sciences, including BIOS 150, 151, 202, 250, 301, a Physiology course (240, 319 or 350) and SCI 404. Cognate requirements include: CHEM 110 and 111; CHEM 112 and 113; MATH 118 (or 122 or 200).

TRANSFER STUDENTS
A minimum of 15 hours of course work in the Biology Major, the Secondary Education Biology Major, and the Biomedical Sciences 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 (616-387-5617), before registering for classes.

Biological Sciences Courses (BIOS)
A list of approved General Education courses can be found in Graduation Requirements and Academic Advising prior to the catalog in this catalog.

BIOS 105 Environmental Biology
3 hrs. Fall, Winter
An ecology course that examines the relationships among living organisms, including man, and their environment. Emphasis will be placed on basic ecological principles. Credit does not apply toward a Biology or Biomedical Sciences major. Credit applies for the biological sciences minor and liberal education area 6. Credit applies for Distribution Area 6 if taken with BIOS 110.

BIOS 110 Biology Laboratory
1 hr. Fall, Winter
Designed as a companion to BIOS 105 or BIOS 112 to fulfill Natural Sciences Area VI requirement. Biology 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. Corequisite or Prerequisite: BIOS 105 or BIOS 112. Credit not acceptable for Biological Sciences majors but applies toward a minor in biology.

BIOS 112 Principles of Biology
3 hrs. Fall, Winter
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 fulfills Liberal Education Curriculum Area 6. If taken with BIOS 110, it fulfills Distribution Area 6.

BIOS 150 Molecular and Cellular Biology
4 hrs. Fall, Winter
This is the first in a two semester introductory biology sequence for majors and minors in the Biological Sciences Department. The course covers basic concepts of cellular biology and physiology.

BIOS 151 Organismal Biology
4 hrs. Fall, Winter
This is the second course in a two semester introductory biology sequence for majors and minors in the Biological Sciences Department. The course covers basic concepts of evolution, ecology, and animal behavior. Prerequisite: BIOS 150.

BIOS 191 Introduction to Human Anatomy and Biology
4 hrs. Winter
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 191 and BIOS 211.

BIOS 202 Botany
4 hrs. Fall
An introduction to the structure, function, and diversity of plants and plant-like organisms in relation to local and global environments. Students will learn to recognize plants of economic importance and gain experience in propagating and growing them. Prerequisites: BIOS 150 and BIOS 151.

BIOS 211 Human Anatomy
4 hrs. Fall, Winter
A lecture and laboratory course in which all major structures of the human body are studied. Prerequisites: BIOS 151 or BIOS 112 or equivalent.

BIOS 232 Microbiology and Infectious Diseases
4 hrs. Fall, Winter
An introduction to 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 234 Outdoor Science
4 hrs.
This course increases a student's awareness and appreciation of organisms in nature. Lectures introduce the classification, evolution, and ecology, as well as the natural history of selected plants and animals. The laboratory includes the identification of common organisms living in our area, hypothesis testing, data analysis, and report writing. Credit applies toward a minor in Biological Sciences.

BIOS 240 Human Physiology
4 hrs. Fall, Winter
This course is designed to provide non-majors with 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. Prerequisite: BIOS 112 or BIOS 150.

BIOS 250 Genetics
3 hrs. Fall, Winter
A study of the mechanisms of heredity at the level of cells, individuals, families and populations. Prerequisite: BIOS 151.

BIOS 301 Ecology
4 hrs. Fall, Winter
An introduction to the relationships of organisms to their environment and to one another. Interrelationships of individuals and the physical environment, dynamics of populations, as well as structure and function in the community and ecosystem are considered. Prerequisite: BIOS 202 or BIOS 250.

BIOS 312 Microbiology
5 hrs. Fall, Winter
An introduction to the fundamental relationships among microbes with an emphasis on unifying principles. Laboratory work deals with techniques basic to bacteriology. Prerequisites: BIOS 250 and a course in organic chemistry, or consent of instructor.
will gain extensive hands-on experience with restriction mapping, ligation, bacterial transformations, and electrophoresis. Non-isotopic hybridizations, as well as application of the polymerase chain reaction (PCR) will be discussed. Prerequisites: BIOS 250 Genetics, BIOS 312 Microbiology, CHEM 375 Organic Chemistry I, CHEM 376 Organic Chemistry Lab I.

BIOS 528 Biology of Non-Vascular Plants 4 hrs. Fall (alternate years)
A detailed comparative study of the morphology, life cycles, and ecology of the algae, fungi, and bryophytes. Laboratory study will be complemented by field investigations. An independent project may be required. Prerequisite: BIOS 202.

BIOS 529 Biology of Vascular Plants 4 hrs, Winter (alternate years)
A detailed comparative study of the morphology, life cycles, and phylogeny of the vascular plants. Laboratory study will be complemented by field trips. An independent project may be required. Prerequisite: BIOS 202.

BIOS 530 Bryology 3 hrs. Winter (alternate years)
Mosses and liverworts will be studied in lecture, lab, field trips, and the herbarium. Aspects of bryophyte ecology, systematics, and biogeography will be considered. Microscope and keying techniques will be developed. Each student will produce personal collections and keys. Prerequisite: BIOS 202.

BIOS 531 Biology of Aging 3 hrs. Fall
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. Prerequisites: An introductory physiology course.

BIOS 534 Virology 3 hrs. Winter
A study of the classification, structure and chemistry of viruses. Emphasis will be placed on the cell-virus interaction leading to the disease process or cellular alterations in mammalian systems. Prerequisite: BIOS 312 Biochemistry is recommended.

BIOS 536 Immunology 4 hrs. Fall
A study of both the biological and biochemical mechanisms of the immune response and the chemical nature of antibodies, antigens and their interaction. Emphasis will be placed on in vitro and in vivo humoral and hypersensitivity reactions. Prerequisite: BIOS 312 Biochemistry is recommended.

BIOS 542 Entomology 4 hrs. Fall (alternate years)
This course is a general study of insects, their life histories, ecological relationships, and economic importance. Students will learn to identify common families of insects and make individual collections. Prerequisites: BIOS 250 and BIOS 301, or consent of instructor.

BIOS 547 Ornithology 3 hrs.
An introductory course that explores both scientific and popular aspects of bird study. Life, history, behavior, ecology, and identification are emphasized.
BLACK AMERICANA STUDIES
See "Interdisciplinary Programs" in the College of Arts and Sciences.

CHEMISTRY
Jay C. Means, Chair
Michael J. Barcelona
Steven B. Bertman
Brian Buflin
John E. Chateauenef
Johnson Haas
Julie Henderleiter-Alorich
David L. Huffman
Yi-Ping Liu
John B. Miller
Subra Muralidharan
Marc W. Perkovic
David S. Reinhold
Elke Schoffers
Donald R. Schreiber
Susan R. Stapleton

Students majoring in chemistry may prepare for a career in industrial laboratory work, high school teaching, or graduate work in departments of chemistry, biochemistry, medical or dental colleges. The course offerings for the undergraduate 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 Chemistry Department is accredited by the American Chemical Society. Students who follow the American Chemical Society certification course sequence below are considered professional chemists by the American Chemical Society. These students are eligible for direct membership senior grade in the Society immediately upon graduation. Students who plan to work for the larger chemical companies or to attend graduate school should follow this degree program.

In order to complete an American Chemical Society Certified major, the following would be the expected minimum schedule of chemistry and prerequisite courses:

Freshman Year:
CHEM 110 General Chemistry I
CHEM 111 General Chemistry Laboratory I
CHEM 112 General Chemistry II
CHEM 113 General Chemistry Laboratory II
MATH 122 Calculus I
MATH 123 Calculus II

Sophomore Year:
CHEM 375 Organic Chemistry I
CHEM 376 Organic Chemistry Lab I
CHEM 377 Organic Chemistry II
CHEM 378 Organic Chemistry Lab II
MATH 272 Multivariate Calculus and Matrix Algebra
PHYS 205 and 206 Mechanics and Heat
PHYS 207 and 208 Electricity and Light

Junior Year:
CHEM 225 Quantitative Analysis
CHEM 226 Quantitative Analysis Laboratory
CHEM 430 Physical Chemistry I
CHEM 431 Physical Chemistry II
CHEM 436 Physical Chemistry Laboratory I

Senior Year:
CHEM 355 Introductory Biochemistry* or
CHEM 550/ Biochemistry I and CHEM 552/ Biochemistry II
CHEM 437 Physical Chemistry Laboratory II
CHEM 520 Instrumental Methods
CHEM 515 Inorganic Chemistry
CHEM 575 Advanced Chemical Synthesis
*Students electing to enroll in CHEM 355 must also complete an additional 3- or 4-hour 500-level chemistry elective, or an appropriate mathematics or physics course, as approved by the Chemistry advisor.

Chemistry Placement Examination
The chemistry placement examination is required to insure that students are properly placed in beginning chemistry courses based upon the skills they possess in chemistry. It assumes that the student has had one year of high school chemistry and high school algebra.

Passing the chemistry placement examination meets the chemistry prerequisite for CHEM 110 and 111 and 103. Students who do not pass the chemistry placement examination must enroll in CHEM 100 to build up their background in chemistry. In addition, each beginning chemistry course has a mathematics prerequisite.

MAJORS AND MINORS
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 or 7 credit hours, respectively, in the Chemistry Department following the filing of a major or minor slip with the departmental advisor. The courses taken for credit must include at least one which contains a laboratory experience. Students who plan to attend graduate school should take a minimum number of courses under the credit/no credit option.

Students who fail to earn a grade of "C" or better in CHEM 112, 375, and 430 must not enroll in courses requiring these classes as prerequisites.

Students who have chosen a Chemistry major will satisfy the Baccalaureate-Level Writing Requirement by successfully completing CHEM 436 Physical Chemistry Laboratory I.

LEC CHEMISTRY MAJOR
The Arts and Sciences curriculum (LEC) Chemistry Major requires 34 hours in chemistry, including the basic sequence through Physical Chemistry as in the A.C.S. certified program and two 3- or 4-hour courses at the 500-level, chosen from at least two areas of chemistry.

SECONDARY EDUCATION CHEMISTRY MAJOR
The Secondary Education Chemistry Major requires 30 hours of chemistry courses as in the Arts and Sciences major described above, including a minimum of 4 hours of Physical Chemistry.

BIOCHEMISTRY MAJOR
The Biochemistry Major is designed to meet the requirements for a chemistry background for the preprofessional degree leading to health science areas such as medicine, dentistry, veterinary medicine, nutrition, clinical chemistry, toxicology, pharmacology, molecular biology, etc. A minimum of 34 chemistry credit hours must be selected according to the following:

Freshman Year:
CHEM 110 General Chemistry I
CHEM 111 General Chemistry Laboratory I
CHEM 112 General Chemistry II
CHEM 113 General Chemistry Laboratory II
MATH 122 Calculus I
MATH 123 Calculus II
BICS 150 Molecular and Cellular Biology
BICS 151 Organismic Biology

Sophomore Year:
CHEM 375 Organic Chemistry I
CHEM 376 Organic Chemistry Lab I
CHEM 377 Organic Chemistry II
CHEM 378 Organic Chemistry Lab II
MATH 272 Vector and Multivariate Calculus
PHYS 205 and 206 Mechanics and Heat
PHYS 207 and 208 Electricity and Light

Junior Year:
CHEM 225 Quantitative Analysis
CHEM 226 Quantitative Analysis Laboratory
CHEM 430 Physical Chemistry I
CHEM 431 Physical Chemistry II
CHEM 436 Physical Chemistry Laboratory I
BIOS 250 Genetics
BICS 312 Microbiology

Senior Year:
CHEM 552 Biochemistry I with Lab
CHEM 554 Biochemistry II
The student must take one of the following courses to complete the required 34 hours of chemistry:
CHEM 431 Physical Chemistry II
CHEM 520 Instrumental Methods
CHEM 528 Chemical Separations
CHEM 570 Advanced Organic Chemistry and Spectroscopy
To complete an optional biological sciences minor, the student must take any two of the following courses:
BIOS 350 Human Physiology
BIOS 520 Human Genetics
BIOS 524 Microbial Genetics
BIOS 536 Immunology
Additional Comments:
The student would have to enroll in CHEM 225 in the fall term of the junior year and CHEM 436 in the winter term since CHEM 225 is a prerequisite for 436.
It is recommended that the additional chemistry course chemistry needed to complete the major and the two additional biology courses needed to complete the biology minor (if the student wishes to do this) be taken in the senior year.

BUSINESS-ORIENTED CHEMISTRY MAJOR
The Business-Oriented Chemistry Major is available to provide chemical understanding to the level needed by students who intend to prepare for careers in non-laboratory functions of chemical or related industry and distribution of its products and technology. Such careers are principally found in management and sales areas, as well as some aspects of government service.
Those who elect this major are required to complete a minor in either General Business—(18 hrs.), Management (18 hrs.), or Marketing—(18-19 hrs.) in the Haworth College of Business and must include BIS 142, a course in writing. This chemistry major must include a minimum of 30 chemistry credit hours as follows:
CHEM 110 General Chemistry I
CHEM 111 General Chemistry Laboratory I
CHEM 112 General Chemistry II
CHEM 113 General Chemistry Laboratory I
CHEM 225 Quantitative Analysis
CHEM 226 Quantitative Analysis Laboratory
CHEM 375 Organic Chemistry I
CHEM 376 Organic Chemistry Laboratory I
CHEM 377 Organic Chemistry II
CHEM 378 Organic Chemistry Laboratory II
CHEM 387 Organic Chemistry Laboratory I
CHEM 388 Organic Chemistry Laboratory II
CHEM 395 Introductory Biochemistry
CHEM 430 Physical Chemistry I
CHEM 431 Physical Chemistry II
CHEM 435 Physical Chemistry Laboratory I
CHEM 436 Physical Chemistry Laboratory II
CHEM 437 Physical Chemistry Laboratory I
CHEM 438 Physical Chemistry Laboratory II
CHEM 525 Techniques in Water Analysis
Other specialized chemistry programs can be developed through the undergraduate chemistry advisor.

SCIENCE AND MATHEMATICS TEACHING MINOR

The Department of Chemistry participates in the science and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under "Interdisciplinary Programs" section in the College of Arts and Sciences.

Chemistry Courses (CHEM)
A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.
CHEM 100 Introduction to General Chemistry 4 hrs. Fall, Winter
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 101 or CHEM 103.

Prerequisite: MATH 110 or equivalent performance on the Math Placement Examination.
CHEM 101 General Chemistry I 4 hrs. Fall, Winter
The theory and fundamental principles of chemistry are emphasized in this foundation course which serves primarily those who intend to enroll for two or more additional courses in chemistry. Credit for 101 is equivalent to the level of completion of CHEM 110 and 111. This course includes lecture and laboratory. Students can receive credit for only one of CHEM 101, 110 and 111, 103.

Prerequisite: CHEM 100 with a grade of "C" or better or both of the following — (a) one year of high school chemistry and (b) a passing grade on the chemistry placement examination; (2) MATH 111 or the equivalent performance on the math placement examination.

CHEM 103 General Chemistry I 4 hrs. Fall, Winter
A course primarily for students in Engineering and Applied Sciences curricula and others planning only a one or two semester terminal review of chemistry. This course surveys principles of chemistry with emphasis on calculations, descriptive and applied chemistry. May be used as a prerequisite for CHEM 112 and 113 if passed with a grade of "C" or better. This course includes lectures and laboratory. Student can receive credit for only one of CHEM 101, 110 and 111, 103.

Prerequisite: CHEM 100 with a grade of "C" or better or both of the following — (a) one year of high school chemistry and (b) a passing grade on the chemistry placement examination; (2) MATH 111 or the equivalent performance on the math placement examination.

CHEM 105 Textiles and Design Media Chemistry 3 hrs.
A course in which the concepts needed to understand the chemical properties of textile and design media are developed in a non-mathematical manner. Textile fibers, textile finishes, dyes, plastics, rubber, paint, paper, leather, metals, cleaning agents, ceramics, glass, cosmetics, and wood are considered. This course is designed to meet the needs of students in home economics who plan a career in merchandising, or other students of art and applied science who handle the materials being considered. Not applicable for major or minor in chemistry, nor as a prerequisite to other chemistry classes.

CHEM 106 Textiles and Design Media Laboratory 1 hr.
The companion laboratory course to CHEM 105. (To count for general education credit, both CHEM 105 and 106 must be passed.) Corequisite: CHEM 106.

CHEM 110 General Chemistry I 3 hrs.
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 with credit for only one of CHEM 101, 103, 110 and 111.

Prerequisite: One year of high school chemistry; passing the chemistry placement examination at a high level; and either MATH 111 or equivalent performance on the math placement examination. Students should concurrently enroll in and may (10-15 count for general education credit, both CHEM 110 and 111 must be passed.)

CHEM 111 General Chemistry Laboratory I 1 hr.
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. Corequisite: CHEM 110 (unless successfully completed in a prior term) or applicable transfer credit. (To count for general education credit, both CHEM 110 and 111 must be passed.)

CHEM 112 General Chemistry II 3 hrs. 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. Corequisites: CHEM 110 and 111.

CHEM 113 General Chemistry Laboratory II 1 hr. The companion laboratory course to CHEM 112. Corequisite: CHEM 112 (unless successfully completed in a prior term).

CHEM 151 Chemistry for Health Professionals I 3 hrs. 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. Corequisite: CHEM 152 (unless successfully completed in a previous semester).

CHEM 152 Chemistry for Health Professionals II 1 hr. This laboratory course is designed to complement CHEM 151. Corequisite: CHEM 151 (unless CHEM 151 has previously been successfully completed).

CHEM 153 Chemistry for Health Professionals II 3 hrs. 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 majors as described in CHEM 151 and 152. Corequisite: CHEM 154 (unless successfully completed in a prior term).

CHEM 154 Chemistry for Health Professionals II Lab 1 hr. This is the laboratory course which should be taken concurrently with CHEM 153. Corequisites: CHEM 151 and 152. Corequisite: CHEM 153 (unless successfully completed in a prior term).

CHEM 190 Chemistry in Society 3 hrs. This course provides an overview of fundamental chemical principles so that the impact of chemistry on topics of importance to society may be discussed. These topics may include such areas as chemistry of the environment (air and water), radioactivity, energy sources, pharmaceuticals, household products, plastics, and food chemistry. Credit does not apply for a major or minor in chemistry. Prerequisites: MATH 110. Corequisite: CHEM 191 (unless successfully completed in a prior term). (To count for general education credit, both CHEM 190 and 191 must be passed.)

CHEM 191 Chemistry in Society Laboratory 1 hr. This is the laboratory portion of CHEM 190 which must be taken concurrently with or after passing CHEM 190. Prerequisite: MATH 110. Corequisite: CHEM 190. (To count for general education credit, both CHEM 190 and 191 must be passed.)

CHEM 200 Chemical Science in Elementary Education 4 hrs. Winter This course is designed to help students understand the chemical nature of the world around them and how the behavior of things depends on chemical makeup and physical conditions. Demonstrations and experiments will show how these ideas can be made meaningful to students in the context of everyday experiences and commonly encountered materials. Credit does not apply for a major or minor in chemistry.

CHEM 225 Quantitative Analysis 3 hrs. Fall, Winter This course includes the theory, techniques, and calculations of quantitative analysis. Instrumental techniques are used to supplement classical analytical procedures in the laboratory. Corequisites: CHEM 112 and 113. Corequisite: CHEM 226 (unless successfully completed in a prior term).

CHEM 226 Quantitative Analysis Laboratory 1 hr. This is the laboratory course which should be taken concurrently with CHEM 225. Prerequisite: CHEM 112 and 113. Corequisite: CHEM 226 (unless successfully completed in a prior term).

CHEM 350 Biochemistry for Physician's Assistant 3 hrs. This course emphasizes those aspects of biochemistry that are required for an understanding of physiology and pharmacology. The focus includes metabolism, bioenergetics, pH control systems, oxygen transport, carbon dioxide transport and some aspects of nutrition, disease and hormone action. Prerequisite: PA Curriculum and CHEM 370 and CHEM 371 or CHEM 377 and CHEM 378.

CHEM 355 Introductory Biochemistry 3 hrs. Winter A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Prerequisites: CHEM 370 AND CHEM 371, or CHEM 377 and CHEM 378.

CHEM 356 Introductory Biochemistry Laboratory 1 hr. Basic biochemistry laboratory techniques. Use of instrumentation for bioanalytical determinations. Prerequisite or corequisite: CHEM 355 or CHEM 550.

CHEM 370 Introduction to Organic Chemistry 3 hrs. Fall, Winter 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. Prerequisites: CHEM 112 and 113. Credit may not be received for both CHEM 370 and 377. CHEM 370 is not a satisfactory prerequisite for CHEM 377. It is strongly recommended that students take CHEM 371 concurrently. CHEM 371 Introduction to Organic Chemistry Lab 1 hr. This course is the laboratory to accompany CHEM 370 and should be taken concurrently with CHEM 370. Prerequisites: CHEM 112 and 113. Corequisite: CHEM 370.

CHEM 375 Organic Chemistry I 3 hrs. Fall, Winter 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. Prerequisites: CHEM 112 and 113. It is strongly recommended that students take CHEM 376 concurrently.

CHEM 376 Organic Chemistry Lab I 1 hr. This course is the laboratory to accompany CHEM 375. Should be taken concurrently with CHEM 375. Prerequisites: CHEM 112 and 113. Corequisite: CHEM 375.

CHEM 377 Organic Chemistry II 3 hrs. Fall, Winter This course is the continuation of CHEM 375. Prerequisites: CHEM 375 and 376. It is strongly recommended that students take CHEM 376 concurrently.

CHEM 378 Organic Chemistry Lab II 1 hr. This course is the laboratory to accompany CHEM 377. Should be taken concurrently with CHEM 377. Prerequisites: CHEM 375, CHEM 376. Corequisite: CHEM 377.

CHEM 390 Special Problems in Chemistry 2 hrs. Fall, Winter This course is designed to give students who 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. Prerequisite: 18 hours of chemistry, with approval of the department chairperson and a faculty director.

CHEM 404 Teaching of Secondary Science 3 hrs. 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. Cross-listed with SCI 404. Prerequisites: 15 hours of science in a certifiable science discipline and ED 302 which may be taken concurrently.

CHEM 430 Physical Chemistry I 3 hrs. Fall Lectures on kinetic theory of gases, thermodynamics, phase rule, equilibria, electrochemistry; quantum mechanics, statistical mechanics, chemical kinetics and mechanisms, transport properties, surface chemistry. Prerequisites: PHYS 205, 206, 207, 208, MATH 272; CHEM 112 and 113.

CHEM 431 Physical Chemistry II 3 hrs. Winter A continuation of CHEM 430. Prerequisite: CHEM 430.

CHEM 436 Physical Chemistry Laboratory I 2 hrs. Fall, Winter 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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CHEM 225 and 226, and 430.

CHEM 437 Physical Chemistry Laboratory II 1 hr.
Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 431. This course expands on the qualitative and quantitative interpretation or physical and chemical measurement skills introduced in CHEM 436. Prerequisites: CHEM 431, may be taken concurrently, CHEM 436, concurrent enrollment strongly discouraged.

CHEM 495 Co-op/Internship 1–4 hrs.
Research or practical training experience outside the department or university. This work is to be summarized in a written report. Students may take up to a maximum of six credit hours in CHEM 495. Consent of the instructor will be required so that students can be matched appropriately with employers according to the course work they have completed.

Undergraduates with junior status and 12 hours of work in chemistry may enroll in 500-level courses with prior approval of the department chair.

CHEM 505 Chemical Literature 2 hrs. Fall
An introduction to the use of the various types of chemical literature such as journals, abstracts, monographs, government, and institutional publications and patents. Both manual and computer search techniques are employed in the course of completing assigned problems involving literature searches in analytical, inorganic, biological, organic, and physical chemistry fields. Prerequisite: 23 hours of chemistry.

CHEM 506 Chemical Laboratory Safety 1 hr. Fall
A study of toxic, corrosive, flammable, explosive, electrical, mechanical, thermal, and radiant energy hazards frequently encountered in chemical laboratory work. Emphasis is placed on precautionary methods to avoid damaging accidents and emergency procedures to apply when accidents occur. Prerequisite: 24 hours of chemistry.

CHEM 509 Topics in Chemistry 3 hrs.
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. Prerequisite: 16 hours of chemistry.

CHEM 515 Inorganic Chemistry 3 hrs. Winter
The course, along with CHEM 570 and 575, 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. Students are strongly advised to have already completed CHEM 570 and be coregistered in CHEM 575. Prerequisite: CHEM 431 or permission of the instructor.

CHEM 520 Instrumental Methods in Chemistry 3 hrs. Fall
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. Prerequisite or co-requisite: CHEM 431, 436.

CHEM 525 Techniques in Water Analysis 2 hrs.
Analytical techniques and methodology commonly used to determine water quality are presented. Modern instrumental methods are stressed with particular emphasis on spectrophotometric and chromatographic measurements. Laboratory provides practical experience in application of principles discussed in lecture. This course is not available to Chemistry majors. Prerequisites: CHEM 370 and 371 or 377 and 378

CHEM 528 Chemical Separations 3 hrs.
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. Prerequisite: CHEM 377.

CHEM 550 Biochemistry I 3 hrs. Fall
The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids, enzymes and biochemical energetics. Prerequisites: CHEM 377, CHEM 378, and CHEM 430.

CHEM 552 Biochemistry I with Laboratory 4 hrs. Fall
This course consists of CHEM 550 plus laboratory. Experiments involve more advanced techniques and instrumentation than in CHEM 356. Emphasis will be on purification and properties of proteins and nucleic acids. Prerequisites: CHEM 377, CHEM 378, and CHEM 430.

CHEM 554 Biochemistry II 3 hrs. Winter
Continuation of CHEM 550. Chemistry and metabolism of carbohydrates and lipids. Metabolism of amino acids and photosynthesis. Prerequisite: CHEM 550 or 552.

CHEM 558 Toxicology 3 hrs. Fall
Through a lecture/discussion format, the means by which toxicants exert their effects on mammalian, aquatic and ecological systems will be explored. Topics will include bioaccumulation, distribution and excretion of chemicals in the body, the role of metabolism in enhancing or reducing toxicity, mechanisms of toxicity and the effects of toxicants on the major organ systems. Chemodynamic processes which control exposure of organisms will be presented in the context of risk assessment and the problems inherent in predicting and quantifying risks will be discussed. This course is cross-listed with BIOS 560. Prerequisites: BIOS 350, and chemistry through biochemistry or permission of instructor.

CHEM 570 Advanced Organic Chemistry and Spectroscopy 3 hrs. Fall
This course, along with CHEM 515 and 575, 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. Prerequisites: CHEM 377, 378, 431 and 24 hours of chemistry.
Communication is the principal mode for establishing and maintaining human relationships. It consists of those processes 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 Department of Communication is dedicated to meeting the personal and professional communication objectives of our students. Eight major areas of concentration are available: Broadcast and Cable Production (BCP); Communication Studies (COS); Interpersonal Communication (IPC); Journalism (JNL); Media Studies (MDS); Organizational Communication (OCM); Public Relations (PUR); and Telecommunications Management (TCM). These major areas of concentration reflect the primary divisions in the discipline, with required courses to insure 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.

Three minors—Minor in Communication, Minor in Secondary Education Communication, and Minor in Journalism—are also offered.

Communication majors and minors may choose to participate in the American Humane certificate program. This program is designed to prepare students for leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major and minor that meet the American Humane competency requirements, by taking the required American Humane courses, and by meeting the American Humane extra-curricular requirements. For details, please see the American Humane description in the College of Arts and Sciences Interdisciplinary Programs section of this catalog. Details are also available from the Communication undergraduate advisor and from the American Humane director.

The study of communication is important to virtually every profession that involves working with people, making an excellent major, minor, or cognate for communication-related jobs in education, business, government agencies, health care professions, social services, industry, and other public and private organizations. Communication is central to positions in public relations, corporate communication, public information management, employee communication, training and development, and radio, television, and film.

Excellent production training facilities and professional curricular programs in television and film provide both the background knowledge and training for positions in mass media production, performance and management.

The department 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, video-taping of special events, film-making, 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 a departmental advisor at the earliest possible date. Call the advising office at 387-2974 for advising hours. A Handbook for Majors and Minors in Communication, which describes career opportunities and suggested programs of study in communication, is available free of charge from the department office.

Pre-Communication Major

Students planning to major in any area of communication, with the exception of Journalism, will be admitted as a pre-communication student, PCM, and will work with a communication advisor in the development of a planned program. This status, however, does not guarantee admission to a communication major, since more students apply for admission than can be accepted. A student's application for admission as a major will be considered when:

1. The student has completed 30 hours of college work, at least 15 hours of which are at Western Michigan University.
2. The student has completed the pre-communication course requirements with a grade of C or better in such courses. These requirements include COM 170 and COM 200, plus one additional course.
3. Admission of students on a probationary basis to the pre-communication requirement is possible. Admission requirements for submission of the application are September 15, January 15, and May 15. Applications and additional information may be obtained from the department office, 301 Sprau Tower.

Students not meeting admission requirements will be informed of steps they can take to earn admission. Admission of students on a probationary basis to the communication major will be considered on an individual basis.

General Program Requirements

1. All major/minor programs must be approved by a departmental advisor. Admission to a major in communication, with the exception of Journalism, will be considered by a departmental advisor following completion of the PCM requirement. Declaration of a minor in communication must be made with a departmental advisor before the
BACCALAUREATE WRITING REQUIREMENT
Students who have chosen to major in any of the Communication areas, with the exception of Journalism, will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
COM 335 Leadership
COM 350 Public Relations and Organizations
COM 358 TV and Film Scripting
COM 359 Broadcast Journalism
COM 370 Interpersonal Communication II
COM 372 Introduction to General Semantics
COM 441 Documentary in Film and Television
COM 448 Telecommunications Management
COM 450 Public Relations Program Development

TRANSFER STUDENTS
Transfer students are permitted to transfer as many as 12 semester credit hours for a major and 9 hours for a minor in communication, with the exception of the Journalism major. Up to 20 hours of transfer credit may be accepted toward the Journalism major; up to 12 hours toward the minor.

BROADCAST AND CABLE PRODUCTION (BCP) MAJOR
36 hours
1. Pre-Mass Communication Requirements .......................... 9 hrs.
COM 170 Interpersonal Communication I .......................... 3
COM 200 Introduction to Communication Theory ......................... 3
One of the following is required before declaring major:
COM 241 Film Communication ................................ 3
COM 256 Broadcast Operations ................................ 3
2. Broadcast and Cable Production Core Requirements ................ 12 hrs.
A. All of these courses are required. One must be taken prior to admission to the major: (9 hrs.):
COM 240 Introduction to Media and Telecommunications .............. 3
COM 241 Film Communication .................................. 3
COM 256 Broadcast Operations ................................ 3
B. Select one, in consultation with an advisor (3 hrs.):
COM 104 Public Speaking ........................................ 3
COM 106 Voice and Diction ........................................ 3
COM 210 Performance of Literature ................................ 3
3. Upper-level Broadcast and Cable Production Requirements. One course from each of the following groups is required, selected in consultation with an advisor .... 18 hrs.
A. Select one of the following courses (3 hrs.):
COM 355 Small Format Video Production .................................. 3
COM 356 Film Production ........................................ 3
B. Select one of the following courses (3 hrs.):
COM 257 Radio Programming and Production ......................... 3
COM 357 TV Studio Production .................................. 3
COM 458 TV Performance ........................................ 3
C. Select one of the following courses (3 hrs.):
COM 447 Organizational TV Production .................................. 3
COM 447 Advanced TV Production .................................. 3
D. Select one of the following courses (3 hrs.):
*COM 358 TV/Film Scripting ....................................... 3
*COM 359 Broadcast Journalism ..................................... 3
E. Select two of the following courses (6 hrs.):
**COM 305 Special Topics in Communication ......................... 3
COM 307 Freedom of Expression ................................... 3
COM 342 The Film Industry (Prereq. COM 343 American Film History) ............. 3
COM 441 Documentary in Film/TV ................................ 3
COM 442 Mass Media and the Child ................................ 3
COM 443 Mass Communication/ Social Change ......................... 3
COM 444 Mass Communication/ News/Public Affairs ................. 3
COM 445 Media Criticism .......................................... 3
COM 446 Mass Entertainment ....................................... 3
*COM 448 Telecommunications Management .......................... 3
COM 477 Communication Ethics ..................................... 3
COM 499 Internship .................................................. 3
*COM 541 Telecommunications Law and Policy .......................... 3
COM 551 Methods of Media Analysis ................................ 3

All course prerequisites must be met in upper-level courses. Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major.
Baccalaureate-level Writing Requirement must be met by taking one of the courses marked with an asterisk (*).
**Requires approval by an advisor of a specific topic.

COMMUNICATION STUDIES (COS) MAJOR
36 hours
1. Pre-Communication Requirements ................................ 9 hrs.
COM 200 Introduction to Communication Theory ......................... 3
COM 201 Communication Inquiry .................................... 3
2. Communication Core Requirements ................................ 3 hrs.
COM 104 Public Speaking ........................................ 3
A. Both of these courses are required (6 hrs.)
COM 332 Group Problem Solving ................................... 3
COM 370 Interpersonal Communication II .......................... 3
B. Select three of the following courses (9 hrs.):
**COM 305 Special Topics in Communication ......................... 1-4
COM 332 Group Problem Solving ................................... 3
COM 334 Argumentation and Debate .................................. 3
*COM 370 Interpersonal Communication II ......................... 3

INTERPERSONAL COMMUNICATION (IPC) MAJOR
36 hours
1. Pre-Communication Requirements ................................ 9 hrs.
COM 170 Interpersonal Communication I .......................... 3
COM 200 Introduction to Communication Theory ......................... 3
COM 201 Communication Inquiry .................................... 3
2. Communication Core Requirements ................................ 3 hrs.
COM 104 Public Speaking ........................................ 3
A. Both of these courses are required (6 hrs.)
COM 332 Group Problem Solving ................................... 3
COM 370 Interpersonal Communication II .......................... 3
B. Select three of the following courses (9 hrs.):
**COM 305 Special Topics in Communication ......................... 1-4
COM 307 Freedom of Expression ................................... 3
COM 372 Introduction to General Semantics .......................... 3
COM 430 Studies in Attitude Change ................................ 3
JOURNALISM MAJOR (JNL)

37 hours

1. Required Entry-level Courses (7 hrs.)
   - ENGL 110 Literary Interpretation 4
   - COM 200 Introduction to Communication Theory 3

2. Required Journalism Core Courses (16 hrs.)
   - JRN 102 Introduction to Newswriting 4
   - JRN 200 Journalism Research 4
   - JRN 300 Newswriting and Reporting 4
   - JRN 301 Copy and Content Editing 4

3. Advanced Journalism (4 hrs.)
   - JRN 400 Reporting Public Affairs 4

4. Electives (6-8 hrs.)
   - JRN 401 Electronic Editing 3
   - ENGL 362 Literary Journalism 3
   - ENGL 364 Feature and Article Writing 3
   - ENGL 365 Reviewing for the Press 3
   - ENGL 462 Advanced Writing 4
   - ENGL 464 Professional Writing 4
   - COM 240 Introduction to Media and Telecommunications 3
   - COM 359 Broadcast Journalism 3
   - COM 441 Documentary in Film and Television 3
   - COM 444 Mass Communication, News and Public Affairs 3
   - COM 445 Telecommunications 3
   - COM 477 Communication Ethics 3
   - COM 541 Telecommunications Law and Policy 3

5. Capstone Experience (3 hrs.)
   - *JRN 420 Obligations of Contemporary American Journalism 3

6. Internship (1 hr.)
   - ENGL 495 Internship/Fieldwork 1
   - Minimum of 65 credit hours in College of Arts and Sciences courses not including courses in journalism or mass communication. These 65 credits must include at least one course in American Literature (ENGL 222, ENGL 320, or ENGL 321), at least one in history, and at least one in political science.

Baccalaureate-level Writing Requirement marked with an asterisk (*).

**Requires approval by an advisor of a specific topic.

MEDI A STUDIES (MDS) MAJOR

36 hours

1. Pre-Communication Requirements 9 hrs.
   - COM 170 Interpersonal Communication I 3
   - COM 200 Introduction to Communication Theory 3
   - COM 201 Communication Inquiry 3

2. Communication Core Requirements 6 hrs.
   - COM 104 Public Speaking 3
   - COM 280 Introduction to Organizational Communication 3

3. Upper-level Organizational Communication Electives 15 hrs.
   - *COM 335 Leadership 3
   - *COM 480 Applied Topics in Organizational Communication 3

B. Select three of the following courses (9 hrs.):
   - **COM 305 Special Topics in Communication 1-4
   - COM 307 Freedom of Expression 3
   - COM 332 Group Problem Solving 3
   - *COM 350 Public Relations and Organizations 3
   - **COM 372 Introduction to General Semantics 3
   - COM 430 Studies in Attitude Change 3
   - COM 432 Group Communication Theory 3
   - COM 440 Public Relations Case Studies 3
   - COM 447 Organizational TV Production 3
   - **COM 450 Public Relations Program Development 3
   - COM 474 Intercultural Communication 3
   - COM 477 Communication Ethics 3
   - COM 479 Female/Male Interaction 3
   - COM 483 Interviewing 3

4. Organizational Communication Electives 6 hrs.
   - Six hours of electives in communication, three of which may be selected from any courses offered by the department and three hours selected from upper-division (300 or higher) courses in the department.

PUBLIC RELATIONS (PUR) MAJOR

49-50 hours

1. Pre-Communication Requirements 6 hrs.
   - COM 170 Interpersonal Communication I 3
   - COM 280 Introduction to Organizational Communication 3

2. Public Relations core requirements 30 hrs.
   - *COM 350 Public Relations and Organizations 3
   - COM 440 Public Relations Case Studies 3
   - **COM 450 Public Relations Program Development 3
B. Select one of the following (3 hrs.):

- COM 357 Television Production 3

C. Select one of the following (3 hrs.):

- COM 448 Telecommunications Management 3

D. Select two of the following (6 hrs.):

- COM 256 Broadcast Operations 3
- COM 257 Radio Programming and Production 3
- COM 355 Small Format Video Production 3
- COM 356 Film Production 3
- COM 357 Television Studio Production 3
- COM 447 Organizational TV Production 3
- COM 458 Television Performance 3

E. Select two of the following (6 hrs.):

- COM 240 Introduction to Media and Telecommunications 3
- COM 443 Media Theory and Social Change 3
- COM 444 Mass Communication, News and Public Affairs 3

3. Cognate Course Requirements 13-14 hrs.

A. These courses are required (7 hrs.):

- PAPR 150 Fundamentals of Graphic Arts 3
- JRN 102 Introduction to News Writing 4

B. Select one of the following (3 hrs.):

- PAPR 251 Design and Electronic Publishing 3
- COM 454 Interactive Media 3
- COM 499 Internship 3

C. Select one of the following (3-4 hrs.):

- JRN 200 Journalism Research 4
- ENGL 364 Feature/Article Writing 3

Recommended minors include: Journalism, General Business, Marketing, Management, and Public Administration. Recommended majors include: Public Administration, Advertising, Environmental Studies, and Travel and Tourism.

All course prerequisites must be met to enroll in upper-level courses. Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major.

*Baccalaureate-level Writing Requirement must be met by taking one of the courses marked with an asterisk (*).

TELECOMMUNICATIONS MANAGEMENT (TCM) MAJOR

36 hours

1. Pre-Communication Requirements (9 hrs.):

- COM 170 Interpersonal Communication I 3
- COM 200 Introduction to Communication Theory 3
- COM 240 Introduction to Media and Telecommunications 3

2. Upper-level Telecommunications Management Requirements (15 hrs.):

A. All of these courses are required (12 hrs.):

- COM 448 Telecommunications Management 3
- COM 456 Broadcast and Cable Programming 3
- COM 541 Telecommunications Law and Policy 3
- COM 554 Communication Technology 3

B. Select one of the following courses: (3 hrs.):

- COM 452 Broadcast and Cable Sales 3
- COM 454 Interactive Media 3
- COM 506 Special Topics in Telecommunications 3

3. Communication Electives 12 hrs.

- Select one course from each of the three area clusters, plus an additional 3 hrs.

A. Critical Communication Theory — Select one course (3 hrs.):

- COM 305 Special Topics in Telecommunications 3
- COM 307 Freedom of Expression 3
- COM 442 Mass Media and the Child 3
- COM 443 Media Theory/Social Change 3
- COM 444 Mass Communication/News/Public Affairs 3
- COM 446 Mass Entertainment 3
- COM 477 Communication Ethics 3
- COM 551 Methods of Media Analysis 3

B. Telecommunications — Select one course (3 hrs.):

- COM 256 Broadcast Operations 3
- COM 342 The Film Industry 3
- **COM 452 Broadcast and Cable Sales 3**
- **COM 454 Interactive Media 3**
- **COM 455 International Telecommunications Policy 3**
- **COM 506 B Satellite and Wireless Telecommunications 3**
- COM 564 Telecommunications Networks 3

C. Organizational Theory and Practice — Select one course (3 hrs.):

- COM 104 Public Speaking 3
- COM 280 Introduction to Organizational Communication 3
- COM 332 Group Problem Solving 3
- **COM 335 Leadership 3**
- **COM 350 Public Relations and Organizations 3**
- COM 440 Public Relations Case Studies 3
- COM 447 Organizational TV Production 3
- COM 499 Internship 3

Both COM 104 and COM 256 cannot be taken for the major.

All course prerequisites must be met to enroll in upper-level courses. Grade requirement: A minimum grade of "C" is required in all courses to be applied toward the major.

*Baccalaureate-level Writing Requirement must be met by taking one of the courses marked with an asterisk (*).

COMMUNICATION MINOR

21 hours

A communication minor requires 21 semester hours of COM, including COM 170, COM 200 and 15 additional elective hours to be chosen in consultation with the appropriate advisors of the department. Nine of these hours must be taken at the 300-500 level.

SECONDARY EDUCATION MINOR IN COMMUNICATION

21 hours

REQUIREMENTS

- COM 104 Public Speaking 3 hrs.
- COM 170 Interpersonal Communication I 3 hrs.

JOURNALISM MINOR

20 hours

1. Required Entry-Level Courses (7 hrs.):

- ENGL 110 Literary Interpretation 4
- COM 200 Introduction to Communication Theory 3

2. Required Journalism Core Courses (12 hrs.):

- JRN 102 Introduction to News Writing 4
- JRN 200 Journalism Research 4
- JRN 300 Newswriting and Reporting 4

3. Journalism Law and Ethics (3 hrs.):

- JRN 420 Obligations of Contemporary American Journalism 3

Communication Courses (COM)

A list of approved General Education courses can be found in “Graduation Requirements and Academic Advising” earlier in this catalog.

COM 104 Public Speaking 3 hrs.

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. $10.00 lab fee.

COM 106 Voice and Diction 3 hrs.

Individual improvement program emphasizing voice production and diction.

COM 170 Interpersonal Communication 3 hrs.

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.

COM 200 Introduction to Communication Theory 3 hrs.

A study of communication models and theories which are common to the fields of interpersonal, group, organizational, public and mass communication.

COM 201 Communication Inquiry 3 hrs.

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. $10.00 lab fee.

COM 200 Introduction to Communication Theory 3 hrs.

A study of communication models and theories which are common to the fields of interpersonal, group, organizational, public and mass communication.

COM 201 Communication Inquiry 3 hrs.

This course introduces students to the humanistic and social science traditions of inquiry into human communication.
The examination of intrapersonal communication models showing how imagery and symbolic processes organize patterns of thinking that permit self-direction and regulation.

COM 210 Performance of Literature I 3 hrs.
Emphasis is placed on developing the student's appreciation of literature and his/her skill in analysis and performance of prose, poetry, and drama, including an introduction to group performance of literature. $10.00 lab fee.

COM 240 Introduction to Media and Telecommunications 3 hrs.
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.

COM 241 Film Communication 3 hrs.
An introduction to the unique language and elements of the film medium through the study of outstanding examples of historical and contemporary experimental, documentary and feature films. $12 lab fee.

COM 256 Broadcast Operations 3 hrs.
Introduction to the electronic theory, equipment, operating procedures and personnel involved in radio/television production, storage and distribution.

COM 257 Radio Programming and Production 3 hrs.
Analysis of sound as a creative element in radio broadcasting and production. Studio experience in writing and producing radio formats, commercials, drama, documentary and other messages. $25 lab fee. Prerequisite: COM 200, COM 256.

COM 280 Introduction to Organizational Communication 3 hrs.
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 200.

COM 305 Special Topics in Communication 1-4 hrs.
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 Departmental office, 301 Sprau Tower. Specific topic must be approved by an advisor. Six hours of COM 305 may be accumulated as credit toward a major or minor in communication.

COM 307 Freedom of Expression 3 hrs.
The traditions and justifications for freedom of expression are explored and applied to contemporary challenges facing interpersonal, organizational, and mass mediated communication. Beginning with the historical roots of free speech rights, students will trace the rise of the "modern" First Amendment through an analysis of court decisions. Topics to be investigated include free expression on the Internet and in the mass media, hate speech, campus speech codes, sexual harassment, free speech in the workplace, international differences in speech rights, and other topical free speech issues. Prerequisite: COM 505 or consent of instructor.

COM 332 Group Problem Solving 3 hrs.
This course examines principles and procedures of effective group communication with an emphasis on the practical application of problem solving, decision making, and critical thinking skills. Individuals will work together in a variety of group situations learning to communicate effectively, plan agendas, make decisions, write and present group reports, and analyze group communication behaviors. $10.00 lab fee. Prerequisites: COM 170, COM 200 and ENGL 105 or the equivalent.

COM 334 Argumentation and Debate 3 hrs.
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. Debate is taught as a process of inquiry and advocacy. Prerequisites: COM 200, COM 256.

COM 335 Leadership 3 hrs.
A study of the characteristics and behaviors of leaders with emphasis on the development of leadership abilities in the individual for different group situations. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: COM 170, COM 200, and ENGL 105 or the equivalent.

COM 342 The Film Industry 3 hrs.
The history and development of the American film medium from an economic, social, and cultural perspective. Emphasis will be on methods of production, distribution, exhibition, and legal issues. Prerequisite: COM 241.

COM 343 American Film History 3 hrs.
This course will survey 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. $12.00 lab fee. Prerequisite: COM 241.

COM 350 Public Relations and Organizations 3 hrs.
The course will examine 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. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: COM 200 or consent of instructor.

COM 355 Small Format Video Production 3 hrs.
Practical experience in the design, production, implementation and evaluation of small-format television programs. Applications of portable video technology to the broadcast industry and community cable television systems will be explored. $25 lab fee. Prerequisite: COM 200, COM 256.

COM 356 Film Production 3 hrs.
Production of short experimental films; scripting, planning, editing, directing and photography. Work in this course will be done within the limitations of 8 mm format. In addition to text materials, students must provide supplies averaging about $30.00 per student. $25 lab fee. Prerequisite: COM 200, COM 241.

COM 357 TV Studio Production 3 hrs.
Explores the elements of television studio production and directing. Studio experience in equipment operation, crew roles, and producing and directing various types of television studio formats. In addition to the texts, students must provide supplies averaging about $10. $20 lab fee. Prerequisite: COM 200, COM 256.

COM 358 TV and Film Scripting 3 hrs.
The styles and techniques of film and television scripting for broadcast formats, station continuity, commercials, dramatic scripts, small format video, and documentary. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.

COM 359 Broadcast Journalism 3 hrs.
Radio and TV as news and information media. Studies and applies principles of news gathering and reporting, commentary, on-the-spot news coverage, features, and structure of the newscast. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. $10.00 lab fee.

COM 370 Interpersonal Communication II 3 hrs.
An analysis of relational communication with particular emphasis on the nature of transactional relationships. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: COM 170, COM 200 or consent of instructor, and ENGL 105 or the equivalent.

COM 372 Introduction to General Semantics 3 hrs.
A study of the function of language. The course deals with the nature and meaning of symbols and differences between the communication systems of the human animal and other species. Examines the assumptions held by Western man about the structure/function of his universe as reflected in language, the problem of "reality" as distinct from "meaning." The purpose of the course is to increase the student's awareness of his/her effectiveness as a thinker or symbol-user. This
course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ENGL 105 or the equivalent.

COM 398 Independent Study Communication 1-6 hrs.

Designed to allow outstanding students to work independently under staff supervision. Communication. One to six hours credit may be accumulated. Prerequisite: Consent, Chair of Department.

COM 430 Studies in Attitude Change: Variable Topics 3 hrs.

Selected areas of detailed study within the total range of rhetoric. Each of the courses listed below carries separate credit, and a student may take any or all of the offerings listed under COM 430. In addition to the topics listed, additional topics are offered from time to time and will be listed in the Schedule of Classes.

1. Freewriting
2. Political Communication

COM 432 Group Communication Theory 3 hrs.

A study of small group communication from theoretical perspectives. The emphasis will be on analyzing small group communication based on an understanding of group communication theories, concepts, and research methods. Prerequisite: COM 332.

COM 440 Public Relations Case Studies 3 hrs.

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, legitimation, defense, and crisis management. Prerequisite: COM 350.

COM 441 Documentary in Film and Television 3 hrs.

A study of documentary philosophies, strategies, and accomplishments through an examination of important documentarians, movements, and films. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. $12.00 lab fee. Prerequisite: COM 241.

COM 442 Mass Media and the Child 3 hrs.

Assesses the impact that mass media, including radio, television, films, comics, and other media, may be having on the minds and behaviors of children.

COM 443 Media Theory and Social Change 3 hrs.

The course examines the role of the mass media in diffusing information and persuasive messages, and the effects of these messages on individuals, groups and institutions. The fields of politics, advertising, and public relations are studied from the communication/change viewpoint of the practitioner and the consumer.


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.

COM 445 Media Criticism 3 hrs.

Examines the various functions and writings of contemporary media critics and establishes criteria for evaluating media content and critical methods. Students will read, view, and listen to a variety of media content, including television and radio programs, newspaper and magazine articles, advertisements, films, documentaries, and Web pages.

COM 446 Mass Entertainment 3 hrs.

This course examines the role and function of mass entertainment in modern society. Major topics include mass entertainment as part of leisure; the social and psychological functions of mass entertainment; measuring mass taste; and in-depth study of popular mass media formats such as soap operas, detective, western, popular music, etc.

COM 447 Organizational TV Production 3 hrs.

Applications of radio and TV technology for the business professional, educator, media specialist, and the clinician. Utilization of electronic media for training, research observation and instruction. In addition to required text materials, students must provide supplies averaging about $10 per student. $20 lab fee. Prerequisite: COM 200, COM 256.

COM 448 Telecommunications Management 3 hrs.

The course examines broadcasting, telephone, cable, and other new communication technologies, with a primary emphasis on principles of telecommunication management, economics, and policy. The course is supplemented with a series of case studies and discussions pertaining to select management issues. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Junior or senior standing, COM 200 and COM 240, or graduate standing.

COM 450 Public Relations Program Development 3 hrs.

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. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: COM 200, COM 350.

COM 452 Broadcast and Cable Sales 3 hrs.

This course examines the theory and process of buying and selling broadcast and cable time on the local and network levels. Prerequisite: COM 240.

COM 454 Interactive Media 3 hrs.

The course is designed to investigate the psychological and social effects of on-line interactive communication technologies in the interpersonal, organizational, and social contexts. It also proposes to develop on-line communication and information retrieval skills, and guide students through non-linear organization of information and hypertext design of communication on the Web. Prerequisite: CS 105 or equivalent.

COM 455 International Telecommunications 3 hrs.

This course is designed to provide the student with an overview of the essential regulatory and policy issues governing the field of international telecommunications. Special attention is given to the major regulatory agencies and economic players responsible for the formation of telecommunications policy at the international level.

COM 456 Broadcast/Cable Programming 3 hrs.

This course examines the strategies of selecting, purchasing, and scheduling broadcast and cable programming on the local and network levels. $10 lab fee. Prerequisite: COM 240.

COM 457 Advanced TV Studio Production 3 hrs.

Individual and group projects in the development and production of television programs stressing experimental techniques, $20 lab fee. Prerequisite: COM 200, COM 357.

COM 458 Television Performance 3 hrs.

Exercises in television performance, stressing the special problems of the video performer. $15 lab fee. Prerequisite: Consent of instructor.

COM 470 Communication, Social Issues and Change 3 hrs.

A study and practical application of communication and rhetorical methodology in contemporary social problems.

COM 472 Nonverbal Communication 3 hrs.

This 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 our 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.

COM 474 Intercultural Communication 3 hrs.

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.

COM 475 Family Communication 3 hrs.

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.

COM 477 Communication Ethics 3 hrs.

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.

COM 479 Female/Male Interaction 3 hrs.

Studies 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.

COM 480 Applied Topics in Organizational Communication 3 hrs.

This course will enable students to master knowledge and skills in an applied specialty context.
COM 505 Special Topics in Communication may be offered in an accelerated format. This course may be offered in an accelerated format. Emphasis is placed on the perspective of the interviewer rather than interviewee. $10.00 lab fee.

COM 483 Interviewing 3 hrs. Theories and principles of planning, conducting, and evaluating interviews are studied and applied to specific interview types, including selection, preparation, appraisal, survey, and journalistic interviews. Emphasis is placed on the perspective of the interviewer rather than interviewee. $10.00 lab fee.

COM 484 Health Communication 3 hrs. 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.

COM 499 Internship 1–3 hrs. This internship for academic credit is available only to those students who meet departmental requirements of prerequisite courses and grade point average. Specific requirements for various types of internships are described in the departmental undergraduate handbook, available in Sprau Tower or from an undergraduate advisor.

Undergraduates with junior or senior status and 15 hours of COM or related courses may enroll in 500-level courses with prior approval of advisor and/or instructor.

COM 505 Special Topics in Communication 1–3 hrs. Advanced group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of the 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 Department office, 301 Sprau Tower. Six hours of COM 305 and COM 505 approved by an advisor may be accumulated as credit toward a major or minor in communication.

COM 506 Special Topics in Telecommunications 3 hrs. Study of special topics in telecommunications management, law and policy, and technology. Prerequisites: COM 240 and junior or senior standing; or graduate standing.

COM 514 Telecommunications Law and Policy 3 hrs. Provides an overview of the essential regulatory and policy issues governing the field of telecommunications. Special attention is given to such topics as libel, privacy, access and right to reply, and copyright. A case study approach is used for the purpose of understanding legal precedent. Prerequisite: Junior or senior standing and COM 200; or graduate standing.

COM 551 Methods of Media Analysis 3 hrs. An investigation of the approaches to media analysis (auteurist, intentionalist, social and psychological) by intensive "reading" and shot sequence examination and evaluation of widely divergent works. $12.00 lab fee. Prerequisite: Junior or senior standing and COM 241 or COM 356; or graduate standing.

COM 554 Communication Technology 3 hrs. This course provides an overview of telecommunications technology and services. The course is intended for the manager who requires a "practical" understanding of the design and performance characteristics of such telecommunication technology as satellite, optical fiber, PBX, and cellular telephone communications. In addition this course will include an appropriate measure of economic, regulatory, and policy issues as they pertain to the development of new and enhanced telecommunication services. Prerequisite: Junior or senior standing and COM 240; or graduate standing.

COM 564 Telecommunications Networks 3 hrs. This course provides an overview of telecommunications networking technologies, standards, and protocols. Network configurations, switching technologies and signaling standards, such as voice and data communications networks, corporate networks, and advanced intelligent networks are major sections of the course. Prerequisite: Junior or Senior standing and COM 240, or Graduate standing.

Journalism Courses (JRN)

JRN 102 Introduction to Newswriting 4 hrs. This course offers an introduction to fundamental journalistic principles and provides extensive practice in writing for newspapers. It focuses on developing basic news writing skills, practice in grammar, punctuation, syntax and usage, and conventions of written English and knowledge of news writing organization, structure and Associated Press style. While the focus is on writing for newspapers, the techniques studied provide a good foundation for students interested in broadcast newswriting. Prerequisite: A grade of "B" or better in ENGL 105 or the equivalent.

JRN 200 Journalism Research 4 hrs. This course focuses on gathering, selecting and synthesizing information from the many sources used in journalism research. It emphasizes the research techniques needed to obtain information from library reference materials, government documents, electronic data bases, the Internet, public records and personal interviews. This course stresses a systematic development of search strategies for researching stories and emphasizes critical analysis of standard news gathering practices. Prerequisite: JRN 102.

JRN 300 Newswriting and Reporting 4 hrs. This course focuses on the writing and reporting of basic news events, such as speeches, elections, lectures, trials, news conferences, public meetings, disasters and tragedies. Students spend time outside of the classroom covering these events on campus and in the Kalamazoo area writing breaking news stories using Associated Press style.

This course covers basic techniques of interviewing for on-site news reporting. Prerequisites: JRN 102 and JRN 200.

JRN 301 Copy and Content Editing 4 hrs. This course provides practice in copy and content editing. Students learn the techniques of copy, content and page editing. If focuses on copy editing, rewriting, typography, headline writing, page design, handling photographs, developing story ideas, working with writers, and editing for accuracy and fairness. This course offers students an overview of the roles and responsibilities of news editors. Prerequisite: JRN 300.

JRN 330 The Cultural History of American Journalism 3 hrs. This is a study of the historic relationship between American culture and society and the printed, broadcast, and computerized news media. The course will consider how the news media influence and are influenced by cultural, social, intellectual, political, and economic institutions. As part of the course, students will study the contributions and lives of influential American journalists such as Benjamin Franklin, Thomas Paine, William Cullen Bryant, Elias Boudinot, Horace Greeley, Frederick Douglass, Ida Tarbell, W.E.B. DuBois, Ida B Wells-Barnett, Walter Lippmann, Henry Luce, Margaret Bourke-White, John H. Johnson, Edward R. Murrow, and Tim A. Gingo. Particular attention will also be paid to how the news media have impacted the social status and cultures of lesser-heard voices: women, African and Native Americans, immigrants, political dissidents, and others. Prerequisite: Junior standing, or sophomore standing with instructor's permission.

JRN 400 Reporting Public Affairs 4 hrs. This course focuses on the writing and research of news stories for specific content and geographical beat areas, such as government, education, police, courts, politics, health, science, and the environment. With approval from the instructor, students will select a news beat to follow throughout the semester. Students will learn how to contact and cultivate news sources, cover breaking beat news stories as they occur, and write breaking and news feature stories about their beats with accuracy and speed, using Associated Press style. Students will learn to evaluate current news coverage for their beat areas and will develop criteria for judging the adequacy of the coverage. Prerequisites: JRN 200 and JRN 300.

JRN 401 Electronic Editing 3 hrs. This course develops students' skills in electronic publishing, which includes computer pagination and design of newspaper and magazines pages, the design of news hypertext pages with HTML software for the World Wide Web, electronic photography and scanning, and the composition and design of visual art. While this course focuses on electronic editing for newspapers, students can transfer the knowledge they gain to magazines, newsletters, and other forms of print media. Prerequisite: JRN 102.

JRN 420 Obligations of Contemporary American Journalism 3 hrs. This course examines the intellectual and ethical obligations as well as the legal ramifications of the practice of journalism. Topics and issues will include the first amendment and its application to journalism, laws and court decisions that govern or impinge on journalists, ethical behavior in researching and reporting news. As the
COMPARATIVE RELIGION

Brian C. Wilson, Chair
David Ede
Nancy Falk
E. Thomas Lawson
Timothy Light
Jaclyn Maxwell
Susanne Mrozik
Rudolf Siebert

Religion courses are designed to give students (1) an understanding of the nature and role of religion in human societies, both past and present, both non-Western and Western, (2) a grasp of the various methods used by scholars to describe and explain religion, to assess achievements of these methods, and to develop new methods for increasing their knowledge of religious thought and practice, and (3) an opportunity for raising questions about the present and future significance of religious thought and practice.

Many courses in the department are approved for General Education, and students can extend their general education to include knowledge of religious thought and practice and to relate their knowledge of religion to their knowledge derived from other disciplines in the University.

The departmental major and minor are a good preparation for graduate study in religion and for a vocation associated with religion. Recognizing the growing demand for graduates with cross-cultural experiences and second language abilities, the Department of Comparative Religion strongly 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 International Affairs as early as possible upon their arrival at Western Michigan University.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Religion major will satisfy the Baccalaureate Writing Requirement by successfully completing REL 300 Writing About Religion.

MAJOR AND MINOR IN RELIGION

A major in religion consists of a minimum of 28 hours and includes REL 100 (Religions of the World) and REL 200 (Introduction to Religion), one course in the field of Historical Studies, and two courses from the remaining three fields (Constructive Studies, Methodological Studies, Comparative Studies). Two of these courses may be at the 400/500 level.

A minor in religion consists of a minimum of 16 hours and includes REL 100 (Religions of the World) and REL 200 (Introduction to Religion). One course is recommended in the field of Historical Studies; the remaining course should be taken in any of the remaining fields.

Courses By Topic

INTRODUCTORY STUDIES
100 Religions of the World
200 Introduction to Religion

HISTORICAL STUDIES
301 Buddhist Traditions
302 Religion in the Indian Tradition
303 Chinese Religion
304 African Religions
305 The Christian Tradition
306 The Jewish Tradition
307 The Islamic Tradition
308 Japanese Religion
500 Historical Studies in Religion

COMPARATIVE STUDIES IN RELIGION
311 Myth and Ritual
313 Religion in America
510 Morphological and Phenomenological Studies in Religion
511 Women in Religion

 METHODOLOGICAL STUDIES IN RELIGION
320 The Philosophy of Religion
323 Religion and Revolution
324 Psychological Elements in Religion
520 Methodological Studies in Religion
521 The Teaching of Religion in the Public School

CONSTRUCTIVE STUDIES IN RELIGION
332 Religion and Social Ethics
334 Religion in Modern Society
498 Independent Study
530 Constructive Studies in Religion
598 Readings in Religion

SPECIAL REQUIREMENT
300 Writing About Religion

Religion Courses (REL)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

REL 100 Religions of the World 4 hrs.
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.

REL 200 Introduction to Religion 4 hrs.
An introduction to the study of religion intended to be universal in scope, theoretical and scientific in intent, and humanistic in orientation, of the nature and history of religion wherever it may be found, whatever its context, no matter what its forms, and attempting to raise whatever questions are necessary to illuminate its character. This will involve attention to more than one religious tradition, a discussion of the problems of definition, theory and method, an acknowledgement of the interdisciplinary aspects of much of the inquiry, and an examination of the consequences of this inquiry for problems of self-understanding in the context of western culture in general, and American society in particular.

REL 300 Writing About Religion 3 hrs.
This course enhances writing skills in the context of reading and discussing selected materials on religion. Emphasis is upon the process of writing, with writing assignments in class and outside class. Reading selections focus upon issues of contemporary interest. Required of all religion majors. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.
This course draws its materials primarily from the great religious traditions native to India—i.e. Brahmanism, Buddhism, Jainism, Sikhism, and Hinduism. It may vary with definitions of the human in these traditions: the problems that are perceived to be central to human life and the resources assumed to be available for such problems' solution. To clarify problems, it examines social and political contexts in which various traditions have arisen. To exemplify solutions, it offers samples from religious literature, art, architecture, music, ritual, and spiritual discipline.

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 world social intrinsic to these different ethical norms. 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 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 322 Religion and Revolution 4 hrs.
This course will explore, investigate and compare different religious movements 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 comparative historical theory and its dialectical method of thinking. The course will stress communicative ethics and discourse theory of rights and of the democratic constitutional state.

REL 324 Psychological Elements in Religion 4 hrs.
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 contemporary psychological approaches to religion.

REL 332 Religion and Social Ethics 4 hrs.
This course will consider the rebellion 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 world social intrinsic to these different ethical norms. 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 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 400 Topics in Religion 4 hrs.
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 will include religious traditions, forms of religion and current issues in method and theory.
REL 498 Independent Study
1-6 hrs.
Research on some selected problem under supervision of a member of the Religion faculty. Approval of the instructor involved and Chairperson of the Department must be secured in advance of registration.

Undergraduates with junior status and two previous courses in Religion may enroll in 500-level courses.

REL 500 Historical Studies in Religion
2-4 hrs.
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; 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.

REL 510 Morphological and Phenomenological Studies in Religion
2-4 hrs.
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: Millenium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas; the Occult Tradition.

REL 511 Women in Religion
3 hrs.
Drawing together materials from many religious traditions, this course explores religion's effect on women and women's effect on religion. It attends especially to women's roles in traditions studied—both roles allotted to women and roles women shape for themselves. It also traces repeating patterns in women's religious experience and evaluates common explanations for such patterns. Prerequisites: Junior or senior level and two courses (6 hours) in either Religion or Women's Studies.

REL 520 Methodological Studies in Religion
2-4 hrs.
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. Scientific Issues in the Study of Religion; the Critical Theory; Myth and Symbol in Religion and Literature.

REL 521 The Teaching of Religion in the Public School
2 hrs.
This course focuses on methods and issues involved in the teaching of religion in the public school. Particular attention is given to the problems of its constitutionality, the distinction between the academic study of religion and religious instruction, and the question of meaning. Various approaches to the teaching of religion are critically evaluated. Teaching methods appropriate to the level of instruction, availability, organization, selection and use of materials are discussed. Required of all students following a Secondary Education Curriculum which includes the Academic Study of Religions as a minor. (This course is not applicable to the regular religion major/minor program.)

REL 530 Constructive Studies in Religion
2-4 hrs.
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: Religious Images of Man; Christian Humanism; the Structure of Religion; the Future of Religion; Religion, Language and Structuralism.

REL 588 Readings in Religion
Variable Credit
Research on some selected period or topic under supervision of a member of the Religion faculty. Prerequisite: Approval of the instructor involved and Chairperson of the Department must be secured in advance of registration.

ECONOMICS

Bassam E. Hank, Chair
Donald L. Alexander
Esander Alvi
Silay Asefa
Kelly DeRango
Matthew L. Higgins
Emily P. Hoffman
Kevin M. Hollebeek
Susan N. Houseman
Wei-Chiao Huang
William S. Kern
Jean Kimmel
Michael Manno
Donald J. Meyer
Jon R. Neill
Christopher J. O'Leary
Samuel Pavel
Susan Pozo
Michael Ryan
Werner Sichel
Edward Van Wesep
Mark V. Wheeler
Huizhong Zhou

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 preprofessional 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.

The honors program of the Department of Economics is designed for the student who possesses special talents and abilities and who is particularly interested in exploiting them to the fullest extent. Students wishing to participate in this program should consult the Chair of the department.

ECONOMICS MAJOR

A major in economics consists of a minimum of 30 hours of credit in the department. The following are required courses for majors:

Principles of Microeconomics (201), Principles of Macroeconomics (202), Introductory Econometrics (402), Intermediate Microeconomics (403), Intermediate Macroeconomics (406), and Econometrics (409). 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 (MATH 122 or MATH 200) as a cognate course. Those who intend to do graduate work in economics are advised to take additional mathematics courses, such as MATH 123, 272, and 374.
BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Economics major will satisfy the Baccalaureate Writing Requirement by successfully completing ECON 484 Comparative Economic Systems.

ECONOMICS MINOR
A minor in economics consists of a minimum of 15 hours in the department.

Economics Courses By Topic

PRINCIPLES AND GENERAL THEORY
107 Economic Issues in the U.S. Today
108 Contemporary International Economics
109 History of Modern Economic Society
201 Principles of Microeconomics
202 Principles of Macroeconomics
301 Economic Issues: Variable Topics
400 Managerial Economics
402 Introductory Economic Statistics
403 Intermediate Microeconomics
404 Intermediate Macroeconomics
409 Econometrics
501 Studies in Economic Problems: Variable Topics
503 Economic Computing
504 Introduction to Mathematical Economics
505 History of Economic Thought

LABOR AND RESOURCE ECONOMICS
309 Women and the Economy
310 Labor Economics
318 The Economics of Medical Care
319 History of Modern Economic Society
515 Economics of Human Resources

MONEY, CREDIT AND FINANCE
330 Money and Banking
334 Public Finance
507 Monetary Theory and Policy
525 State and Local Government Finance

INDUSTRIAL ORGANIZATION AND PUBLIC CONTROL
304 The Organization of Industries
345 Business, Government and Society

INTERNATIONAL ECONOMICS
380 International Economics
385 Central and East European and Central Asian Economies
387 Studies in Asian Economies
388 African Economies
389 Latin American Economies
484 Comparative Economic Systems
588 Economic Development

SPECIAL STUDIES
591, 592 Guest Economist Seminar
598 Readings in Economics

Economics Courses (ECON)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

ECON 107 Economic Issues in the U.S. Today 3 hrs. Fall, Winter
A non-technical examination of contemporary economic issues in the United States, such as unemployment, inflation, the environment, crime, education, health care, and taxation. This course cannot be used to satisfy major or minor requirements in Economics.

ECON 108 Contemporary International Economic Issues 3 hrs. Fall, Winter
A non-technical approach to understanding important contemporary international issues and problems. This course focuses on topics such as international trade, finance, populations, migration, agriculture, the environment, and developing and transitional economies. This course cannot be used to satisfy major or minor program requirements in Economics.

ECON 109 History of Modern Economic Society 3 hrs. Fall
A survey of the evolution of modern economic society from premarket conditions to the present day. Topics include premarket economies, emergence of the market system, the industrial revolution, the Great Depression, the evolution of mixed capitalism, and the modern economic system. This course cannot be used to satisfy major or minor program requirements in Economics.

ECON 201 Principles of Microeconomics 3 hrs. Fall, Winter, Spring, Summer
An introduction to microeconomics, the study of the price system, resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system.

ECON 202 Principles of Macroeconomics 3 hrs. Fall, Winter, Spring, Summer
An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and international trade and development. For students who wish to learn both ECON 201 and ECON 202, it is preferable to take ECON 201 before taking ECON 202.

ECON 301 Economic Issues: Variable Topics 3 hrs.
This course is intended to teach "current events" topics to which economics is relevant. Examples of current events around which this course could have been structured are the savings and loan crisis, European economic integration, welfare reform, economic regulation and social policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation.

ECON 304 The Organization of Industries 3 hrs. Fall, Winter, Spring or Summer
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.

ECON 309 Women and the Economy 3 hrs. Fall, Winter
This course studies the role of women in the economy, both in the labor force and the household, in 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.

ECON 310 Labor Economics 3 hrs. Fall, Winter, Spring or Summer
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.

ECON 318 The Economics of Medical Care 3 hrs. Fall or Winter
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 care services is discussed. Prerequisite: A college-level economics class.

ECON 320 Money and Banking 3 hrs. Fall, Winter, Spring or Summer
The study of economic issues arising from financial systems. 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—economies growth, population and environmental quality are analyzed.

ECON 324 Public Finance 3 hrs. Fall, Winter, Spring or Summer
Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation.

ECON 345 Business, Government and Society 3 hrs. Fall, Winter, Spring or Summer
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.

ECON 380 International Economics 3 hrs. Fall, Winter, Spring or Summer
A study of the fundamentals of international trade and related problems, with special reference to the international economic policies of the United States both for the economy and for the firm.

ECON 385 Central and East European and Central Asian Economies 3 hrs. Fall or Winter
This course examines the interaction between economic and cultural changes emerging during periods of transitional change in the east European and Central Asian economies.

ECON 387 Studies in Asien Economies 3 hrs. Fall or Winter
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.

ECON 388 African Economies 3 hrs. Fall or Winter
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. **Prerequisite:** A college level economics course.

**ECON 389 Latin American Economies**
3 hrs. Fall or Winter
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. **Prerequisite:** A college-level economics class.

**ECON 400 Managerial Economics**
3 hrs. Fall, Winter, Spring and/or Summer
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 201; MATH 116 or MATH 216 or equivalent.

**ECON 402 Introductory Economic Statistics**
3 hrs. Fall
An introduction to statistical methods and techniques used in the acquisition and analysis of economic data. Data acquisition topics include collection and preparation techniques, such as 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 201, ECON 202, MATH 118 or equivalent.

**ECON 403 Intermediate Microeconomics**
3 hrs. Fall, Winter, Spring and/or Summer
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 201.

**ECON 406 Intermediate Macroeconomics**
3 hrs. Fall, Winter, Spring and/or Summer
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 202.

**ECON 409 Econometrics**
3 hrs. Winter
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:** ECON 402, ECON 403, ECON 406, or equivalents.

**ECON 484 Comparative Economic Systems**
3 hrs. Fall
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. **Prerequisites:** ECON 201 and 202, or consent of instructor.

Undergraduate students wishing to take 500-level courses must be of junior or senior standing and have 12 or more credit hours of economics or the consent of the department chairperson.

**ECON 501 Studies in Economic Problems: Variable Topics**
3 hrs. Fall or Winter
An examination of a selected area of concern not intensively covered in other courses. The focus of the course will be substantive as well as analytical. Topics may include such areas as poverty, farm problems, misallocation of resources, welfare programs, unemployment and others. May be repeated for credit with a different topic. **Prerequisites:** ECON 201 and 202 plus six additional credit hours of economics or consent of instructor.

**ECON 503 Economic Computing**
3 hrs. Fall
This course provides students with basic skills needed for gaining access to economics databases and for using data management programs on personal and mainframe computers. It provides instruction and lab experience in transferring files and performing operations widely employed by economists. **Prerequisites:** ECON 403, 406 or permission of instructor.

**ECON 504 Mathematics for Economists**
3 hrs. Fall
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. **Prerequisites:** ECON 201 and 202, MATH 122 or consent of instructor.

**ECON 505 History of Economic Thought**
3 hrs. Winter
This course surveys the origins and developments of economic analysis from the ancient Greeks to the present. **Prerequisites:** ECON 201, 202.

**ECON 507 Monetary Theory and Policy**
3 hrs. Winter
This course concentrates on the main elements of monetary theory and policy having to do with such problems as promoting economic growth, maintaining full employment and price stability, influencing the flow of capital into the various economic sectors with different possible social goals in mind, and stabilizing international trade and financial relationships. **Prerequisite:** ECON 201 and 202, ECON 320 or ECON 406.

**ECON 515 Economics of Human Resources**
3 hrs. Fall or Winter
This course examines the development and utilization of manpower in the United States, including such topics as labor force components, contributors to productivity such as education, training, health and mobility, and issues of manpower policy. **Prerequisites:** ECON 201 and 202.

**ECON 525 State and Local Government Finance**
3 hrs. Fall or Winter
Practices, effects and issues in state and local expenditure, taxation, and borrowing, with particular attention to property and sales taxation, to the financing of education and highways, and to intergovernmental fiscal relations. **Prerequisites:** ECON 201 and 202.

**ECON 588 Economic Development**
3 hrs. Fall
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. **Prerequisites:** ECON 201 and 202.
ENGLISH MAJOR—SECONDARY EDUCATION CURRICULUM

ENGLISH MAJOR—LIBERAL EDUCATION CURRICULUM

ENGLISH MAJOR—SECONDARY EDUCATION CURRICULUM

ENGLISH MAJOR—LIBERAL EDUCATION CURRICULUM

34 hours plus 4-hour Professional Component

1. Required Entry-Level Course (4 hrs.)

   English 220 Writing Fiction and Poetry
   228 Children's Literature
   229 Writing Fiction and Poetry
   230 Literature and Other Arts
   231 Western World Literature
   232 Asian Literature
   233 African Literature
   234 The English Bible as Literature
   235 An Introduction to Literature
   236 Shakespeare Seminar
   237 American Literature
   238 American Literature
   239 American Literature
   240 American Literature
   241 American Literature
   242 American Literature

   ENGLISH 350 Practical Writing
   ENGLISH 440 Studies in Verse
   ENGLISH 442 Studies in Drama
   ENGLISH 444 Studies in the Novel
   ENGLISH 452 Shakespeare Seminar
   ENGLISH 432 Modern Literature
   ENGLISH 434 Studies in the Novel
   ENGLISH 436 Modern Literature
   ENGLISH 438 Victorian Literature
   ENGLISH 439 Modern Literature
   ENGLISH 455 Studies in Major Writers

   4. Elective Courses

   At least one additional English Department course at the 200, 300, 400, or 500 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 200, 105, 107, 111, 103, 307, 308, 311 or 480.

   5. Foreign Language Requirement

   Minimum of two semesters of a modern or classical foreign language at the college level, or two years of study at the high school level. 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

   ENGLISH MAJOR—LIBERAL EDUCATION CURRICULUM

   ENGLISH 220 Writing Fiction and Poetry
   228 Children's Literature
   229 Writing Fiction and Poetry
   230 Literature and Other Arts
   231 Western World Literature
   232 Asian Literature
   233 African Literature
   234 The English Bible as Literature
   235 An Introduction to Literature
   236 Shakespeare Seminar
   237 American Literature
   238 American Literature
   239 American Literature
   240 American Literature
   241 American Literature
   242 American Literature

   ENGLISH 350 Practical Writing
   ENGLISH 440 Studies in Verse
   ENGLISH 442 Studies in Drama
   ENGLISH 444 Studies in the Novel
   ENGLISH 452 Shakespeare Seminar
   ENGLISH 432 Modern Literature
   ENGLISH 434 Studies in the Novel
   ENGLISH 436 Modern Literature
   ENGLISH 438 Victorian Literature
   ENGLISH 439 Modern Literature
   ENGLISH 455 Studies in Major Writers

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   ENGLISH MAJOR—LIBERAL EDUCATION CURRICULUM

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   ENGLISH MAJOR—LIBERAL EDUCATION CURRICULUM

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   4. Elective Courses

   At least one additional English Department course at the 200, 300, 400, or 500 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 200, 105, 107, 111, 103, 307, 308, 311 or 480.

   5. Foreign Language Requirement

   Minimum of two semesters of a modern or classical foreign language at the college level, or two years of study at the high school level. 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

   ENGLISH MAJOR—LIBERAL EDUCATION CURRICULUM

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   ENGLISH 440 Studies in Verse
   ENGLISH 442 Studies in Drama
   ENGLISH 444 Studies in the Novel
   ENGLISH 452 Shakespeare Seminar
   ENGLISH 432 Modern Literature
   ENGLISH 434 Studies in the Novel
   ENGLISH 436 Modern Literature
   ENGLISH 438 Victorian Literature
   ENGLISH 439 Modern Literature
   ENGLISH 455 Studies in Major Writers

   4. Elective Courses

   At least one additional English Department course at the 200, 300, 400, or 500 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 200, 105, 107, 111, 103, 307, 308, 311 or 480.

   5. Foreign Language Requirement

   Minimum of two semesters of a modern or classical foreign language at the college level, or two years of study at the high school level. 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

   ENGLISH MAJOR—LIBERAL EDUCATION CURRICULUM

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   ENGLISH 440 Studies in Verse
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   ENGLISH 444 Studies in the Novel
   ENGLISH 452 Shakespeare Seminar
   ENGLISH 432 Modern Literature
   ENGLISH 434 Studies in the Novel
   ENGLISH 436 Modern Literature
   ENGLISH 438 Victorian Literature
   ENGLISH 439 Modern Literature
   ENGLISH 455 Studies in Major Writers

   4. Elective Courses

   At least one additional English Department course at the 200, 300, 400, or 500 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 200, 105, 107, 111, 103, 307, 308, 311 or 480.

   5. Foreign Language Requirement

   Minimum of two semesters of a modern or classical foreign language at the college level, or two years of study at the high school level. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.
3. Literature and English Language Courses (13–14 hrs.)
   A. Two of the following courses:
      ENGL 320 American Literature I ...... 3
      ENGL 321 American Literature II ...... 3
      ENGL 330 British Literature I ...... 3
      ENGL 331 British Literature II ...... 3
   B. One of the following courses:
      ENGL 440 Studies in Verse ...... 4
      ENGL 442 Studies in Drama ...... 4
      ENGL 444 Studies in the Novel ...... 4
   C. One additional English Department literature or English language course at the 200, 300, 400, or 500 levels.

4. Electives
   At least one additional English Department course at the 200, 300, 400, or 500 levels to complete the major. The following courses cannot be used for this purpose: ENGL 100, 105, 107, 111, 112, 307, 308, 311, or 480.

5. Foreign Language Requirement
   Minimum of two semesters of a modern or classical foreign language at the college level, or two years of such study at the high school level. 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—MIDDLE SCHOOL/JUNIOR HIGH SCHOOL CURRICULUM**

34 hours
1. Required Entry-Level Course (4 hrs.)
   ENGL 110 Literary Interpretation ...... 4
2. Other Required Courses (20-24 hrs.)
   ENGL 282 Children's Literature OR
   ENGL 583 Multi-Cultural Literature for Adolescents ...... 3–4
   AND
   ENGL 373 Reading as a Psycholinguistic Process ...... 4
   Additional Required Course
   ENGL 369 Writing in the Elementary School
   OR
   ENGL 479 Writing in the Secondary School ...... 4
   One of the following courses:
   ENGL 472 American Dialects ...... 4
   ENGL 484 Multi-Cultural American Literature for Children ...... 3
   ENGL 574 Grammar for Teachers ...... 4
   ENGL 582 Studies in Children's Literature ...... 3
   Two additional literature courses, at least one of which must be at the 300-level or above.

3. Electives
   At least three additional English Department courses at the 200, 300, 400, or 500 level to complete the major. The following courses cannot be used for this purpose: ENGL 100, 105, 107, 111, 112, 307, 308, 311, 375, 376, or 480.

4. Foreign Language Requirement
   Minimum of two semesters of a modern or classical foreign language at the college level, or two years of such study at the high school level. 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—ARTS AND SCIENCES CURRICULUM**

20 hours
1. Required Entry-Level Course (4 hrs.)
   ENGL 110 Literary Interpretation ...... 4
2. Literature Courses (9 hrs.)
   Three courses chosen from among the following:
   ENGL 320 American Literature I ...... 3
   ENGL 321 American Literature II ...... 3
   ENGL 330 British Literature I ...... 3
   ENGL 331 British Literature II ...... 3
   ENGL 371 Structures of Modern English ...... 4
   ENGL 372 Development of Modern English ...... 4
   ENGL 472 American Dialects ...... 4
   B. One course chosen from the following:
      ENGL 415 Practical Literary Criticism ...... 4
      ENGL 440 Studies in Verse ...... 4
      ENGL 442 Studies in Drama ...... 4
      ENGL 444 Studies in the Novel ...... 4
      ENGL 452 Shakespeare Seminar ...... 4
   4. Electives
      At least two additional English Department courses, one of which must be at the 300 or 400 level. The following courses cannot be used for this purpose: ENGL 100, 105, 107, 111, 112, 307, 308, 311, or 480.
ENGLISH MINOR—SECONDARY EDUCATION CURRICULUM

20 hours
1. Required Entry-Level Course (4 hrs.)
   ENGL 110 Literary Interpretation ........ 4

2. Required Advanced Courses (13-15 hrs.)
   A. One of the following British Literature courses:
      ENGL 252 Shakespeare .................. 4
      ENGL 330 British Literature I ........... 3
      ENGL 331 British Literature II .......... 3
   B. At least one of the American Literature survey courses, ENGL 230/231, which attend to the diversity of American culture.
   C. A second course which attends to cultural diversity or has a multi-cultural focus, selected from the following:
      ENGL 223 Black American Literature ...... 4
      ENGL 313 Asian Literature ................ 3
      ENGL 314 African Literature ............... 3
      ENGL 320 American Literature I (if not taken to fulfill B. above) .................. 4
      ENGL 321 American Literature II (if not taken to fulfill B. above) ................. 3
      ENGL 472 American Dialects ............... 4
      ENGL 539 Post-Colonial Literature ......... 3
      ENGL 583 Multi-Cultural Adolescent Literature .... 3
      "(Only those students who have second semester junior status and have completed at least 18 hours in English Department courses, eight hours of which must be at the 300-400 level, may enroll in 500-level courses.)"
   D. At least one additional literature course, especially a writing course such as
      ENGL 282 Children's Literature .......... 4
      ENGL 369 Writing in the Elementary School .... 4
      ENGL 373 Reading as a Psycholinguistic Process .... 4
   E. Electives (3-4 hrs.)
      At least one additional English Department course, or an approved cognate course concerning oral language or drama in the elementary school. Especially relevant choices are:
      ENGL 472 American Dialects ............... 4
      ENGL 484 Multi-Cultural American Literature for Children (unless taken under #2 above) ...... 3
      ENGL 574 Grammar for Teachers .......... 4
      ENGL 582 Studies in Children's Literature . 3
      ENGL 583 Multi-Cultural Literature for Adolescents .. 3
      COM 442 Mass Media and the Child ......... 3
      THEA 564 Drama in Education (may not be double-counted on EED minor) .......... 4
      "(Courses at the 400-level can be taken only after two English courses at the 300-level; students in the elementary education curriculum may count ENGL 282 as a 300-level course.)"

3. Required Advanced Courses (8 hrs.)
   ENGL 369 Writing in the Elementary School .... 4
   ENGL 373 Reading as a Psycholinguistic Process .... 4
   Electives (3-4 hrs.)
      At least one additional English Department course, or an approved cognate course concerning oral language or drama in the elementary school. Especially relevant choices are:
      ENGL 472 American Dialects ............... 4
      ENGL 484 Multi-Cultural American Literature for Children (unless taken under #2 above) ...... 3
      ENGL 574 Grammar for Teachers .......... 4
      ENGL 582 Studies in Children's Literature . 3
      ENGL 583 Multi-Cultural Literature for Adolescents .. 3
      COM 442 Mass Media and the Child ......... 3
      THEA 564 Drama in Education (may not be double-counted on EED minor) .......... 4
      "(Courses at the 400-level can be taken only after two English courses at the 300-level; students in the elementary education curriculum may count ENGL 282 as a 300-level course.)"

ENGLISH MINOR WITH WRITING EMPHASIS

20 hours
1. Required Entry-Level Courses (8 hrs.)
   ENGL 110 Literary Interpretation ........ 4
   ENGL 266 Writing Fiction and Poetry .......... 4

2. Required Course (4 hrs.)
   English course designed to help students develop basic writing skills. Emphasis is on English usage, sentence structure, and paragraph development. Does not count toward English major or minor. Credit for the course will not apply to the number of credits needed for graduation.
   ENGL 105 Thought and Writing ......... 4

3. Advanced Writing Courses (6-8 hrs.)
   Two of the following courses:
   ENGL 305 Practical Writing ............... 4
   ENGL 364 Feature and Article Writing ......... 3
   ENGL 366 Advanced Fiction Writing .......... 3
   ENGL 367 Advanced Poetry Writing .......... 3
   ENGL 368 Playwriting ...................... 3
   ENGL 462 Advanced Writing ................. 4
   "(ENGL 366, 367, and 368 may be repeated one time for credit.)"

4. Electives
   At least one additional English Department course. The following courses cannot be double-counted on EED minor:
   ENGL 373 Reading as a Psycholinguistic Process .... 4
   "(Courses at the 400-level can be taken only after two English courses at the 300-level; students in the elementary education curriculum may count ENGL 282 as a 300-level course.)"

ENGLISH COURSES (ENGL)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.
ENGL 100 Basic Writing Skills ......... 4 hrs. (Credit/No Credit)
A writing course designed to help students develop basic writing skills. Emphasis is on English usage, sentence structure, and paragraph development. Does not count toward English major or minor. Credit for the course will not apply to the number of credits needed for graduation.
ENGL 105 Thought and Writing ......... 4 hrs.
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 experiences and ideas, and to develop imagination, thought, organization, and clarity in their written work. Does not count as credit towards English major or minor. Fulfills the University Intellectual Skills college level writing requirement. Prerequisite: Satisfactory ACT English score, or placement essay, or ENGL 100.
ENGL 107 Good Books ......... 4 hrs.
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.
ENGL 110 Literary Interpretation ......... 4 hrs.
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. Prerequisite: at least a "B" in ENGL 105 or the equivalent.

ENGLISH MINOR—ELEMENTARY EDUCATION CURRICULUM

21 hours
1. Required Entry-Level Courses (8 hrs.)
   ENGL 110 Literary Interpretation ........ 4
   ENGL 282 Children's Literature ........... 4

2. Required Literature Course (3-4 hrs.)
   A. One of the following courses:
      ENGL 223 Black American Literature ...... 4
      ENGL 252 Shakespeare .................. 4
      ENGL 312 World Literature ............... 4
      ENGL 313 Asian Literature ................. 3
      ENGL 314 African Literature ............... 3
      ENGL 315 The English Bible as Literature .... 3
      ENGL 320 American Literature I ........... 3
      ENGL 321 American Literature II .......... 3
      ENGL 330 British Literature I ............. 3
      ENGL 331 British Literature II .......... 3
      ENGL 484 Multi-Cultural American Literature for Children .... 4
      "(Courses at the 400-level can be taken only after two English courses at the 300-level; students in the elementary education curriculum may count ENGL 282 as a 300-level course.)"
   B. At least one of the American Literature survey courses, ENGL 230/231, which attend to the diversity of American culture.
   C. A second course which attends to cultural diversity or has a multi-cultural focus, selected from the following:
      ENGL 282 Children's Literature .......... 4
      ENGL 369 Writing in the Elementary School .... 4
      ENGL 373 Reading as a Psycholinguistic Process .... 4
   D. At least one additional English Department course, or an approved cognate course concerning oral language or drama in the elementary school. Especially relevant choices are:
      ENGL 472 American Dialects ............... 4
      ENGL 484 Multi-Cultural American Literature for Children (unless taken under #2 above) ...... 3
      ENGL 574 Grammar for Teachers .......... 4
      ENGL 582 Studies in Children's Literature . 3
      ENGL 583 Multi-Cultural Literature for Adolescents .. 3
      COM 442 Mass Media and the Child ......... 3
      THEA 564 Drama in Education (may not be double-counted on EED minor) .......... 4
      "(Courses at the 400-level can be taken only after two English courses at the 300-level; students in the elementary education curriculum may count ENGL 282 as a 300-level course.)"

3. Required Advanced Courses (8 hrs.)
   ENGL 369 Writing in the Elementary School .... 4
   ENGL 373 Reading as a Psycholinguistic Process .... 4
   Electives (3-4 hrs.)
      At least one additional English Department course, or an approved cognate course concerning oral language or drama in the elementary school. Especially relevant choices are:
      ENGL 472 American Dialects ............... 4
      ENGL 484 Multi-Cultural American Literature for Children (unless taken under #2 above) ...... 3
      ENGL 574 Grammar for Teachers .......... 4
      ENGL 582 Studies in Children's Literature . 3
      ENGL 583 Multi-Cultural Literature for Adolescents .. 3
      COM 442 Mass Media and the Child ......... 3
      THEA 564 Drama in Education (may not be double-counted on EED minor) .......... 4
      "(Courses at the 400-level can be taken only after two English courses at the 300-level; students in the elementary education curriculum may count ENGL 282 as a 300-level course.)"
ENGL 111 Myth and Folk Literature
3 hrs.  
Exploration of myth and folk literature through poetry, fiction, film and other materials. An exploratory course for the general student rather than the student who plans to specialize in the study of literature. Credit toward English major or minor by permission of the department only.

ENGL 112 Literary Classics
4 hrs.  
Readings in selected literary masterpieces from ancient to the present. 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.

ENGL 150 Literature and Other Arts
4 hrs.  
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.

ENGL 205 Intermediate Writing
4 hrs.  
A practical course for freshmen or sophomores from domestic or international students transferring to Western, who wish to develop their skills in writing. Emphasis is on understanding the conventions and forms appropriate for personal writing, persuasion, and/or research papers and reports. May count as elective credit in English. May not count toward an English major or minor. This course will not fulfill the baccalaureate writing requirement. Prerequisite: Satisfactory completion of ENGL 105.

ENGL 210 Film Interpretation
4 hrs.  
Studies in the motion picture as art form.

ENGL 222 Literatures and Cultures of the United States
4 hrs.  
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.

ENGL 223 Black American Literature
4 hrs.  
A survey of important black American writers and the historical development of the black image and experience in American literature, and culture.

ENGL 252 Shakespeare
4 hrs.  
A survey of Shakespeare's art through study of selected tragedies, histories, and comedies.

ENGL 264 News Writing
4 hrs.  
Introduction to journalistic principles with an emphasis on writing news stories and learning news style. Students should be able to type. Prerequisite: Minimum of "B" in ENGL 105 or equivalent.

ENGL 265 News Editing
4 hrs.  
Instruction and extensive practical experience in copy editing, rewrite, typography, headline writing, handling wire copy and photographs, and layout. Prerequisite: ENGL 264 News Writing.

ENGL 266 Writing Fiction and Poetry
4 hrs.  
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.

ENGL 282 Children's Literature
4 hrs.  
An exploration of the human and literary values in the best of children's books. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature—folktale and fantasy, fiction and non-fiction, myth and poetry.

ENGL 305 Practical Writing
4 hrs.  
A practical course for juniors and seniors who wish to develop their skills in writing. Emphasis is on understanding the writing forms of non-fictional prose such as research papers and reports; personal writing; and pre-professional writing (for students planning careers in business, social service, industry, law, the arts, or other professions). Topics vary and will be announced each year. May be repeated for credit, but may be counted only once toward fulfillment of General Education requirements, and counted only once for major/minor credit, except for the practical writing minor. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.

ENGL 307 Literature in Our Lives
3 hrs.  
This course examines the ways that literary works represent and reflect upon human experience and the human condition. It emphasizes the literary 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.

ENGL 308 Quest for Self
3 hrs.  
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 toward an English major or minor.

ENGL 311 Our Place In Nature
3 hrs.  
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 toward an English major or minor.

ENGL 312 Western World Literature
3 hrs.  
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.

ENGL 313 Asian Literature
3 hrs.  
Study of works selected from the great literature of Asia, especially the Chinese, Japanese, and Indian traditions. Works will be studied in English.

ENGL 314 African Literature
3 hrs.  
Study of works selected from the great literature of Africa, including both traditional and contemporary material. Works will be studied in English.

ENGL 315 The English Bible as Literature
3 hrs.  
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.

ENGL 320 American Literature I
3 hrs.  
A survey of American literature from its beginnings to 1880, with attention to the diversity of American cultures. Prerequisites: ENGL 105 (or equivalent); ENGL 110.

ENGL 321 American Literature II
3 hrs.  
A survey of American literature since 1880, with attention to the diversity of American cultures. Prerequisites: ENGL 105 (or equivalent); ENGL 110.

ENGL 330 British Literature I
3 hrs.  
A survey of British literature from its beginnings through the Victorian period. Prerequisites: ENGL 105 (or equivalent); ENGL 110.

ENGL 331 British Literature II
3 hrs.  
A survey of British literature from the Romantic to the present. Prerequisites: ENGL 105 (or equivalent); ENGL 110.

ENGL 362 Literary Journalism
3 hrs.  
A course in literary analysis of the form and development of the non-fiction prose of literary journalism. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: ENGL 105; ENGL 110.

ENGL 363 Reporting
3 hrs.  
Instruction and practice in covering news beats, writing complex news stories, and developing good interviewing skills. Prerequisite: ENGL 264.

ENGL 364 Feature and Article Writing
3 hrs.  
Study and practice in writing feature and magazine articles; attention to contemporary techniques and styles in documentary and personal reportage. Prerequisite: A previous college-level writing course.

ENGL 365 Reviewing For the Press
3 hrs.  
Theory and practice in writing reviews of books, drama, films, television, concerts, and exhibitions for various kinds of mass-audience publications. Prerequisite: Previous course work in journalism, creative writing, literature, or media.

ENGL 366 Advanced Fiction Writing
3 hrs.  
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 266 or permission of the department.

ENGL 367 Advanced Poetry Writing
3 hrs.  
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 266 or permission of the department.
ENGL 368 Playwriting
3 hrs.
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 266 or permission of the department.

ENGL 369 Writing in the Elementary School
4 hrs.
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.

ENGL 371 Structures of Modern English
4 hrs.
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.

ENGL 372 Development of Modern English
4 hrs.
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 practical implications.

ENGL 373 Reading As A Psycholinguistic Process
4 hrs.
Focuses on the nature of the reading process and the development of reading ability in children. Particular attention is given to how the natural acquisition of literacy parallels the acquisition of oral language, and to the close relationship between the development of reading and writing ability. Emphasizes the application of current research in the elementary classroom.

ENGL 375 Acquisition of Literacy and the Early Elementary Child
4 hrs.
This course focuses on the psycholinguistic nature of the reading and writing processes, emphasizing how literacy builds upon oracy. Particular attention is paid to literacy for the young child and to how children's literature can further the acquisition of literacy. Deals with the child from birth through seven years.

ENGL 376 Acquisition of Literacy and the Later Elementary Child
4 hrs.
This course focuses on the psycholinguistic nature of the reading and writing processes, emphasizing how children can be helped to develop reading and writing abilities. Particular attention is paid to literacy for children and how that literature can further not only their reading and writing but also their development of artistic and human values. Deals with the child from seven through twelve years.

ENGL 410 Special Topics in Literature
4 hrs.
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. Prerequisite: ENGL 110.

ENGL 415 Practical Literary Criticism
4 hrs.
Practical applications of critical theory, with some attention to the history of this genre of literary writing from Plato to post-structuralism. In addition to New Criticism, special attention will be paid to more recent developments such as reader-response criticism, feminist criticism, and other contemporary critical modes. Strongly recommended for all students planning to pursue graduate study. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: At least two courses at the 300-level that count toward the English major.

ENGL 416 Women in Literature
4 hrs.
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. Prerequisite: ENGL 110.

ENGL 440 Studies in Verse
4 hrs.
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Two courses at the 300-level that count toward English major.

ENGL 442 Studies in Drama
4 hrs.
Studies in the major styles and forms of drama. Attention shall be paid to the critical and theoretical bases of interpretation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Two courses that count toward the English major at the 300-level.

ENGL 444 Studies in the Novel
4 hrs.
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Two courses that count toward the English major at the 300-level.

ENGL 452 Shakespeare Seminar*
4 hrs.
Intensive study of selected aspects of Shakespeare's poetic and dramatic art. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ENGL 110 or 252.

ENGL 462 Advanced Writing
4 hrs.
Practice in writing articles, essays, biographical and critical prose, with emphasis on development of the student's individual style and elimination of obstacles to clear and vital expression.

ENGL 463 Reporting Community Affairs
4 hrs.
Practice in the covering and reporting of the police, the courts, and other governmental units. Some stress on investigative and in-depth reporting. Prerequisites: ENGL 264 and 363.

ENGL 464 Professional Writing
4 hrs.
Practice in developing the forms and techniques of writing, editing, and researching required in business, industry, and government. Students should take this course as their capstone experience in practical writing. Prerequisite: two writing courses.

ENGL 472 American Dialects
4 hrs.
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.

ENGL 479 Writing in the Secondary School
4 hrs.
Focuses on the continued development of student writers in grades 7-12, 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. Prerequisite: Two 300-level English courses that count toward the major.

ENGL 480 Teaching Literature in the Secondary Schools
4 hrs.
A study of techniques and theories of teaching literature to young adults. Does not count as credit toward the major. Prerequisites: ED 302: Teaching and Learning—Secondary and two 300-level English courses that count toward the major.

ENGL 484 Multi-Cultural American Literature for Children
3 hrs.
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. Prerequisite: 16 hours must include ENGL 282.

ENGL 495 Internship/Field Work
1–4 hrs.
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.

ENGL 496 English Honors Seminar
4 hrs.
Special studies in selected topics. Open only to majors working for honors degree in English, or by permission of the instructor.

ENGL 497 Studies in English: Variable Topics
1–3 hrs.
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.

The prerequisites for 500 level courses are: 18 hours of English courses at the 300–400 level and second semester junior status; exemption only by permission of Director of Undergraduate Studies.
ENGL 522 Studies in American Literature
3 hrs.
Study of a movement or a recurrent theme in American literature, such as romanticism, realism, naturalism, humor, racial issues.

ENGL 530 Medieval Literature
3 hrs.
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.

ENGL 532 English Renaissance Literature
3 hrs.
Readings in representative writers of the period 1500-1660.

ENGL 534 Restoration and 18th Century Literature
3 hrs.
British Literature 1660-1800. Readings in representative writers of the period, focusing on the diversity of literary forms in the period.

ENGL 536 Romantic Literature
3 hrs.
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.

ENGL 537 Victorian Literature
3 hrs.
Readings emphasizing such writers as Carlyle, Mill, Dickens, Thackeray, George Eliot, Tennyson, Robert Browning, Elizabeth Barrett Browning, and Arnold.

ENGL 538 Modern Literature
3 hrs.
Readings in representative writers in the period 1890-1945, not exclusively in British and American literature.

ENGL 539 Post-colonial Literature
3 hrs.
Readings in representative writers from colonial and post-colonial cultures.

ENGL 540 Contemporary Literature
3 hrs.
Readings in representative writers who have come to prominence chiefly since 1945.

ENGL 555 Studies in Major Writers
3 hrs.
Study of the works of classical, European, British or American writers. Limited to one or two authors.

ENGL 556 Creative Writing Workshop
4 hrs.
A workshop and conference course in the writing of poetry, fiction, or drama, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Prerequisite: Six hours of creative writing, graduate standing, or permission of the department.

ENGL 574 Grammar for Teachers
4 hrs.
Focuses on that aspect of linguistics known as "grammar": the grammar that we know intuitively, the descriptive grammars devised by modern linguists, and the "traditional" grammar which prescribes the rules of usage and mechanics. Emphasizes practical applications of these varied concepts in secondary and elementary English classrooms.

ENGL 582 Studies in Children's Literature
3 hrs.
A study in depth of significant themes, movements, types in children's literature. Prerequisites: ENGL 282 or permission of the department.

ENGL 583 Multi-Cultural Literature for Adolescents
3 hrs.
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.

ENGL 597 Studies in English: Variable Topics
1-3 hrs.
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.

ENGL 598 Readings in English
1-4 hrs.
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.

English Courses for International Students (ENGL)

ENGL 160 Developing Fluency and Clarity in English: Emphasis on Reading and Writing
5 hrs.
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 work. 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: Minimum of 500 on TOEFL.

ENGL 361 Developing Proficiency in English: Emphasis on Speaking and Listening
5 hrs.
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: Minimum of 500 on TOEFL.

ENGL 161 Acquiring Fluency and Accuracy in English: Emphasis on Speaking and Listening
5 hrs.
This course will help international students develop fluency and clarity in their writing by responding to varied kinds of prose. Students will learn to write in various academic genres. Particular attention will be paid to understanding and using key organizational patterns of these genres and to textbooks, with an emphasis on information gathering, planning, writing, and revising for clarity. Graded on credit/no credit basis. Prerequisite: Minimum of 500 on TOEFL.

ENGL 360 Achieving in Academic English: Emphasis on Reading
5 hrs.
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
ENVIRONMENTAL STUDIES PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences

EUROPEAN STUDIES PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences

FRENCH
See "Foreign Languages and Literatures" in the College of Arts and Sciences.

FOREIGN LANGUAGES AND LITERATURES
John Benson, Chair
Peter Bickler
Gary E. Bigelow
Vincent DeSroches
Jorge Ferebys
Robert Felkel
Jeffrey Gardiner
Diether H. Haenickel
Carolyn Harris
Antonio Isea
Rand H. Johnson
David Kutzko
Peter W. Krawutschke
Irma Lopez
Molly Lynde-Recchia
Patricia Montilla
Holly Nibert
Dasha Nisula
Maríola Pérez de la Cruz
Joseph Reish
Cynthia Running-Johnson
Martine Sauret
Mercedes Tassende
Herman Teichert
Benjamin Torres
Robert Vann
Lindsey Wilhite

All students (either entering or advanced) who wish to continue in a language they have studied in high school must take a placement evaluation. It may be used as a qualifying examination to exempt students from specific language requirements. The evaluation is given during each registration period and scores are posted in time for registration. Students must register according to their placement score.

Native speakers of a given language must consult with a departmental advisor before registering for courses up through the 300 level.

Students who complete a major or minor may be eligible for some retroactive credit based on the results of the placement evaluation. Questions about this matter should be referred to the Department Chair.

Students entering in Fall 1993 and after who will graduate from the College of Arts and Sciences must fulfill that college’s foreign language requirement. Other colleges or specific departments may also have a foreign language requirement. Students who have questions about this matter should consult their advisor.

Many language students study abroad as part of the undergraduate program. Western has a number of excellent study abroad programs. Students interested in receiving credit for foreign study 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.

MAJORS AND MINORS
As soon as students decide to major or minor in French, German, Latin, Russian or Spanish, 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 foreign language, a course in modern European history is desirable. For Latin majors and minors, a course in Roman history is recommended. A student in the Liberal Education curriculum may apply eight (8) credits toward a Latin major by taking both GREK 100 and GREK 101. A student in the Secondary Education curriculum may apply four (4) credits toward a Latin major by taking both GREK 100 and GREK 101. English majors are encouraged to take as much foreign language as they can.

Teaching certification is approved for majors or minors in secondary and middle school and junior high school education for the following languages: French, German, Latin (secondary only), Russian (minor only), and Spanish. A language methods course is required for all teaching majors and minors in the foreign languages. Exceptions to the patterns may be granted only by departmental permission.

Baccalaureate Writing Requirement for Majors
Students who have chosen to major in French, German, and Spanish will satisfy the Baccalaureate Writing Requirement by successfully completing LANG 375 Foreign Literature in English Translation.

Students who have chosen to major in Latin will satisfy the Baccalaureate Writing Requirement by successfully completing ENGL 305 Practical Writing.

Residency Requirement for Majors and Minors in French, German, or Spanish
Majors in French or Spanish must take at least four courses (of the total required for the major) at Western Michigan University. One of these must be a 500-level class. Minors in French and Spanish must take at least three courses (of the total required for the minor) at the 200-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 558 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 558 may not be one of these).

French Major:
Non-teaching
Thirty-six hours beyond 100-level to include FREN 316, 317, 322 or 323, 325, 452 or 453, and one 500-level literature course. Neither FREN 400 nor 401 can be counted toward this major.

French Major: Education Curriculum
Thirty-six hours beyond 100-level to include FREN 316, 317, 322 or 323, 325, 452 or 453, one 500-level literature course, and LANG 558. Neither FREN 400 nor 401 can be counted toward this major.

French Minor:
Non-teaching
Twenty-four hours beyond the 100-level to include FREN 316 and 317. Neither FREN 400 nor 401 can be counted toward the minor.

French Minor: Education Curriculum
Thirty hours beyond 100-level to include FREN 316, 317, and LANG 558. Neither FREN 400 nor 401 can be counted toward the minor.
German Major: Non-teaching
Thirty-two hours beyond 100-level to include GER 316, 317, 322, 325, 452, 453, and six hours of 500-level German courses. Neither GER 400 nor 401 can be counted toward the major. LANG 558 cannot be included in this major.

German Major: Education Curriculum
Thirty-five hours beyond 100-level to include GER 316, 317, 322, 325, 452, 453, six hours of 500-level German Courses, and LANG 558. Neither GER 400 nor 401 can be counted toward the major.

German Minor: Non-teaching
Twenty-three hours beyond the 100-level to include GER 316, 317, 322, 325, 452, 453, six hours of 500-level German courses, and LANG 558. Neither GER 400 nor 401 can be counted toward the minor. LANG 558 cannot be included in this minor.

German Minor: Education Curriculum
Twenty-nine hours beyond the 100-level to include LANG 558, GER 200, 201, 316, 317, 322, 325, 452 or 453. GERK 100 majors must include LAT 324, and 557.

Latin Major
Thirty hours including 100, 101, and 200 or equivalent; remaining hours from 201-560, including LANG 375 (Classical Literature in English Translation) or LANG 350. GREK 100 and 101 may also be included. Teaching majors must include LAT 324, and 557.

Latin Minor
Twenty hours including 100, 101, and 200 or equivalent; remaining hours from 201-560, and may include LANG 375 (Classical Literature in English Translation) or LANG 350. Teaching minors must include LAT 557 which does not yield credit hours toward the Latin minor.

Russian Minor
Twenty-three hours including 100-level (basic) course or equivalent; remaining hours from RUSS 200-500 series.

Spanish Major: Non-teaching
Thirty-five hours beyond 100-level to include SPAN 316 and 317, 321, 322, 323 or 324, 325; and four 400- or 500-level Spanish courses (to include three hours from SPAN 490, 526, 527, 528, 529, or 560). LANG 558 cannot be included in this major.

Spanish Major: Education Curriculum
Thirty-five hours beyond 100-level to include SPAN 316, 317, 321, 322, 323 or 324, 325; and four 400- or 500-level Spanish courses (to include three hours from SPAN 490, 526, 527, 528, 529, or 560), and LANG 558. SPAN 454 Spanish Phonetics is strongly recommended.

Spanish Minor: Non-teaching
Twenty-three hours beyond the 100-level to include SPAN 316, 317, and six hours from SPAN 321, 322, 323, 324, or 325. LANG 558 cannot be included in this minor.

Spanish Minor: Education Curriculum
Twenty-nine hours beyond the 100-level to include SPAN 558, LANG 558, and SPAN 452 Spanish Phonetics is strongly recommended.

World Literature Minor
The Department of Foreign Languages and Literatures and the Department of English offer jointly a world literature minor (20 hours). For description and requirements, see the "Interdisciplinary Programs" listing in the College of Arts and Sciences section of this catalog, or consult Dr. Felkel, 515 Sprau.

FOREIGN CREDITS
Credits for language study at a foreign university may be granted on official proof that the student has completed the course work successfully. For courses where no examination or grades are given, the student may be recommended for appropriate credit upon his/her return to Western on the basis of papers, colloquia, or comparable work to be determined by the department.

Language Courses (LANG)
A list of approved General Education courses can be found elsewhere in this catalog.

LANG 100 Basic Foreign Languages I
4 hrs.
Study of a foreign language not regularly offered in the department. Fundamentals of the particular foreign language with emphasis on specific skills, as appropriate for that language.

LANG 101 Basic Foreign Languages II
4 hrs.
Continuation of LANG 100. Prerequisite: LANG 100 or equivalent in the same language.

LANG 105 The Nature of Language
4 hrs.
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.

LANG 200 Intermediate Foreign Languages I
4 hrs.
Continuation of LANG 101. Review, practice and development of knowledge and skills as appropriate for the particular foreign language. Prerequisite: LANG 101 or equivalent in the same language.

LANG 201 Intermediate Foreign Languages II
4 hrs.
Continuation of LANG 200. Prerequisite: LANG 200 or equivalent in the same language.

FOREIGN LITERATURE IN ENGLISH TRANSLATION
These courses will survey literary masterpieces of other countries in English translation. They are open to any student and there is no foreign language prerequisite. The courses will be taught entirely in English by specialists in the areas.

LANG 375 Foreign Literature in English Translation: Views of Humanity
3 hrs.
The content of the course will stress the observation and experience of another society and culture as depicted in some of the great writings of foreign literature through reading in English. Universal themes about the human condition and insight into their treatment by representative native writers 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 literary works and the social-historical background for each of the selections.

This course does not apply toward a major or minor in French, German, or Spanish, but it may apply toward a major or minor in Latin or a minor in Russian. The course may be taken in more than one language area. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.

Representative topics which may be treated in this course include:

Classical Literature in English Translation
Themes and genres of classical literature in English translation. Possible themes include: Women in Greek Drama; Invention in Ovid's Metamorphoses; The Tragic Outlook; Ancient Epic; the Philosophic-Satirical Tradition in Rome.

French Literature in English Translation
A thematic and stylistic analysis of major French writers from LaFayette to the present, to include Stendhal, Balzac, Flaubert and Proust.

German Literature in English Translation
A comparative study of literary themes and techniques of major German writers from Goethe to the present, including Mann, Brecht, Kafka, and Borchert.

Russian Literature in English Translation
A survey of the development of great Russian prose in its historical and cultural context. The course will include, but will not be restricted to, works by Pushkin, Gogol, Turgeniev, Dostoevski, Tolstoy, Gorki, Sholokhov, Pasternak, and Solzhenitsyn.

Spanish-American Literature in English Translation
Selected prose and poetry from late 19th century (Ruben Dario and Modernism) to the contemporary writers of Hispanoamerica.

Spanish Literature in English Translation
Selected Spanish prose and poetry from the Middle Ages to the twentieth century. The course will include, but will not be restricted to, works by Lope de Vega, Cervantes, St. Teresa, Calderon de la Barca, Unamuno, and Garcia Lorca, as well as the Anonymous Poem of the Old and Lazarillo de Tormes.

LANG 376 Foreign Literature in English Translation: Form and Meaning in Literature
3 hrs.
Through the study of foreign literature in English translation, students examine how writers have used formal techniques and conventions to create meaning. Meaning will be interpreted in terms of the aesthetic, moral, or socio-political aims of the works studied. Although courses will emphasize the literature of the particular language of the course title, conventions may be traced through works from various periods and places.

This course does not apply toward a major or minor in French, German, or Spanish, but it may apply toward a major or minor in Latin or a minor in Russian. The course may be taken in more than one language area.
French Courses (FREN)

A list of approved General Education courses can be found elsewhere in this catalog.

FREN 100 Basic French I
4 hrs.
Fundamentals of French with audiolingual emphasis. French cultural readings.

FREN 101 Basic French II
4 hrs.
Composition of 100. Prerequisite: FREN 100 or equivalent.

FREN 200 Intermediate French I
4 hrs.
The development of spoken and written expression in the French language with an emphasis on grammar review. Prerequisite: FREN 101 or two years of high school French, or equivalent.
students' major fields. Completion of GER 401 with a minimum of "S" constitutes graduate proficiency in the language. Undergraduates must secure permission of the Department. This course does not count toward a major or minor in German. Prerequisite: GER 400 or equivalent.

GER 452 Advanced German Composition 3 hrs. 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. Prerequisites: GER 316 and 317.

GER 453 Advanced German Conversation 3 hrs. Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: GER 316 and 317.

GER 477 Foreign Study 1–16 hrs. Fall-Winter; 1–8 hrs. Spring-Summer Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson.

500-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, applic. during toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

GER 528 Survey of German Literature 3 hrs. A comprehensive study of German literature from its beginning through Romanticism. Prerequisites: GER 316, 317, 322, 325 or permission of instructor.

GER 529 Survey of German Literature 3 hrs. A comprehensive study of German literature from German Realism to the present. Prerequisites: GER 316, 317, 322, 325 or permission of instructor.

GER 550 Independent Study in German 1–3 hrs. Directed individual study of a specific topic in German literature or in an area of German language and civilization. Departmental approval is required for admission. Repeatable for credit. Prerequisite: One 500-level course in the major; a minimum grade point average of 3.0 in the major. Not open to graduate students.

GER 553 History of the German Language 3 hrs. Survey of the development. Prerequisite: 6 hours of 300-level German or above.

GER 560 Studies in German Literature 3 hrs. Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: GER 316, 317, 322, 325 or permission of instructor. 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. Nineteenth Century Drama—Primarily Kleist, Grillparzer, Hebbel, and Hauptmann. Twentieth Century Drama—Representative selections.

Greek Courses (GREK)

A list of approved General Education courses can be found elsewhere in this catalog.

GREK 100 Basic Greek I 4 hrs. Fundamentals of classical Greek; readings emphasize Greek thought, culture, and civilization.

GREK 101 Basic Greek II 4 hrs. Continuation of 100. Prerequisite: GREK 100 or equivalent.

Italian Courses (ITAL)

A list of approved General Education courses can be found elsewhere in this catalog.

ITAL 100 Basic Italian I 4 hrs. Fundamentals of Italian with communicative emphasis. Italian cultural readings.

ITAL 101 Basic Italian II 4 hrs. Continuation of ITAL 100. Prerequisite: ITAL 100.

ITAL 200 Intermediate Italian I 4 hrs. The development of spoken and written expression in the Italian language through readings and discussions of civilization and culture materials. Prerequisite: ITAL 200 or equivalent.

ITAL 201 Intermediate Italian II 4 hrs. The continued development of spoken and written expression in the Italian language through readings and discussions of civilization and culture materials. Prerequisite: ITAL 200 or equivalent.

LAT 100 Basic Latin I 4 hrs. Continuation of 100. Prerequisite: LAT 100 or equivalent.

LAT 200 An Introduction to the Study of Latin Literature 4 hrs. A review of Latin grammar based on selections from Latin authors representing various genres, for example: history, satire, political oratory, lyric poetry, comic drama. Prerequisite: LAT 101 or equivalent.

LAT 203 Cicero 4 hrs. Selections from the writings of Cicero with special attention to improving reading skills while studying the thought and style of one of Rome's leading statesmen and orators.
RUSS 201 Intermediate Russian II 4 hrs.
Continuation of RUSS 200 with a focus on development of spoken and written expression in the Russian language through readings and discussion of civilization and cultural materials. Prerequisite: RUSS 200 or equivalent.

RUSS 310 Russian Civilization 3 hrs.
A study of selected aspects of Russian life and culture and their historical settings. Course taught in English and open to all students. Prerequisite: RUSS 201 or equivalent.

LAT 477 Foreign Study 1–16 hrs. Fall-Winter; 1–8 hrs. Spring-Summer
Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson.

LAT 550 Independent Study in Latin 1–3 hrs.
Directed, individual study of a specific topic in Latin literature or linguistics. Departmental approval required for admission. Repeatable for credit. Prerequisite: A minimum grade point average of 3.0 in the major.

LAT 557 Teaching of Latin 3 hrs.
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. Prerequisite: Completion of four courses, or equivalent, in Latin; or permission of instructor.

LAT 560 Medieval Latin 4 hrs.
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. Prerequisite: One of LAT 200, 201, 204, 324, or equivalent, or permission of the department.

Russian Courses (RUSS)
A list of approved General Education courses can be found elsewhere in this catalog.

RUSS 100 Basic Russian I 4 hrs.
Fundamentals of Russian with emphasis on oral proficiency. Prerequisite: RUSS 101 or equivalent.

RUSS 101 Basic Russian II 4 hrs.
Continuation of RUSS 100. Prerequisite: RUSS 100 or equivalent.

RUSS 200 Intermediate Russian I 4 hrs.
Level two Russian. Review and furthering of oral and reading skills based upon increasingly advanced oral and written exercises. Prerequisite: RUSS 101 or equivalent.

Spanish Courses (SPAN)
A list of approved General Education courses can be found elsewhere in this catalog.

SPAN 100 Basic Spanish I 4 hrs.
Fundamentals of Spanish with audiolingual emphasis. 

SPAN 101 Basic Spanish II 4 hrs.
Continuation of 100. Prerequisite: SPAN 100 or equivalent.

SPAN 200 Intermediate Spanish I 4 hrs.
The development of spoken and written expression in the Spanish language with an emphasis on grammar review. Prerequisite: SPAN 101 or two years of high school Spanish, or equivalent.

SPAN 201 Intermediate Spanish II 4 hrs.
The continued development of spoken and written expression in the Spanish language through readings and discussions of civilization and culture materials. Prerequisite: SPAN 200 or equivalent.

SPAN 265 Hispanic Culture in the U.S. 3 hrs.
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 the Spanish major or minor.

SPAN 308 Spanish for Heritage Speakers 3 hrs.
For students who have grown up in a Spanish-speaking environment and who understand and speak Spanish but have had limited or no formal study of the language. Development of all four languages skills (listening, speaking, reading, and writing), although major focus is on reading and writing. Prerequisite: Departmental placement or permission of instructor.

SPAN 316 Spanish Composition 3 hrs.
Emphasis upon increasing the student’s command of written Spanish. Prerequisite: SPAN 201 or equivalent. (SPAN 316 may be taken concurrently with SPAN 201.)

SPAN 317 Spanish Conversation 3 hrs.
Emphasis upon increasing the student’s command of spoken Spanish. Prerequisite: SPAN 201 or equivalent. (SPAN 317 may be taken concurrently with SPAN 201.)

SPAN 321 Life and Culture of Hispanics in U.S. 3 hrs.
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. Prerequisites: SPAN 316 and 317 or equivalent (SPAN 317 may be taken concurrently with SPAN 321 with permission of Spanish advisor).
SPAN 322 Life and Culture of Spain 3 hrs.
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. Prerequisite: SPAN 316 and 317 or equivalent. SPAN 317 may be taken concurrently with SPAN 322 with permission of Spanish advisor.

SPAN 323 Life and Culture of Spanish America 3 hrs.
A study of Spanish-American life and culture based on ethnic, historical, social, religious and literary considerations. Prerequisites: SPAN 316 and 317 or equivalent (317 may be taken concurrently with 323 with permission of Spanish advisor).

SPAN 324 Introduction to the Study of Spanish Linguistics 3 hrs.
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. Prerequisites: SPAN 316, 317 or equivalent (317 may be taken concurrently with 324 with permission of Spanish advisor).

SPAN 325 Introduction to the Study of Spanish Literature 3 hrs.
An appreciation of Spanish literature through reading and critical interpretation of selected works of various literary types. Prerequisites: SPAN 316 and 317 or equivalent.

SPAN 440 Internship or Service with Spanish 2-3 hrs.
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 hrs of Spanish courses at the 300-level or above; students also must have approval of instructor before registering.

SPAN 452 Advanced Spanish Grammar and Composition 3 hrs.
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. Prerequisites: SPAN 316, 317 and one additional 300-level course.

SPAN 453 Advanced Spanish Conversation 3 hrs.
Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression. Prerequisites: SPAN 316, 317, and one additional 300-level course.

SPAN 454 Spanish Phonetics 3 hrs.
An alternative or complement to SPAN 453. 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. Prerequisites: SPAN 316, 317, and one additional 300-level course. SPAN 324 is recommended.

SPAN 477 Foreign Study 1-16 hrs. Fall-Winter; 1-8 hrs. Spring-Summer. A student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson.
**GEOGRAPHY**

David G. Dickson, Chair
James Biles
Deborah C. Oye
Elen M. C. Cutrim
Lisa DeChano
Charles Emerson
Roland Lesser
Changheing He
David Lemberg
Eldor C. Quandt
Joseph F. Stolzman
Gregory Veeck

Geography Department programs provide understanding of the physical and socio-cultural systems of planet earth. Specialized majors prepare students for careers in tourism, urban and regional planning, environmental resource analysis and management, geographic education, and geographic information science.

A core of four courses (GEOG 105, 205, 265, 303) are required of majors. A non-teaching major in geography encompasses a minimum of 32 hours. It is recommended that 6 additional hours of work from the complementary disciplines be taken in support of the area of specialization. An internship (GEOG 412) may be arranged in this program. For those who intend to pursue graduate work, it is recommended that courses in mathematics and foreign languages be considered as electives. The department will accept, toward the major or minor, credits earned at community and junior colleges which correspond to the 100-, 200-, 300-level offered by this department. However, transfer students should meet with the undergraduate advisor as soon as possible in order to finalize their program and avoid the danger of duplication of course work. Courses taken on a Credit/No Credit basis may not be counted toward the major except with the approval of the department chairperson. An honors program is available for students so recommended by members of the faculty of the Department of Geography. Prerequisites applicable to all 500-level courses in Geography include junior status and 14 credit hours of Geography or related courses and consent of advisor and/or instructor.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen either the Geography major or the Tourism and Travel major will satisfy the Baccalaureate Writing Requirement by successfully completing GEOG 203 Geographic Inquiry.

**GEOGRAPHY MAJOR—SECONDARY EDUCATION**

**32 credit hours**

- GEOG 265 Map, Chart and Air Photo Reading (4 hrs.)
- GEOG 303 Geographic Inquiry (4 hrs.)
- Two courses in Systematic Geography (see list below) One course in Regional Geography One course in Geographic Methods

The remaining courses are elective and should be selected in consultation with the Department Advisor.

**GEOPHY MINOR**

**20 hours credit**

- GEOG 205 Physical Geography (4 hrs.)

**GEOPHY MAJOR—SPECIALIZATION**

32 hours credit

The areas of specialization are urban and regional planning, geographic information science, environmental and resource management, and regional geography. A program of courses is provided for each of these areas. This major is focused upon courses designed to meet a student's particular needs. An internship (GEOG 412) is available for those who wish to gain practical experience. This can be done by either assisting faculty in research or by working in an approved off-campus agency. It is recommended that 6 additional hours of work from complementary disciplines be taken in support of the area of specialization.

- GEOG 105 Physical Geography (4 hrs.)
- GEOG 205 Human Geography (3 hrs.)
- GEOG 265 Map, Chart and Air Photo Reading (3 hrs.)
- GEOG 303 Geographic Inquiry (4 hrs.)
- GEOG 390 China, Japan, and Korea: Reading (3 hrs.)
- GEOG 391 Sub-Saharan Africa (3 hrs.)
- GEOG 392 Mexico and the Caribbean (3 hrs.)
- GEOG 393 China, Japan, and Korea: Reading (3 hrs.)
- GEOG 394 The Post-Soviet States and Europe (3 hrs.)
- GEOG 395 The Pacific Realm (3 hrs.)
- GEOG 396 Sub-Saharan Africa (3 hrs.)
- GEOG 397 Monkood Asia (3 hrs.)
- GEOG 398 China, Japan, and Korea: Reading (3 hrs.)
- GEOG 399 Concept and Strategies in the Teaching of Geography (3 hrs.)

Electives (12 hrs.)

The choice of a physical or social science emphasis within the major, and selection of all remaining courses and the minor will be made in consultation with the Department Advisor.

**ELECTIVES**

In consultation with and the approval of the program advisor, Tourism and Travel Majors are to select two additional courses in geography. Professional Practice (GEOG 412) is recommended as one of the two.

**MINOR**

The tourism major is required to take a minor from the Haworth College of Business or from the Department of Foreign Languages and Literatures (Modern and Classical Languages). Students in the secondary education curriculum who major in geography and choose a social studies emphasis must also complete a minor in Group Social Studies of at least 24 hours comprising the following: EDG 201 and 202 (6 hrs.): three courses in History, including at least two at the 300/400-level (9 hrs.); two courses in Political Science, including at least one at the 300/400-level (6 hrs.); and electives approved by the major advisor from the above disciplines, or from anthropology or sociology, with a minimum of 12 hrs. overall in minor at 300/400-level.

**GROUP SOCIAL STUDIES MINOR—SECONDARY EDUCATION CURRICULUM**

Students in the secondary education curriculum who major in geography and choose a social studies emphasis must also complete a minor in Group Social Studies of at least 24 hours comprising the following: EDG 201 and 202 (6 hrs.): three courses in History, including at least two at the 300/400-level (9 hrs.); two courses in Political Science, including at least one at the 300/400-level (6 hrs.); and electives approved by the major advisor from the above disciplines, or from anthropology or sociology, with a minimum of 12 hrs. overall in minor at 300/400-level.

**SCIENCE AND MATHEMATICS TEACHING MINOR**

The Department of Geography participates in the science and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section of this catalog.

**SCIENCE AND MATHEMATICS TEACHING MINOR**

The geography courses 100, 105, 204, 225, 265, 300, 350, 375, 521, 553, 554, 555, 557,

**GEOGRAPHY 83**
A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

**Courses By Topic**

**SYSTEMATIC GEOGRAPHY**

GEOG 100 World Ecological Problems and Man 4 hrs.

GEOG 102 World Geography Through Media and Maps

GEOG 105 Physical Geography

GEOG 204 National Park Landscapes

GEOG 205 Human Geography

GEOG 225 Introduction to Meteorology and Climatology

GEOG 244 Economic Geography

GEOG 306 The Atmospheric Environment and Society

GEOG 350 Conservation and Environmental Management

GEOG 356 Introduction to City and Regional Planning

GEOG 361 Population: The Crowding World

GEOG 408 Geography of Travel and Tourism

GEOG 421 Studies in Climatology and Meteorology

GEOG 544 Studies in Economic Geography

GEOG 545 Studies in Human Geography

GEOG 553 Water Resources Management

GEOG 554 Outdoor Recreation: Resources and Planning

GEOG 555 Contemporary Issues in Environmental Management

GEOG 556 Studies in Urban and Regional Planning

GEOG 557 Environmental Impact Assessment

GEOG 570 Cities and Urban Systems

**REGIONAL GEOGRAPHY**

GEOG 309 Studies in Regional Geography

GEOG 311 Geography of Michigan

GEOG 380 United States and Canada

GEOG 381 South America

GEOG 382 Mexico and the Caribbean

GEOG 383 Western and Southern Europe

GEOG 384 The Post-Soviet States

GEOG 385 The Pacific Realm

GEOG 386 Sub-Saharan Africa: Man, Environments, Resources

GEOG 387 The Middle East and North Africa

GEOG 389 Monsoon Asia

GEOG 390 China, Korea, and Japan: Lands and Cultures

**GEOGRAPHIC METHODOLOGY AND RESEARCH**

GEOG 265 Map, Chart, and Air Photo Reading

GEOG 303 Geographic Inquiry

GEOG 310 Research and Regulation in Tourism

GEOG 375 Principles of Cartography

GEOG 412 Professional Practice

GEOG 460 Concepts and Strategies in the Teaching of Geography

GEOG 566 Field Geography

GEOG 567 Geodata Handling and Mapping

GEOG 568 Quantitative Methodology

GEOG 569 Geographic Information Systems

GEOG 580 Advanced Cartography

GEOG 582 Remote Sensing of the Environment

GEOG 597 Readings in Geography

GEOG 100 World Ecological Problems and Man 4 hrs.

(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. This 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. Through major issues may vary for developing and developed nations, topics concerned with population pressure, pollution, and urbanization will be among those considered.

GEOG 102 World Geography Through Media and Maps 3 hrs.

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.

GEOG 105 Physical Geography 4 hrs.

(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.

GEOG 204 National Park Landscapes 3 hrs.

(Science credit) Introduction to the physical and human landscapes of the national park system. Consideration of those natural and human processes which have produced the distinctive features of national parks. Evolution of the national park concept, policies, and problems.

GEOG 205 Human Geography 3 hrs.

An introduction to those aspects of geography concerned with the efforts of humans to cope with the environment. Included are population and settlement forms, the utilization of resources, the impact of technology on human occupancy of the earth, and the origin and dispersal of cultural elements among the various world realms.

GEOG 225 Introduction to Meteorology and Climatology 4 hrs.

(Science credit) A non-mathematical analysis of atmospheric behavior. 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 105 or equivalent.**

GEOG 244 Economic Geography 3 hrs.

This course reviews the spatial processes and patterns for primary production, transportation, manufacturing and energy, service functions, trade and economic development.

GEOG 265 Map, Chart and Air Photo Reading 3 hrs.

(Science credit) Introductions to the fundamental principles that link maps and nature: scale, surface transformations of earth relief and round planet; selection, simplification, and symbolization of data; reference grids and orientation. Methods of map reading, analysis, and interpretation are practiced on maps of different kinds and scales. Air photos and other remotely sensed images and their application are also introduced.

GEOG 303 Geographic Inquiry 4 hrs.

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 analysis, interpretation, and graphic and written presentation. The emphasis throughout will be on the application of inquiry models to geographic problems. For Geography majors and minors and Tourism and Travel majors. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. **Prerequisites: MATH 366 for all majors in the Geographical Information Processing concentrations of the Geography major, for all other majors and minors, MATH 160, 260, or equivalent.**

GEOG 306 Atmospheric Environment and Society 3 hrs.

(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.

GEOG 309 Studies in Regional Geography 2-3 hrs.

An investigation of topics in physical and human geography of selected areas within major world regions. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment. **Prerequisite: consent of department advisor and instructor.**

GEOG 310 Research and Regulation in Tourism 4 hrs.

This course introduces the research methods and data sources for the analysis of tourism and travel. The use of flow patterns and the predictive modeling of spatial interaction as well as geographic theories related to diffusion and effects of regulations which patterns will be investigated. For Tourism and Travel majors only.

GEOG 311 Geography of Michigan 3 hrs.

An introduction to the physical and cultural patterns in Michigan with emphasis upon an understanding of the distribution of population, resources, and forms of economic activity.
Attention is also focused upon relevant current State problems.  

**GEOG 350 Conservation and Environmental Management**  
3 hrs.  
(Science credit) A critical evaluation of the management of selected natural resources within the primary focus on the United States. Conflicts between environmental and economic interests are examined in both historical and contemporary contexts.  

**GEOG 356 Introduction to City and Regional Planning**  
3 hrs.  
Intended to provide the student with an introduction to planning thought and professional practice; examination of the evolution from traditional physical land-use planning to the comprehensive planning process which incorporates physical, social, and economic elements; consideration of the impact of planners and planning movements of the 19th and early 20th centuries such as the "New Towns" programs; relationship of planning to zoning; the emergence of regional administrative units and regional planning programs.  

**GEOG 361 Population: The Crowding World**  
3 hrs.  
Population distribution and settlement patterns are examined geographically. Population topics include the study of population distribution and analysis, theories of population change, and types of migration. Emphasis is also placed on functions and structure of urban and rural settlements in selected world regions.  

**GEOG 375 Introduction to Geographic Information Systems**  
3 hrs.  
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. **Prerequisite:** Completion of University computer literacy proficiency.  

**GEOG 380 United States and Canada**  
3 hrs.  
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 381 South America**  
3 hrs.  
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.  

**GEOG 382 Mexico and the Caribbean**  
3 hrs.  
Systemic 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.  

**GEOG 383 Western and Southern Europe**  
3 hrs.  
Intensive regional study of those European nations. The physical elements (climate, landforms, resources, etc.) are examined and their environmental impacts are identified. Emphasis is placed upon the social and economic activities of contemporary Western and Southern Europe.  

**GEOG 384 The Post-Soviet States**  
3 hrs.  
A geographical appraisal of the newly independent republics. Topics covered include: location and geographical setting, the physical environment, population, ethnic and nationality issues, economic development, and problems of environmental deterioration.  

**GEOG 385 The Pacific Realm**  
3 hrs.  
Selected studies of the relationships between human beings and the environment in Australia, New Zealand, Melanesia, and Polynesia.  

**GEOG 386 Sub-Saharan Africa: Man, Environments, Resources**  
3 hrs.  
Survey of the principal physical and political patterns of Africa south of the Sahara, followed by studies of the significant elements of the major realms and states, e.g., population distribution, patterns of subsistence and commercial agriculture, status of mineral and power resource development, transportation routes, regional development programs.  

**GEOG 387 The Middle East and North Africa**  
3 hrs.  
Study of the diversity and uniformity—both physical and cultural—of the Middle East and Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, oil and the Muslim World on the current political scene.  

**GEOG 389 Monsoon Asia**  
3 hrs.  
Systematic survey of the physical and human (socio-economic) patterns of the southeastern rim of Asia (Pakistan in the west to Japan in the east). Geographical background necessary to interpret present conditions is included.  

**GEOG 390 China, Japan, and Korea: Lands and Cultures**  
3 hrs.  
An introduction to the contemporary landscapes, cultures, and economies of the countries of 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.  

**GEOG 408 Geography of Travel and Tourism**  
4 hrs.  
The student studies global environments and transportation systems to analyze tourism and travel trends and opportunities. An examination of resort areas, tourist frequency patterns to various resorts, cultural opportunities, and perception of places through travel brochures and literature are included in the course. Theoretical assumptions underlying perceptions of place and mental models of tourism and travel preferences are examined. For Tourism and Travel majors only.  

**GEOG 412 Professional Practice**  
2–6 hrs.  
Provision for an advanced student to benefit by supervised, 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 412. The student may enroll for one additional semester, but no student will be allowed more than six hours total credit for 412. For Geography majors and minors, and Tourism and Travel majors only. **Prerequisite:** Junior standing and consent of Department Chair.  

**GEOG 460 Geography/Social Studies Teaching in Middle and High School**  
3 hrs.  
This is a pre-service course designed to enable students to meet professional expectations and requirement necessary for teaching geography/social studies in middle and high schools. The teaching methodologies that enhance social science inquiry are the focus. Content standards for the Michigan Social Studies Framework are applied. Meets secondary methods requirements in geography and political science. An alternate methods course to secondary history. Fulfills requirement for the social studies group minor. **Prerequisite:** GEOG 460 must be taken concurrently or following enrollment in ED 301 and 302.  

**Prerequisites applicable to all 500-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor.**

**GEOG 521 Studies in Climatology and Meteorology**  
3 hrs.  
(Science credit) Studies at an advanced level in meteorology and climatology. Topics of current interest to atmospheric scientists are examined in depth. Regional climatic phenomena and their relation to atmospheric circulation patterns are also investigated. **Prerequisite:** GEOG 225 or consent of department.  

**GEOG 544 Studies in Economic Geography**  
2–3 hrs.  
Prerequisite: GEOG 412.  

**GEOG 545 Studies in Human Geography**  
2–3 hrs.  
Prerequisite: GEOG 412.  

For each course listed under this general title is a prerequisite. The student expects to enroll in 412. The student may enroll for one additional semester, arranged in consultation with departmental advisors during the semester preceding that in which the student expects to enroll in 412. The student may enroll for one additional semester, but no student will be allowed more than six hours total credit for 412. For Geography majors and minors, and Tourism and Travel majors only. **Prerequisite:** Junior standing and consent of Department Chair.  

**GEOG 460 Geography/Social Studies Teaching in Middle and High School**  
3 hrs.  
This is a pre-service course designed to enable students to meet professional expectations and requirement necessary for teaching geography/social studies in middle and high schools. The teaching methodologies that enhance social science inquiry are the focus. Content standards for the Michigan Social Studies Framework are applied. Meets secondary methods requirements in geography and political science. An alternate methods course to secondary history. Fulfills requirement for the social studies group minor. **Prerequisite:** GEOG 460 must be taken concurrently or following enrollment in ED 301 and 302.  

**Prerequisites applicable to all 500-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor.**

**GEOG 521 Studies in Climatology and Meteorology**  
3 hrs.  
(Science credit) Studies at an advanced level in meteorology and climatology. Topics of current interest to atmospheric scientists are examined in depth. Regional climatic phenomena and their relation to atmospheric circulation patterns are also investigated. **Prerequisite:** GEOG 225 or consent of department.  

**GEOG 544 Studies in Economic Geography**  
2–3 hrs.  
Prerequisite: GEOG 412.  

**GEOG 545 Studies in Human Geography**  
2–3 hrs.  
Prerequisite: GEOG 412.  

For each course listed under this general title is a prerequisite. The student expects to enroll in 412. The student may enroll for one additional semester, arranged in consultation with departmental advisors during the semester preceding that in which the student expects to enroll in 412. The student may enroll for one additional semester, but no student will be allowed more than six hours total credit for 412. For Geography majors and minors, and Tourism and Travel majors only. **Prerequisite:** Junior standing and consent of Department Chair.  

**GEOG 460 Geography/Social Studies Teaching in Middle and High School**  
3 hrs.  
This is a pre-service course designed to enable students to meet professional expectations and requirement necessary for teaching geography/social studies in middle and high schools. The teaching methodologies that enhance social science inquiry are the focus. Content standards for the Michigan Social Studies Framework are applied. Meets secondary methods requirements in geography and political science. An alternate methods course to secondary history. Fulfills requirement for the social studies group minor. **Prerequisite:** GEOG 460 must be taken concurrently or following enrollment in ED 301 and 302.  

**Prerequisites applicable to all 500-level courses in Geography include 14 credit hours of geography, or consent of advisor and/or instructor.**
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.

GEOG 553 Water Resources Management 
3 hrs.
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 run off with computer models, 
and multiple socio-economic and hydrological factors in water resources management. 
Prerequisites: MATH 122, GEOG 105 and 
GEOG 225, and CS 105, or consent of 
instructor.

GEOG 554 Outdoor Recreation: Resources 
and Planning 
3 hrs. (Science Credit) Examination of extensive, 
resource-based outdoor recreation (such as 
parks, wilderness, wild rivers, hunting and 
fishing, hiking, etc.) with emphasis upon 
recreational land uses, and various problems 
associated with outdoor recreation. Readings, 
discussion, and student-designed and 
executed individual studies provide 
professional orientation.

GEOG 555 Contemporary Issues in Resources 
Management 
3 hrs. (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. Prerequisite: GEOG 
350 or consent.

GEOG 556 Studies in Urban and Regional 
Planning 
3 hrs. Each of the courses listed under this number 
focuses on a major aspect of planning, 
including a review of the objectives of the 
planning process, legislation pertaining to 
planning operations, and methods of field 
and library investigation required for analysis and 
policy formulation in matters related to 
planning.

1. Urban Planning and Zoning. A survey of 
American planning thought and practice; the 
background of planning and zoning in 
American municipalities; traditional and 
contemporary approaches to the 
comprehensive plan; elements of land 
use and transportation planning; the 
legal foundations of zoning; and the 
organization of the planning agency.

2. Regional Planning. Organization and 
and plans of regional development programs.

3. Public Lands and Parks. Specific 
programs and policies relating to the

preservation and/or development of 
government-controlled lands. 
Prerequisite: GEOG 356 or consent of 
department.

GEOG 557 Environmental Impact Assessment 
3 hrs. Alteration of the natural and human 
environment for perceived economic and 
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. 
Prerequisites: Senior standing and GEOG 350 or 
permission.

GEOG 566 Field Geography 
2–4 hrs. 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 observations. Prerequisite: GEOG 265 or 
375, and 562, or consent of department.

GEOG 567 Geodata Handling and Mapping 
4 hrs. Introduction to fundamental principles and 
procedures of representation and analysis of 
geographic data, in a variety of applications. 
The course combines theoretical discussions 
with practical data analysis. Topics include: 
geographic measurement and representation; 
methods and software for descriptive and 
inferential statistics, with emphasis on spatial 
data analysis; computer mapping techniques; 
geographic modeling, and exploration of data 
resources. Prerequisites: GEOG 375 or 
consent of instructor; senior or graduate 
standing.

GEOG 568 Quantitative Methodology 
3 hrs. The application of quantitative concepts and 
methods to the solution of geographic 
problems. Critical review of research in 
quantitative geography, ranging from the use 
of common statistical techniques to alternate 
methods of model formation and the analysis of 
spatial problems. Prerequisite: GEOG 567 or 
the consent of department.

GEOG 569 Intermediate Geographic Systems 
4 hrs. Principles and applications of Geographic 
Information Systems (GIS). Examines the 
accuracy and precision of spatially referenced 
data, as well as methods of data capture, 
storage, retrieval, visualization, and output. 
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. Prerequisite: 
GEOG 375.

GEOG 570 Cities and Urban Systems 
3–4 hrs. 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.

GEOG 580 Advanced Cartography 
4 hrs. (Science credit) A review of current trends and 
philosophies of cartography. A combination of 
lectures, demonstrations, and independent 
projects provide the advanced cartography 
student with opportunities to practice 
state-of-the-art map design, multicolor 
production, photoreproduction, and 
computer-assisted mapping. It is 
recommended that GEOG 567 be taken before 
580. Prerequisite: GEOG 375 or equivalent.

GEOG 582 Remote Sensing of the 
Environment 
3 hrs. (Science credit) The fundamental techniques and 
skills of photogrammetry and 
photointerpretation will be introduced in the 
first half of the semester. The remainder of the 
semester will be spent interpreting photos and 
satellite images dealing with such topics as 
geomorphology, archeology, vegetation and 
soils, water resources, rural and urban land 
use as well as topics adapted to the interest 
and anticipated future work of the student. 
Prerequisite: GEOG 265 or consent of the 
instructor.

GEOG 597 Readings in Geography 
1–3 hrs. Designed for highly qualified majors and 
graduate students who wish to study in depth 
some aspect of their field of specialization 
under the direction of a member of the departmental 
staff. Repeatable for credit. Prerequisite: 
Consent of department advisor and instructor.
GEOSCIENTES
Alan E. Kehew, Chair
Estella Atekwana
David Barnes
Daniel Cassidy
Ronald B. Chase
Duane Hampton
William B. Harrison, 3rd
Michelle Kominz
Carla Koretsky
R. V. Krishnamurthy
William A. Sauck
Christopher J. Schmidt

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4
GEOL 460 Geologic Communications .... 1
GEOL 560 Introduction to Geophysics .... 3

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4
GEOL 433 Invertebrate Paleontology .... 4

Sophomore Year
GEOL 335
CHEM 110 and 111
GEOL 433
CHEM 112 and 113

Junior Year
GEOL 336
GEOL 430
PHYS 113, 114 or 205, 206
GEOL 440
PHYS 115, 116 or 207, 208
CS 105

Summer
Field Course in Geology

Senior Year
GEOL 432
GEOL 435
GEOL 560

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4
GEOL 460 Geologic Communications .... 1

Senior Year
GEOL 435

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4
GEOL 433 Invertebrate Paleontology .... 4

Elective courses

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4
GEOL 433 Invertebrate Paleontology .... 4

Required Courses Hrs.
CHEM 110 and 111, CHEM 112 and 113:物理或生物科学，或经批准的课程

Elective courses

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4
GEOL 433 Invertebrate Paleontology .... 4

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4
GEOL 433 Invertebrate Paleontology .... 4

GEOL 130 Physical Geology ............. 4
GEOL 131 Historical Geology .......... 4
GEOL 335 Mineralogy .................. 4
GEOL 336 Optical Mineralogy .......... 3
GEOL 430 Structural Geology .......... 3
GEOL 439 Geologic Mapping or
A field course at another university .... 3
GEOL 440 Petrology and Petrography ... 3
GEOL 435 Sedimentation and
Stratigraphy .......................... 4
GEOL 433 Invertebrate Paleontology .... 4

Physics (PHYS) (17-18 hours)
PHYS 205 Mechanics and Heat ............ 4
PHYS 206 Mechanics and Heat Laboratory .... 1
PHYS 207 Electricity and Light .......... 4
PHYS 208 Electricity and Light Laboratory .... 1

ELECTIVES

CHEM 110 General Chemistry I ............ 4
CHEM 111 General Chemistry Laboratory I .... 1
CHEM 112 General Chemistry II .......... 3
CHEM 113 General Chemistry Laboratory II .... 1

One of the following
PHYS 330 Thermodynamics and Kinetic Theory ........ 3
PHYS 352 Laser and Modern Optics .......... 4
PHYS 440 Electricity and Magnetism I .......... 3

ELECTIVES: 9-12 hours

Students who have chosen the Geophysics major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

GEOL 432 Geomorphology
GEOL 435 Sedimentation and Stratigraphy
ENGL 305 Practical Writing

REQUIRED SUPPORTING COURSES
CHEM 110 and 111 or 112 and 113

GROUP SCIENCE MINOR FOR GEOLOGY MAJORS

Minimum 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

BIOLOGICAL SCIENCES (4 hours)
BIOS 112 or 150 Molecular and Cellular Biology .... 4

CHEMISTRY (8 hours)
CHEM 110 General Chemistry I ............ 3
CHEM 111 General Chemistry Laboratory I .... 1
CHEM 112 General Chemistry II .......... 3
CHEM 113 General Chemistry Laboratory II .... 1

PHYSICS (10 hours)
PHYS 113 General Physics I ............ 4
PHYS 114 General Physics I Laboratory .... 1

PHYS 115 General Physics II .......... 4
PHYS 116 General Physics II Laboratory .... 1
OR
PHYS 205 Mechanics and Heat ............ 4
PHYS 206 Mechanics and Heat Laboratory .... 1
PHYS 207 Electricity and Light .......... 4
PHYS 208 Mechanics and Heat Laboratory .... 1

ELECTIVES

At least 4 credit hours selected from the physical or biological sciences with approval of student's advisor.

EARTH SCIENCE EDUCATION: MAJOR AND MINOR

The Earth Science education major and minor are designed for students preparing to teach in the elementary and secondary schools. No grade below a "C" will be accepted in the required courses. All majors must complete a

REQUIRED MATHEMATICS MINOR (19 hours)

MATH 122 Calculus I ............ 4
MATH 123 Calculus II .......... 4
MATH 272 Vector and Multivariate Calculus .......... 4
MATH 374 Linear Algebra and Differential Equations .......... 4
MATH 507 Numerical Analysis ........ 3

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Geophysics major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

GEOL 432 Geomorphology
GEOL 435 Sedimentation and Stratigraphy
ENGL 305 Practical Writing

REQUIRED SUPPORTING COURSES
CHEM 110 and 111 or 112 and 113

GROUP SCIENCE MINOR FOR GEOLOGY MAJORS

Minimum 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

BIOLOGICAL SCIENCES (4 hours)
BIOS 112 or 150 Molecular and Cellular Biology .... 4

CHEMISTRY (8 hours)
CHEM 110 General Chemistry I ............ 3
CHEM 111 General Chemistry Laboratory I .... 1
CHEM 112 General Chemistry II .......... 3
CHEM 113 General Chemistry Laboratory II .... 1

PHYSICS (10 hours)
PHYS 113 General Physics I ............ 4
PHYS 114 General Physics I Laboratory .... 1

PHYS 115 General Physics II .......... 4
PHYS 116 General Physics II Laboratory .... 1
OR
PHYS 205 Mechanics and Heat ............ 4
PHYS 206 Mechanics and Heat Laboratory .... 1
PHYS 207 Electricity and Light .......... 4
PHYS 208 Mechanics and Heat Laboratory .... 1

ELECTIVES

At least 4 credit hours selected from the physical or biological sciences with approval of student's advisor.

EARTH SCIENCE EDUCATION: MAJOR AND MINOR

The Earth Science education major and minor are designed for students preparing to teach in the elementary and secondary schools. No grade below a "C" will be accepted in the required courses. All majors must complete a
minimum of one semester each of college physics and college chemistry.

**Major (35 hours) Hrs.**

**REQUIRED COURSES**
- GEOL 130 Physical Geology  
- GEOL 131 Historical Geology  
- GEOL 301 Minerals and Rocks  
- GEOL 322 Ocean Systems  
- GEOL 438 or 439 Field Studies in Geology  
- PHYS 103 Sky and Solar System Laboratory  
- PHYS 104 Introduction to the Sky and Solar System  
- PHYS 106 Introduction to Stars and Galaxies  
- GEOG 225 Introduction to Meteorology and Climatology  
- SCI 404 Teaching of Secondary Science  

**REQUIRED COGNATE COURSES**
One course in chemistry and one course in physics required (CHEM 110/111 and PHYS 107/108 or PHYS 113/114 recommended.)

**BACCALAUREATE WRITING REQUIREMENT**
Students who have chosen the Earth Science Major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
- GEOL 432 Geomorphology  
- GEOL 435 Sedimentation and Stratigraphy  
- ENGL 305 Practical Writing  
- ED 395 School and Society  

**TOTAL: 75-76 hours**

**HYDROGEOLOGY MAJOR**
- Total: 75-76 hours

**REQUIRED CORE**

- **Required Courses Hrs.**
  - GEOL 130 Physical Geology  
  - GEOL 131 Historical Geology  
  - GEOL 301 Minerals and Rocks  
  - GEOL 322 Ocean Systems  
  - PHYS 103 Sky and Solar System Laboratory  
  - PHYS 104 Introduction to the Sky and Solar System  
  - PHYS 106 Introduction to Stars and Galaxies  
  - GEOG 225 Introduction to Meteorology and Climatology  
  - SCI 404 Teaching of Secondary Science  

**REQUIRED MINOR**
- Students must elect two (2) of the following courses:
  - GEOL 506 Introduction to Soils  
  - GEOL 536 Glacial Geology  
  - GEOL 563 Electrical Methods  
  - GEOL 566 Exploration Geophysics  
  - GEOL 564 Field Geophysics  
  - GEOL 567 Computerized Geodasies Handling and Mapping  
  - GEOL 582 Remote Sensing of the Environment  
  - PAPR 533 Wastewater Treat. Sys.  

**SCIENCE AND MATHEMATICS TEACHING MINOR**
- The Department of Geosciences participates in the science and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

**RECOMMENDED ADDITIONAL COURSES**
- CHEM 225 Quantitative Analysis  
- CHEM 226 Quantitative Analysis Laboratory  
- CHEM 525 Techniques in Water Analysis  
- MATH 274 Introduction to Differential Equations  
- STAT 364 Statistical Methods  
- CS 201 Programming in FORTRAN  
- COM 104 Public Speaking  
- COM 170 Interpersonal Communication  
- ENGL 305 Practical Writing  

**A minimum of a "C" is required in each of the required Geology courses, and a "C" average in all cognate courses.**

**BACCALAUREATE WRITING REQUIREMENT**
Students who have chosen the Hydrogeology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
- GEOL 432 Geomorphology  
- GEOL 435 Sedimentation and Stratigraphy  

**SCIENCE AND MATHEMATICS TEACHING MINOR**
- The Department of Geosciences participates in the science and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

**Geology Courses (GEOL)**
- A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

**GEOL 100 Earth Studies 4 hrs.**
- Students are introduced to the origin of the solar system and the earth-moon system with emphasis on humanity's place in the universe. Students will investigate the materials and processes that shape the earth and the geologic hazards that affect our lives. Mineral, water, and energy resources will be considered in the context of their occurrence and limitations. Plate tectonics and the origin and evolution of life will be used to frame the course. 3 lectures and a 2 hour lab period. Fulfills General Education Area 6.

**GEOL 129 Physical Geology Laboratory 1 hr.**
- A laboratory experience covering minerals and rocks, and the interpretation of topographic and geologic maps. **Prerequisite:** Minimum 3 hours of nonlaboratory geology.
GEOL 130 Physical Geology 4 hrs.
A study of the common rocks and minerals and the geologic processes acting upon these materials that form the structure and surface features of the earth. Three lectures and a two-hour laboratory period. Fulfills General Education Area 6.

GEOL 131 Historical Geology 4 hrs.
Geologic time, evolution of prehistoric life, and principles of earth history with case examples from North America. Prerequisite: GEOL 130 or GEOL 100 and 129.

GEOL 144 Environmental Earth Science 3 hrs.
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. Fulfills General Education Area 7.

GEOL 200 Evolution of Life—A Geological Perspective 4 hrs.
A consideration of the diversity of life through time with emphasis on the geological constraints on evolution. Evolutionary processes and patterns of selected fossil groups from single-celled organisms to the vertebrates. Co-evolution of plants and animals, and mechanisms of extinction will be discussed. Fulfills General Education Area 6.

GEOL 301 Minerals and Rocks 4 hrs.
A one semester course covering hand specimen mineralogy and petrology; includes introduction to crystallography, physical and chemical properties of minerals, and rock description and genesis. Will not count toward a major in geology. Prerequisite: GEOL 130, a course in college-level chemistry or consent of instructor.

GEOL 312 Geology of the National Parks and Monuments 3 hrs.
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. Fulfills General Education Area 7.

GEOL 322 Ocean Systems 3 hrs.
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.

GEOL 335 Mineralogy 4 hrs.
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. Prerequisite: GEOL 100 or GEOL 130; CHEM 110 and 111; or consent of instructor.

GEOL 336 Optical Mineralogy 3 hrs.
Principles and methods of optical crystallography. Study of minerals in crushed grains and in thin sections. Prerequisite: GEOL 335 or consent of instructor.

GEOL 344 Introduction to Environmental Geology 3 hrs.
An introduction to geology of the environment. Emphasis is placed on the geology of natural hazards, waste disposal systems, earthquakes, floods, erosion and sedimentation, volcanic processes related to human occupation of land, and aspects of urban geology. Prerequisite: GEOL 131 and junior standing; GEOL 301 or GEOL 335; or consent of instructor.

GEOL 412 Introduction to Hydrogeology 3 hrs.
This general survey course in hydrogeology introduces the occurrence, movement, and contamination of ground and surface water. Prerequisite: GEOL 301, MATH 122 or MATH 200, CHEM 110 and 111, and PHYS 107 and 108 or PHYS 113 and 114.

GEOL 430 Structural Geology 3 hrs.
Development of rock structures and mechanisms of rock deformation. Structural interpretation of geologic maps, cross-sections, and aerial photographs. Prerequisites: GEOL 131; GEOL 301 or GEOL 335; MATH 118; or consent of instructor.

GEOL 432 Geomorphology 3 hrs.
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: GEOL 131; GEOL 301 or GEOL 335; PHYS 107 and 108 or PHYS 113 and 114; and MATH 118 or MATH 200.

GEOL 433 Invertebrate Paleontology 4 hrs.
Morphology, classification, evolution, and stratigraphic distribution of major invertebrate fossil groups. Prerequisite: GEOL 131 or consent of instructor.

GEOL 434 Problems in Geology 1–3 hrs.
Intensive reading and research on a topic in geology under the direction of a member of the geology faculty. Prerequisite: 16 hours in Geology and permission of department.

GEOL 435 Sedimentation and Stratigraphy 4 hrs.
Processes, characteristics, and relationships among fluvial, deltaic, strand plain, lagoon, shelf, and slope terrigenous depositional systems. Laboratory includes textual analysis, sedimentary structures, paleocurrent analysis, electric logs, subsurface maps, and application of statistical and computer methods to the solution of sedimentologic problems and basin analysis. Course includes a three-day field trip. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: GEOL 131; GEOL 301 or GEOL 335.

GEOL 438 Field Studies in Geology 3 hrs.
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: GEOL 301 or consent of instructor.

GEOL 439 Geologic Mapping 3 hrs.
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. Prerequisites: GEOL 301 or GEOL 440; GEOL 430; or consent of instructor.

GEOL 440 Petrology and Petrography 3 hrs.
Classification, origin, and description of igneous, sedimentary, and metamorphic rocks. Laboratory study of rocks and thin sections. Prerequisite: GEOL 336; CHEM 112 and 113.

GEOL 460 Geologic Communications 1 hr.
A seminar designed to introduce students to the oral presentation of geologic information. Students will critique talks given in the weekly departmental seminar and make one oral presentation to a group of students and faculty.

The prerequisites for 500-level courses are: junior status and 12 hours of course work in geology or consent of instructor. There may be specific prerequisites to individual courses.

GEOL 502 Problems in Geology and Earth Science 1–3 hrs.
Individual problems involving topical reading and/or research projects in earth sciences. May be repeated for credit. Prerequisite: GEOL 130, GEOL 300, GEOL 301, GEOL 440, and consent of department.

GEOL 503 Environmental Consulting Practice 2 hrs.
An introduction to the principles and practices that are peculiar to environmental consulting. Emphasis is placed on the legal, business, and practical considerations needed to conduct a consulting practice. This course is not to be counted toward the 60 credits beyond the Master's in the Ph.D. program. Prerequisite: Graduate standing in geology or earth science.

GEOL 506 Introduction to Soils 3 hrs.
Properties of natural and engineered soils. Interactions between soils and plants, microorganisms, water, atmosphere, and contaminants. Soil uses, remediation, and conservation. Prerequisites: CHEM 100 or placement in CHEM 101 or above.

GEOL 509 Surface Water Hydrology 3 hrs.
Hydrology describes the waters of the earth, their occurrence, circulation and distribution, and their reaction with the environment. Emphasis is on qualitative aspects of surface water. Topics include, stream flow precipitation, evapotranspiration, hydrographs, runoff, probability analysis and modeling.

GEOL 512 Principles of Hydrogeology 3 hrs.
The study of surface and ground water with special emphasis on its occurrence, movement, and relation to the geologic environment. Prerequisites: GEOL 301; GEOL 335; MATH 122. MATH 123 may be taken concurrently.

GEOL 515 Applied Hydrology 3 hrs.
Application of hydrogeologic theory to water supply networks. Topics include: well installation, well testing, aquifer testing, and distribution systems. Prerequisite: GEOL 512.
GEOL 516 Geochronology and Global Change  
3 hrs.  
Application of the concepts of nuclear physics and chemistry to geological problems. Topics to include absolute and relative dating, formation of the elements, global change and causes of global change. Prerequisites: GEOL 335 and basic knowledge of Chemistry, Physics, and Math.  

GEOL 520 Economic Geology  
3 hrs.  
Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Lecture 3 hours a week. Prerequisite: GEOL 301 or GEOL 335.  

GEOL 523 Hazardous Waste Operation and Emergency Response  
1 hr.  
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. Prerequisites: GEOL 412 or 512.  

GEOL 524 Remediation Design and Implementation  
1 hr.  
Principles and techniques for the remediation or cleanup of ground water and soils contamination. 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. Prerequisites: GEOL 412 or 512.  

GEOL 525 Surface Geophysics  
1 hr.  
An introduction to the use of those surface geophysical methods used in the investigation of ground water. Includes shallow seismic methods, and ground-penetrating radar. Prerequisite: GEOL 412 or GEOL 512.  

GEOL 526 Principles and Practices of Aquifer Testing  
1 hr.  
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. Prerequisite: GEOL 412 or GEOL 512.  

GEOL 527 Principles of Well Drilling and Installation  
1 hr.  
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. Prerequisite: GEOL 412 or GEOL 512.  

GEOL 528 Principles and Practices of Ground-water Sampling and Monitoring  
1 hr.  
An 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. Prerequisite: GEOL 412 or GEOL 512.  

GEOL 530 Plate Tectonics and Earth Structure  
3 hrs.  
Major tectonic features and internal structure of the earth in relation to plate tectonics, critical examination of the tenants of plate tectonics. Prerequisites: GEOL 301 or GEOL 335; GEOL 430 or consent of instructor.  

GEOL 536 Glacial Geology  
3 hrs.  
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. Prerequisites: GEOL 301 or GEOL 335.  

GEOL 544 Environmental Geology  
3 hrs.  
Geology related to human affairs and land use planning. Includes engineering properties of earth materials, waste disposal systems, slope stability, floods, erosion and sedimentation, land subsidence, volcanic hazards, earthquakes, and urban geology. Field trips required. Prerequisite: GEOL 131; GEOL 301 or GEOL 335; or consent of instructor.  

GEOL 560 Introduction to Geophysics  
3 hrs.  
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. Prerequisites: GEOL 301 or GEOL 440; GEOL 430; MATH 122; two semesters of college physics; or consent of instructor.  

GEOL 561 Reflection Seismology  
3 hrs.  
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. Prerequisites: GEOL 560; CS 306; MATH 123.  

GEOL 562 Gravity and Magnetic Exploration  
3 hrs.  
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. Prerequisites: GEOL 560, MATH 123.  

GEOL 563 Electrical Methods  
3 hrs.  
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. Prerequisites: GEOL 560; CS 306; MATH 123; PHYS 440; or consent of instructor.  

GEOL 564 Field Geophysics  
3 hrs.  
Field studies demonstrating the use of seismic refraction, gravity, and electrical resistivity methods for glacial geology and ground-water problems in the Kalamazoo area. Prerequisite: GEOL 560.  

GERMAN  
See "Foreign Languages and Literatures" in the College of Arts and Sciences.
The Department of History offers several academic and professional programs with advising by Janet Coryell. Transferred from two-year institutions may be approved. Research and presentation skills in the humanities, along with foreign language skills, are specified by curriculum. Consult the Department of History Undergraduate Handbook for information on advising. History majors lead to the degree of Bachelor of Arts. A maximum of nine hours at the 100/200-level courses and/or coursework transferred from two-year institutions may be included in a major or minor. 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 cognate/required electives, including the last semester of foreign language requirements. Course work in science and in allied social sciences and humanities, is specified by curriculum. Consult the Department of History Undergraduate Handbook for a list of elective courses if selected from the appropriate disciplines. Certain courses in item two of the humanities cognate requirements similarly count toward minor requirements in lieu of 100/200-level courses in history.

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. Students who have completed at least six hours of History in the history major, group social science minor, or minor must be earned at Western Michigan University. Only courses in which a grade of "C" or better is earned may be approved by the department for an emphasis or focus in the discipline, and should be taken as early as possible. History majors need to have completed at least six hours of History in the history major, group social science minor, or minor by course work or by placement examination.

HISTORY MINOR—LIBERAL EDUCATION CURRICULUM
MINOR REQUIREMENTS: Minimum of 24 hrs. of course work, with a maximum of nine hours at the 100/200 level, and a minimum of six hours at the 400/500 level. With faculty advisor approval, two courses in historical studies outside the Department of History, in disciplines such as archaeology, art history, music or theatre history, period literature, etc., may be applied toward minor requirements in lieu of 100/200-level courses in history.

HISTORY MINOR—SECONDARY EDUCATION CURRICULUM
MINOR REQUIREMENTS: At least four courses in United States history, including 6 hrs. at the 400/500-level and a maximum of 9 hrs. at the 100/200-level. Students whose teaching major is outside the College of Arts and Sciences must also complete HIST 494 (Secondary Methods SED).
PUBLIC HISTORY MINOR

MINOR REQUIREMENTS:

1. Three courses from the Public History Core: HIST 404, 406, 408, 410, 412
2. One course from HIST 315, 318, 515, 595, 596
3. One course from another department (check with faculty advisor)
4. North American History: two courses, including one at the 400/500 level
5. History electives: two courses
6. Minimum of 27 hrs. of course work in the minor; maximum of nine hours at the 100/200 level.

NOTE: Internships, volunteer, and work experience are strongly recommended.

Courses By Topic

BASIC COURSES
100 Early Western World
101 Modern Western World
102 Western Civilization
103 History and Current Events
106 Historical Writing
145 Heroes and Villains in the Middle Ages
190 Historians in the Modern World
204 Business History
210 American History to 1877
211 American History since 1877
212 American Culture
230 Introduction to Canadian Studies
250 Michigan History
298 Directed Reading in History

NORTH AMERICA
313 American Diplomatic History
314 American Minorities
315 Popular Art and Architecture in America
316 Women in United States History
318 Environment and the American Experience
320 American Military History
321 American West
324 Everyday Life in America
326 Native American History and Culture
327 U.S. Spanish Borderlands: History and Culture
328 African-American History and Culture
330 History of Canada
416 Topics in Michigan History
420 Colonial America
421 The New Nation: American Revolution and Independence
422 Antebellum America
424 The Civil War and Reconstruction
425 United States, 1877–1919
426 United States 1920–1940
427 United States 1940–1960
428 United States since 1960
430 American Maritime History
432 Women in America to 1870
433 Women in America since 1870
434 Native Americans to 1873
435 Native Americans since 1873
436 Topics in African-American History
439 Topics in United States History
530 Studies in Early American History
535 Studies in Recent American History

EUROPE
336 Women in European History
349 Ancient Near East
350 Ancient Greece and the Hellenistic World
351 Ancient Rome
360 The Medieval World: Society and Culture
362 History of England
363 Britain and the British Empire
364 Modern Europe: Culture and Society
366 Russia Yesterday and Tomorrow
368 History of European Nations
440 Imperial Rome
441 Early Christianity
442 Byzantine Civilization
444 Early Medieval History
445 Later Medieval History
446 Renaissance Europe
447 The Reformation
450 Europe in the 17th and 18th Centuries
452 French Revolution and Napoleon
456 Europe 1815–1871
457 Europe 1871–1919
458 Europe 1919–1945
460 Europe since 1945
462 Great Ages in English History
465 Russia to 1855
466 Russia since 1855
467 Topics in Iberian History
469 Topics in European History
550 Studies in Medieval History
565 Studies in Modern European History

NON-WESTERN
302 World History to 1500
303 World History since 1500
370 History of Latin America
376 Modern East Asia
384 Modern Islam
385 Modern Middle East
388 Introduction to African Civilization
471 Latin America
476 Traditional China
477 Modern China
479 Modern Japan
480 Topics in Asian History
485 Early Islam
488 History of West Africa
489 Topics in African History
585 Studies in Asian and African History

GENERAL
300 Arts and Ideas: Ancient/Medieval
301 Modern Arts and Ideas
302 World History to 1500
303 World History since 1500
306 Technology and Culture
308 History of Medicine and Medical Care
310 Topics in History
332 Global History 1885–1945
333 The World since 1945
400 Topics in History
414 Topics in Military History
416 Topics in Legal and Constitutional History
417 Topics in Environmental and Social History
419 Topics in Intellectual and Cultural History

THEORY AND PRACTICE
390 Introduction to the Study of History
404 Introduction to Public History
406 Archives Administration
408 Museum Studies
410 Historic Preservation
412 Local History Techniques
494 Teaching Methods for Secondary Schools
496 Senior Seminar
499 Senior Thesis
515 Topics in Public History
591 Topics in Theory and Practice
592 Computers in Historical Research
595 History Writing Workshop
596 Local History Workshop

OTHER COURSES
495 Internship
498 Directed Research
500 Studies in History
510 Colloquium
590 Seminar

History Courses (HIST)
A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

HIST 100 Early Western World
3 hrs.
Survey of the major political and cultural developments in the ancient near east, Greece, Rome, and medieval Europe to approximately 1500.

HIST 101 Modern Western World
3 hrs.
Survey of major developments in Western civilization from the Renaissance to the present.

HIST 102 Western Civilization: The Modern Era
3 hrs.
Survey of the major developments in European civilization from the late nineteenth century to the present.

HIST 103 History and Current Events
3 hrs.
Historical background of selected contemporary issues and news events.

HIST 110 Outline of World History
3 hrs.
Broad patterns and themes in world history considered from the perspective of the major centers of civilization.

HIST 145 Heroes and Villains in the Middle Ages
3 hrs.
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 145 and MDVL 145.

HIST 190 Historians in the Modern World
3 hrs.
A survey of the historical professions and the academic preparation needed to enter them. Introduction to basic research, analytical, and presentation skills in the discipline.

HIST 204 Business History
3 hrs.
The business community as an integral part of history and society. Uses the case study method and business biography to explore economic and financial issues in historical setting. Covers the whole range of Western history with emphasis on the American experience.

HIST 210 American History to 1877
3 hrs.
General survey of United States history from colonial times to the late nineteenth century.

HIST 211 American History since 1877
3 hrs.
General survey of United States history with emphasis on the twentieth century American experience.

HIST 212 American Culture
3 hrs.
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.

HIST 250 Michigan History
3 hrs.
Political, economic and social development of Michigan with emphasis on its relation to the history of the United States.

HIST 298 Directed Reading in History
1–3 hrs.
Registration requires approval of the supervising faculty member and the Department Chair. May be repeated to a maximum of three semester hours.
HIST 300 Arts and Ideas: Ancient/Medieval
3 hrs.
Survey of the history and interplay of intellectual and artistic developments in the West from ancient through medieval times.

HIST 301 Modern Arts and Ideas
3 hrs.
Survey of the history and interplay of intellectual and artistic creativity from the Renaissance to the present. Covers all major areas of material culture.

HIST 302 World History to 1500
3 hrs.
Introduction to World History to 1500, intended for students of all majors. By “world history” 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.

HIST 303 World History since 1500
3 hrs.
Introduction to World History to 1500, intended for students of all majors. By “world history” 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.

HIST 306 Technology and Culture
3 hrs.
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.

HIST 308 History of Medicine and Medical Care
3 hrs.
Survey of the development of medicine as a science, a healing agency, and a social institution. Includes medical achievements from ancient to modern times, overview of the changing role of medical experts in various cultures, medical education, medical social work, and evolution of the nursing profession.

HIST 310 Topics in History
1–3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 313 American Diplomatic History
3 hrs.
History of American foreign relations from the American Revolution to the present, emphasizing diplomacy of the twentieth century.

HIST 314 American Minorities
3 hrs.
Surveys of the historical experiences of American ethnic groups such as Black Americans, Native Americans, and major European, Asian, and Hispanic communities. Topics listed in Schedule of Course Offerings. May be repeated under different topics. Topics may be cross-listed with BAS 300 or BAS 301.

HIST 315 Popular Art and Architecture in America
3 hrs.
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.

HIST 316 Women in United States History
3 hrs.
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.

HIST 318 Environment and the American Experience
3 hrs.
Impact of environmental conditions on American historical and cultural development; changing attitudes toward environmental issues.

HIST 320 American Military History
3 hrs.
Survey of major events and developments in North American and United States military history from the eighteenth century to the present.

HIST 322 The American West
3 hrs.
A study of the exploration and settlement of the North American continent. Topics include Indian relations, utilization of land and resources in the fur trade, mining, and cattle ranching, and the establishment of law and order on the frontier.

HIST 324 Everyday Life in America
3 hrs.
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.

HIST 326 Native American History and Culture
3 hrs.
Survey of 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.

HIST 327 U.S./Spanish Borderlands: History and Culture
3 hrs.
In the sixteenth century, the Spanish explored and colonized what became the southern tier of the United States, interacting with diverse indigenous groups in multiple ways. The movement of French and Anglo-Americans into areas of Spanish control in the eighteenth century, and later political and economic changes such as Texas independence, Manifest destiny, and the growth of ranching added new dimensions. Discussion of export agriculture and manufacturing, twentieth century immigration, and contemporary class and ethnic relations along the US/Mexico border bring the course to current issues.

HIST 328 African-American History and Culture
3 hrs.
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.

HIST 330 History of Canada
3 hrs.
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.

HIST 332 Global History 1885–1945
3 hrs.
Themes in global history and global interdependence from the late nineteenth century to the cataclysm of World War II. Topics include globalization of technology, commerce, communication and human expectations; economic integration and international cooperation, the dichotomy of nationalism and ethnicity and the emergence of a world culture; the world at war.

HIST 333 The World since 1945
3 hrs.
Examination of the major developments of the second half of the twentieth century and the dichotomies of continuity and revolutionary change they present.

HIST 336 Women in European History
3 hrs.
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.

HIST 349 Ancient Near East
3 hrs.
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.

HIST 350 Ancient Greece and the Hellenistic World
3 hrs.
Origins of the ancient Greeks and their role in the Aegean civilizations of Crete, Troy, and Mycenae; the Homeric age, and development of the polis. Examination of the contrasting city-states of Athens and Sparta, as well as the unique cultural achievements and legacy of Hellenism; Alexander the Great and the Hellenistic world.

HIST 351 Ancient Rome
3 hrs.
Roman history from earliest beginnings to the decline and fall of the Roman empire. The early Italic, Etruscan, and Greek cultures of ancient Italy prior to the emergence of Rome; rise of the Roman republic and conquest of the Mediterranean; civil wars, development of the empire and its ultimate collapse; cultural achievements of the age.

HIST 360 The Medieval World: Society and Culture
3 hrs.
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.

HIST 362 History of England
3 hrs.
Development of national culture in England and the British Isles to approximately the end of the eighteenth century; evolution of constitutional and legal structure; emergence of England as a competitor for European and world hegemony.

HIST 363 Britain and the British Empire
3 hrs.
Britain in the nineteenth and twentieth centuries: development and subsequent loss
HIST 364 Modern East Asia 3 hrs.
The recent history of China, Japan, and Korea: tradition, reform, and revolutionary movements; ideologies and techniques of modernization; national ambitions and international relations.

HIST 384 Modern Islam 3 hrs.
Survey of the Islamic world from the late nineteenth century to the present, with emphasis on development of Islamic alternatives to social, economic and political modernization. Considers Islam in a global relationship to the Christian West.

HIST 385 Modern Middle East 3 hrs.
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 the thematic moment of the major forces shaping the modern Middle East, including Arab nationalism, Zionism, and colonialism.

HIST 388 Introduction to African Civilization 3 hrs.
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.

HIST 390 Introduction to the Study of History 3 hrs.
Major themes and developments in historiography and historical thought. Ideas and institutions of history from different periods are studied in 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. Prerequisite: HIST 190.

HIST 404 Introduction to Public History 3 hrs.
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.

HIST 412 Local History Techniques 1–3 hrs.
Sources and techniques of local historians and their application to research. Emphasis on various primary sources such as manuscript collections, oral history, genealogy, archaeological and ethnographic data. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 414 Topics in Military History 1–3 hrs.
Topics in military history from ancient times to the present. Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 420 Colonial America 3 hrs.
The American colonies as part of the British empire; their founding, and their political, social, and economic development to the eve of the American Revolution.

HIST 424 The Civil War and Reconstruction 3 hrs.
Examines the origins of the Civil War, the reasons for Northern victory and Southern defeat, and the conflicts over Reconstruction policy and the status of Black Americans.

HIST 425 United States, 1877–1919 3 hrs.
Causes and consequences of industrialization and urbanization in the period, and concurrent revolutions in agriculture, transportation and communications; the Progressive movement; ideas, arts, and culture of the era.

HIST 426 United States 1920–1940 3 hrs.
Social, economic, and political characteristics of the 1920s; economic collapse and onset of the Great Depression; the Roosevelt New Deal; arts and culture of the era.

HIST 427 United States 1940–1960 3 hrs.
The United States in World War II and the 1950s; major social, cultural, and economic aspects of the era; emergence of the United States as a superpower.

HIST 428 United States since 1960 3 hrs.
Major domestic developments and international challenges since the Kennedy presidency.

HIST 430 American Maritime History 3 hrs.
This course will examine America's historic relationship with marine and freshwater environments. It will consider the economic, cultural, political, and naval uses of these bodies of water by Americans from 1700 to the present. Viewing maritime history as the documentation and interpretation of water-related movement (people, commodities), networks (intercultural contact, economic/political linkage), culture (maritime communities), and resource use (fishing, leisure activities), this course will assess these factors within three frameworks: 1) the American mariner's world; 2) the American maritime community along shore; 3) American society at-large.

HIST 432 Women in America to 1870 3 hrs.
Women's historical experiences from the early 16th century to 1870; focus on women's relationships to the economy, the family, politics, changing concepts of gender and ideals of womanhood; variations in experience by class.

HIST 433 Women in America since 1870 3 hrs.
Continuation of HIST 432.

HIST 434 Native Americans to 1783 3 hrs.
Introduction to themes and issues in Native history from earliest contact to 1783. Topics include contact and conflict, depopulation, Native-European relations, cultural change and continuity.

HIST 435 Native Americans Since 1783 3 hrs.
Introduction to themes and issues in Native history from 1783 to the present day. Topics

HIST 442 Antebellum America 3 hrs.
Society and culture of the United States in the 19th century before the Civil War.

HIST 443 Teaching Methods for Secondary Schools 3 hrs.
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: In addition to 8 hours of U.S. History, students must also have taken ED 302 or take it concurrently.

HIST 400 Topics in History 1–3 hrs.
Selected topics in historical studies. Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 406 Archives Administration 3 hrs.
Theory, techniques, and practice in the development and administration of archives and archival materials.

HIST 410 Historic Preservation 3 hrs.
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.

HIST 422 Origins of Public History 3 hrs.
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.

HIST 428 The New Nation: American Revolution and Independence 3 hrs.
Causes and consequences of the American Revolution; early experiments at national integration; social and cultural developments from approximately 1770 to 1820.
include Federal-Indian relations, removal, evolution of federal Indian policy, and contemporary native society.

HIST 436 Topics in African-American History 3 hrs.
Major themes and topics in African-American history in North America and the Caribbean. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 439 Topics in United States History 1–3 hrs.
Examination of major social, economic, intellectual and cultural themes and issues in United States history. Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 440 Imperial Rome 3 hrs.
Rome from the close of the republic to the zenith of the imperial age, with emphasis on the first century of the empire.

HIST 441 Early Christianity 3 hrs.
History of the Christian church and community from its inception to its triumph in the Western and Eastern Roman empires; emphasis on the relationships between church and state.

HIST 442 Byzantine Civilization 3 hrs.
The fusion of Western Roman, Hellenistic, Christian, and diverse cultural traditions into a unique Byzantine phenomenon. Coverage from Constantine the Great to the capture of Constantinople by the Ottoman Turks in 1453.

HIST 444 Early Medieval History 3 hrs.
Evolution of medieval institutions and culture from the collapse of Rome to approximately the twelfth century.

HIST 445 Later Medieval History 3 hrs.
The maturation and flourishing of medieval civilization from approximately the twelfth century to the disintegration of medieval unity in the Renaissance. Emphasis on social and political institutions and intellectual developments.

HIST 446 Renaissance Europe 3 hrs.
Political, intellectual, and artistic developments in Renaissance Europe, and the process of dissolution of the medieval world-view in the fourteenth and fifteenth centuries.

HIST 447 The Reformation 3 hrs.
The collapse of European religious unity in the sixteenth century, religious wars, the appearance of regional churches, and Roman Catholic renewal; early traces of scientific and intellectual revolutions; arts and culture of the era.

HIST 450 Europe in the Seventeenth and Eighteenth Centuries 3 hrs.
Major social, political, intellectual and cultural developments from the Thirty Years War through the Enlightenment.

HIST 452 French Revolution and Napoleon 3 hrs.
Background, major events and phases of the French Revolution; Napoleon and the French empire; impact of the revolution on Europe and the rest of the world.

HIST 456 Europe 1815–1871 3 hrs.
Europe from the Congress of Vienna to the Franco-Prussian War. Emphasis on the struggle between conservative and liberal forces and the growth of modern nationalism and national unity; economic and social impact of industrialization; arts and culture of the era.

HIST 457 Europe 1871–1919 3 hrs.
Continued growth of nationalism and national rivalries; the golden age of European imperialism. Evolution of alliance patterns; background and major military and political events of World War I; economic and social impact of the second industrial revolution; arts and culture of the era.

HIST 458 Europe 1919–1945 3 hrs.
Aftermath and political settlement of World War I; Europe of the 1920s; the rise of Fascism and economic collapse; the assault on ethnic and religious minorities and on democratic government; background and major events of World War II; arts and culture of the era.

HIST 460 Europe since 1945 2 hrs.
Recovery and reconstruction following World War II; the East-West conflict; roles and objectives of major European states and blocs in international affairs; the movement toward European unity.

HIST 462 Great Ages in English History 3 hrs.
Period studies in the history of England: Anglo-Saxon, medieval, Tudor-Stuart, Victorian and twentieth century. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 465 Russia to 1855 3 hrs.
History of Russia from medieval times to the beginning of the reign of Tsar Alexander II and the close of the Crimean War.

HIST 466 Russia since 1855 3 hrs.
History of Russia since the mid-nineteenth century. Political, social, economic and cultural developments presaging the revolutions of 1905 and 1917: evolution of the Soviet state.

HIST 467 Topics in Iberian History 3 hrs.
Period studies in the history of Spain: medieval, early modern, and modern. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 468 Topics in European History 1–3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 471 Latin America 3 hrs.
Period or regional studies in the history of Latin America: colonial, modern, Andes, Amazon, Mexico, Caribbean, etc. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 476 Traditional China 3 hrs.
History of China from the earliest beginnings of Chinese civilization to the collapse of the Ming Dynasty in the seventeenth century.

HIST 477 Modern China 3 hrs.
Last of the great traditional Chinese dynasties and its response to the challenge of outside forces and ideas; early industrialization and sociopolitical change in the nineteenth century; the revolution of 1912 and the struggle for dominance ending in Communist victory in 1949; China's struggle to modernize and define its place in the twentieth century.

HIST 479 Modern Japan 3 hrs.
Survey of Japanese history and traditional society; the Japanese response to outside forces in the nineteenth century; development of the Japanese empire and its destruction in World War II; emergence of Japan as an economic world power.

HIST 480 Topics in Asian History 1–3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 485 Early Islam 3 hrs.
The rise of Islam and the Arab conquests; the fusion of Muslim, Hellenistic, and Indo-Persian cultural influences in classical Islamic civilization; political, social, religious, and intellectual history from the seventh century to the Mongol conquests in the thirteenth century.

HIST 488 History of West Africa 3 hrs.
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 transformations; the influence of Islam and other religious institutions; and the dynamics of traditional West African civilization.

HIST 489 Topics in African History 1–3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 494 Teaching Methods for Secondary Schools 3 hrs.
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; use of interactive media; the role of history in social science and humanities education, and of historians as curriculum leaders. Prerequisite: In addition to 8 hours of U.S. History, students must also have taken ED 302 or take it concurrently.

HIST 495 Internship 3–9 hrs.
Professional internship experience in museums, historical administration, historic preservation, editing, applied research, etc. Registration requires approval of supervisor and Department Chair. Grading format is credit/no credit. Prerequisite: appropriate course work in public history.

HIST 496 Senior Seminar 3 hrs.
Interpretive and theoretical issues. Preparation of a major paper. Topics listed in Schedule of Course Offerings. Prerequisite: 24 hours of course work in history.

HIST 498 Directed Research 3 hrs.
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. Prerequisite: 18 hours of history at the 300-level and above.

HIST 499 Senior Thesis 3–6 hrs.
Research, preparation and defense of a supervised research project. Registration requires approval by two faculty supervising the project and the Department Chair. Honors students may substitute HNRS 499 (Honors College Thesis) with appropriate approval. May be taken for a letter grade or on a credit/no credit basis.

Undergraduates with junior status and 12 hours of work in history may enroll in 500-level courses with prior approval of the department chair.
HIST 500 Studies in History
1-3 hrs.
Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 510 Colloquium
1 hr.
Research presentations by department faculty, advanced graduate students and invited scholars. Specific topics may be listed in Schedule of Course Offerings. May be repeated to a maximum of 3 hours. Graded on a credit/no credit basis.

HIST 515 Topics in Public History
1-3 hrs.
Selected topics in aspects of public history including museology, historic preservation and cultural resource management, historical administration, information science, and applied research. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 517 Topics in Economic and Social History
1-3 hrs.
Selected topics in the history of economic and social conditions and change such as the development of world trade and world economy, development and modernization, urbanization, social and political movements, demography and migration, family structure, etc. Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 519 Topics in Intellectual and Cultural History
1-3 hrs.
Selected topics in the history of ideas, literary and artistic expression, intellectual and cultural character of various periods and civilizations, examination of historical conditions through philosophy and the arts, etc. Topics announced in Schedule of Course Offerings. May be repeated under different topics.

HIST 530 Studies in Early American History
3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 535 Studies in Recent American History
3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 550 Studies in Medieval History
3 hrs.
May be cross-listed with MDVL 500. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 565 Studies in Modern European History
3 hrs.
Selected approaches to European history since the Renaissance. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 585 Studies in Asian and African History
3 hrs.
Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 590 Proseminar
3 hrs.
Research and writing on selected themes. Topics may be listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 591 Topics in Theory and Practice
1-3 hrs.
Selected theoretical, technical, and interpretive issues in the field of history; interaction with methodologies of other social science and humanities disciplines; innovative forms and techniques of documentation and data collection; major historical interpretations currently before the academic world and the public. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 592 Computers in Historical Research
1-3 hrs.
Computer applications to historical and related research projects including manuscript analysis techniques, text-oriented databases, museum and historical agency database and registration systems, simulations, etc. Survey of applications in closely related disciplines. Course may be repeated under different topics which will be listed in the Schedule of Course Offerings. Prerequisite: CS 105 or equivalent.

HIST 595 History Writing Workshop
1-3 hrs.
Practicum in the writing of history: editing and publishing; preparation of written materials for lay readers and audiences outside the discipline. May be repeated to a maximum of six semester hours.

HIST 596 Local History Workshop
1-3 hrs.
Practicum in research techniques for problems in local and small community history, including oral tradition, genealogy, and interdisciplinary method. May be repeated to a maximum of six semester hours.

INTERNATIONAL AND AREA STUDIES PROGRAMS
See "Interdisciplinary Programs" in the College of Arts and Sciences.

JAPANESE
See "Asian and Middle Eastern Languages" in the College of Arts and Sciences.

JOURNALISM
See "Communication" in the College of Arts and Sciences.

LATIN
See "Foreign Languages and Literatures" in the College of Arts and Sciences.
The Mathematics Department offers a wide variety of courses and programs in both theoretical and applied areas. There are three majors available: Applied, General, and Secondary Teaching. Minors available include the General Minor, Secondary Teaching of Mathematics, the Science and Mathematics Teaching Minor, and the Elementary and Middle School teaching Minor. These major and minor programs incorporate emphasis on computer methods, mathematical modeling, and problem solving.

The various mathematics majors all require two semesters of calculus. Students may begin this course work while deciding on a branch of mathematics in which to specialize. During the first year, interested students should contact Barbara McKinney, student advisor, or write: Mathematics Department, Western Michigan University, Kalamazoo, MI 49008. All majors 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.

### 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 Biomedical Sciences, Chemistry, Computer Science, Physics, or Statistics. The courses listed above under “Cognate Science Requirements” may also be used to fulfill requirements for the minor where applicable.

It is strongly suggested that Biomedical Sciences minors elect STAT 362 and STAT 567 and CHEM 101 or CHEM 103. Computer Science minors should select MATH 145 and either MATH 440 or MATH 445. Physics minors should select MATH 314 and MATH 570.

NOTE: Graduate study in mathematics typically requires MATH 314, MATH 330, and MATH 570.

### Cognate Science Requirements:

- **CS**: 111 Computer Science I 4
- **CS**: 201 Programming in FORTRAN 2
- **MATH**: 507 Numerical Analysis I 3
- **PHYS**: 205 Mechanics and Heat 4
- **PHYS**: 306 Mechanics and Heat Laboratory 1
- **PHYS**: 207 Electricity and Light 4
- **PHYS**: 208 Electricity and Light Laboratory 1
- **CHEM**: 101 or 102 General Chemistry 4/1-5

### Minor Requirement

Students must complete a minor in one of the following areas: Biomedical Sciences, Chemistry, Computer Science, Physics, or Statistics. The courses listed above under “Cognate Science Requirements” may also be used to fulfill requirements for the minor where applicable.

### 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 hrs.)**

- MATH 122 Calculus I 4
- MATH 123 Calculus II 4
- MATH 230 Elementary Linear Algebra 4

**Required (17 hrs.)**

- MATH 272 Multivariate Calculus and Matrix Algebra 4
- MATH 314 Mathematical Proofs 3
- MATH 330 Modern Algebra I 4
- MATH 440 Graphs and Mathematical Models 4
- MATH 460 Numerical Analysis I 4
- MATH 570 Advanced Calculus I 4
- MATH 527 Differential Geometry of Curves and Surfaces 4
- MATH 530 Linear Algebra 4
- MATH 571 Advanced Calculus II 4
- MATH 572 Vector Calculus and Complex Variables 4
- MATH 574 Advanced Differential Equations 3
- MATH 580 Number Theory 3

*(at least one of which will be chosen from MATH 430, MATH 522, MATH 571)*

### Baccalaureate Writing Requirement

Students who have chosen the General Mathematics option will satisfy the Baccalaureate Writing Requirement by successfully completing MATH 314 Mathematical Proofs.

### 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 junior or senior 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**

- MATH 122 Calculus I 4
- MATH 123 Calculus II 4
- MATH 230 Elementary Linear Algebra 4
- MATH 314 Mathematical Proofs 3
- MATH 330 Modern Algebra I 4
- MATH 349 Fundamental Concepts of Geometry 3
- MATH 350 Teaching of Middle School Mathematics 3
- MATH 351 Computing Technology in Secondary School Mathematics 3
- MATH 440 Graphs and Mathematical Models 3
- MATH 450 Teaching of Secondary School Mathematics 3
- MATH 472 Multivariate Calculus and Matrix Algebra 4
- MATH 480 Linear Programming 3
- MATH 570 Advanced Calculus I 4
- MATH 571 Advanced Calculus II 4
- MATH 574 Advanced Differential Equations 3
- MATH 576 3-7
- MATH 578 3-7

**Baccalaureate Writing Requirement**

Students who have chosen the Secondary Teaching option will satisfy the Baccalaureate Writing Requirement by successfully completing MATH 314 Mathematical Proofs.

### 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.

**MATH 122 Calculus I** .......................... 4

**MATH 123 Calculus II** .......................... 4

**MATH 230 Elementary Linear Algebra** OR

**MATH 374 Differential Equations and Linear Algebra** .......................... 4

Computer Science courses: One of CS 105, 106, 111, 306 .......................... 1-4

Electives .......................... 6-8

Two of the following: MATH 272, MATH 145 or MATH 314, MATH 300, MATH 340, STAT 362 or 364; MATH 402, MATH 408, MATH 440 or 445; MATH 507, STAT 561, STAT 565.

Substitutions or exceptions require approval of departmental advisor. Some electives have other prerequisites.

**MATHEMATICS MINOR—SECONDARY TEACHING OPTION**

A minimum grade point average of 2.5 must be attained in this minor option to satisfy the requirements of this program.

**MATH 122 Calculus I** .......................... 4

**MATH 123 Calculus II** .......................... 4

**MATH 230 Elementary Linear Algebra** .......................... 4

**MATH 314 Mathematical Proofs** .......................... 3

**MATH 340 Fundamentals of Geometry** .......................... 3

**MATH 350 Teaching of Middle School Mathematics** .......................... 3

**MATH 351 Computing Technology in Secondary School Mathematics** .......................... 3

Approved electives (MATH 330 or STAT 364) .......................... 3-4

**ELEMENTARY AND MIDDLE SCHOOL TEACHING MINOR**

Students in an Elementary School and Middle School curriculum must contact a mathematics advisor for information on available mathematics programs.

**MATH 150 Number Concepts for Elementary/Middle School Teachers** .......................... 4

**MATH 151 Geometry for Elementary/Middle School Teachers** .......................... 3

**MATH 265 Probability and Statistics for Elementary/Middle School Teachers** .......................... 4

**MATH 352 Teaching of Elementary/Middle School Mathematics** .......................... 3

**MATH 554 Algebra in the Elementary/Middle School Curriculum** .......................... 3

**MATH 555 Mathematical Problem Solving in the Elementary/Middle School Curriculum** .......................... 3

**SCIENCE AND MATHEMATICS TEACHING MINOR**

The Department of Mathematics participates in the Science and Mathematics Teaching Minor for students in the elementary curriculum. For a full description of the program, consult its listing under the “Interdisciplinary Programs” section in the College of Arts and Sciences.

**HONORS IN MATHEMATICS**

**NOTE:** Qualified students may plan a program to graduate with honors in mathematics. The following are the requirements for graduation with Honors in Mathematics:

1. Grade point average of at least 3.7 in mathematics and statistics courses

2. Overall grade point average of at least 3.25

3. Completion of two of the following: an honors seminar (can be the Putnam Seminar) or an upper-level theoretical course

4. Putnam Seminar

The Putnam Seminar is a problem-solving seminar offered under the course number MATH 390. 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 collegiate mathematics competition.

**MATHEMATICS COURSES (MATH)**

Students who fail to earn a "C" or better grade in a prerequisite course will not be permitted to enroll in the next sequence course.

A list of approved General Education courses can be found in the "Graduation and Academic Advising" section earlier in this catalog.

**MATH 109 Computational Skills** .......................... 2 hrs.

A mastery-based remedial course designed to sharpen computational skills involving whole numbers, fractions, decimals, percents, signed numbers and simple geometric figures. These skills are used in solving word problems. All entering students must take an exam on this material unless exempted on the basis of ACT Mathematics score. Students who do not pass the exam are required to take this course and enrollment in this course is restricted to these students. Credit for the course will not apply to the number of credits needed for graduation.

**MATH 110 Algebra I** .......................... 3 hrs.

A course in algebra at the level usually covered in high school. Review and practice with basic algebraic skills. Topics include: arithmetic foundations of algebra, properties of real numbers, equations, inequalities, and systems of linear equations. This is a continuous progress, mastery-based course. Credit for MATH 110 will not be granted to anyone having already received credit with grade of "C" or better in any of MATH 111, 116, 118, 122, or 200 or equivalent transferable courses. **Prerequisite:** MATH 109 or satisfactory score on placement test.

**MATH 111 Algebra II** .......................... 3 hrs.

A continuation of MATH 110. Topics include polynomials, fractional and radical equations, logarithmic and exponential functions, complex numbers, quadratic equations, and systems of quadratic equations. Credit for MATH 111 will not be granted to anyone having already received credit with grade of "C" or better in any of MATH 118, 122, 200 or equivalent transferable courses. **Prerequisite:** MATH 110, or one year of high school algebra and satisfactory score on placement test.

**MATH 114 Excursions in Mathematics** .......................... 3 hrs.

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. **Prerequisite:** MATH 110 or satisfactory score on Mathematics Department Placement Examination.

**MATH 116 Finite Mathematics with Applications** .......................... 3 hrs.

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. **Prerequisite:** MATH 110, or 2 years of college preparatory mathematics and satisfactory score on placement test.

**MATH 118 Precalculus Mathematics** .......................... 4 hrs.

This course is designed to provide the student with basic algebraic and trigonometric concepts necessary for calculus. Topics include: real numbers, inequalities, coordinate systems, functions, polynomials, solutions of polynomial equations, exponential and logarithmic functions, trigonometry and trigonometric functions. **Prerequisite:** MATH 111, or at least 3 years of college preparatory mathematics and satisfactory score on placement test.

**MATH 122 Calculus I** .......................... 4 hrs.

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. **Prerequisite:** MATH 118, or at least 3-1/2 years of college preparatory mathematics, including trigonometry and satisfactory score on the placement test. Students who take both MATH 122 and MATH 200 will receive only 4 hours of credit toward graduation.

**MATH 123 Calculus II** .......................... 4 hrs.

A continuation of Calculus I. Techniques and applications of integration, trigonometric functions, sequences and series, indeterminate forms, improper integrals, applications to elementary differential equations. **Prerequisite:** MATH 122 (CS 105 or 106 recommended).

**MATH 145 Discrete Mathematical Structures** .......................... 3 hrs.

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. **Prerequisite:** MATH 122, and an introductory programming course.

**MATH 150 Number Concepts for Elementary/Middle School Teachers** .......................... 4 hrs.

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, computational estimation, and calculator use. **Prerequisite:** MATH 110 with a grade of "C" or better or a satisfactory score on placement test. Enrollment in this course is limited to those whose curricula include either Elementary Education or Special Education.
MATH 151 Geometry for Elementary/Middle School Teachers
3 hrs.
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, consequence, 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. Prerequisite: MATH 150 with a grade of "C" or better.

MATH 190 Survey of Mathematical Ideas
4 hrs.
A survey of significant, active areas of mathematics with the emphasis on concepts rather than calculations. The historical origin and development of certain mathematical ideas will be included. The areas of mathematics investigated will include topics from set theory, probability theory, number theory, computer mathematics, and graph theory. This course will not satisfy any program requirements in mathematics. Prerequisite: MATH 110 or satisfactory score on Mathematics Department Placement Examination.

MATH 200 Calculus with Applications
4 hrs.
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 122-123 sequence. Prerequisite: MATH 111, or 1-1/2 years high school algebra and 1 year high school geometry and satisfactory score on Department Placement Test. Students who take both MATH 122 and MATH 200 will receive only 4 hours of credit toward graduation.

MATH 230 Elementary Linear Algebra
4 hrs.
Vectors and geometry in two and three dimensions, systems of linear equations, matrix algebra, linear transformations in R^2 and R^3, generalizations to the vector spaces R^n, inner product, dot product, determinants. Some emphasis on proofs. Prerequisite: MATH 122 (MATH 123 recommended).

MATH 265 Probability and Statistics for Elementary/Middle School Teachers
4 hrs.
This course covers basic 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. Prerequisite: MATH 150 with a grade of "C" or better.

MATH 272 Multivariate Calculus and Matrix Algebra
4 hrs.
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. Prerequisite: MATH 123.

MATH 274 Introduction to Differential Equations
3 hrs.
Techniques of solving differential equations. Prerequisite: MATH 123.

MATH 314 Mathematical Proofs
3 hrs.
The prime objective of this course is to involve the students in the writing and presentation 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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: MATH 123, and 230 or 374.

MATH 330 Modern Algebra I
4 hrs.
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 314.

MATH 340 Fundamental Concepts of Geometry
3 hrs.
This course examines the axiomatic structure of Euclidean geometry and elementary non-Euclidean geometries. Transformational approaches to Euclidean geometry are also considered. Prerequisite: MATH 314.

MATH 350 Teaching of Middle School Mathematics
3 hrs.
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. Prerequisite: MATH 314 or consent of instructor.

MATH 351 Computing Technology in Secondary School Mathematics
3 hrs.
This course introduces the use of computing technology for teaching and extends the learning of mathematical topics in grades 7-12. Emphasis is placed on the use of technology in problem solving and concept development. This course is open only to students pursuing a program leading to secondary mathematics teacher certification. Prerequisite: Prior programming experience, MATH 350, and acceptance into Professional College of Education.

MATH 352 Teaching of Elementary/Middle School Mathematics
3 hrs.
This course covers curriculum and instructional issues in elementary school mathematics. Prerequisites: MATH 151 and MATH 265 with grades of "C" or better and admittance to the Elementary Education Program in the College of Education.

MATH 374 Differential Equations and Linear Algebra
4 hrs.
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 272.

MATH 390 Undergraduate Seminar
1 hr.
This seminar features student participation covering mathematical topics not normally included in regular major programs. May be repeated for credit. Prerequisite: permission of Department.

MATH 395 Practicum in Mathematics
1 hr.
Students enrolled in this course will normally work in the modular math program. The course may be repeated. Prerequisite: consent of instructor.

MATH 402 Mathematical Modeling
3 hrs.
An introduction to the methods of mathematical modeling. The major aim of this course is to teach the formulation of mathematical problems from real world practical situations. The representation of a practical or scientific problem in mathematical terms may give a more precise understanding of its significant properties, and may allow prediction of future events. Cases studied will involve many areas of application and several different mathematical techniques. The computer will be used as a tool in pursuing some of these problems. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: MATH 374 and a computer programming course.

MATH 408 Linear Programming
3 hrs.
Linear inequalities, convex geometry, optimization in linear systems, zero-sum games. Applications. Prerequisites: MATH 230 or 374.

MATH 430 Modern Algebra II
3 hrs.
This course continues MATH 330 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 330.

MATH 440 Graphs and Mathematical Models
3 hrs.
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. Prerequisite: MATH 145 or MATH 314 or consent of instructor.

MATH 445 Algorithmic and Applied Combinatorics
3 hrs.
An algorithmic approach to combinatorics including graph theory, enumeration, and applications. Prerequisites: MATH 145 or MATH 314 (CS 111 recommended).

MATH 450 Teaching of Secondary School Mathematics
3 hrs.
This course considers curriculum issues and trends in secondary school mathematics focusing on methods and materials for teaching mathematics effectively to secondary school students. Prerequisites: MATH 351 and one of MATH 330 or MATH 340.

MATH 490 Topics in Mathematics
3 hrs.
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.

Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll in 500-level courses with prior approval of the department chair.

MATH 507 Numerical Analysis I
3 hrs.
The analysis and use of numerical algorithms for the solution of nonlinear equations, systems of linear equations, interpolation, numerical differentiation and integration. Prerequisites: MATH 374 and a computer programming language beyond Basic, e.g., Fortran or C.

MATH 510 Applied Matrix Algebra
3 hrs.
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. Prerequisites: either MATH 230 and MATH 272 or MATH 374.

MATH 522 Introduction to Topology
3 hrs.
Topics to be chosen from: Topological spaces and continuous functions, metric spaces, connectivity, separation axioms, compactness, product and quotient spaces, paracompactness, and manifolds. Prerequisite: MATH 330 or MATH 570.

MATH 527 Differential Geometry of Curves and Surfaces
3 hrs.
An introduction to Riemannian Geometry with emphasis on curves and surfaces. Topics may include isometries, orientation, differential forms, curvature, metrics, and geodesics. Prerequisites: MATH 272 and either MATH 230 or MATH 374 (MATH 314 recommended).

MATH 530 Linear Algebra
3 hrs.
Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 330.

MATH 552 Teaching of K-8 School Mathematics
3 hrs.
This course covers curriculum issues and trends in K-8 mathematics education. Specifically, it focuses on methods and materials for teaching mathematics effectively to K-8 students. This course is not open to undergraduate students who have completed MATH 352 with a "C" or better. Prerequisite: MATH 150 with at least a "C" or better or a course equivalent to MATH 150.

MATH 554 Algebra in the Elementary/Middle School Curriculum
3 hrs.
This course is devoted to the teaching and learning of algebra in elementary and middle grades. Concepts and skills are developed and reinforced using a variety of approaches and materials. Calculators and computers are used throughout the course to develop concepts, to model numerical methods, and to explore the connections between symbolic and graphic representations of mathematical ideas. Prerequisite: MATH 352 or 552 with a grade of "C" or better or consent of instructor.

MATH 555 Mathematical Problem Solving in the Elementary/Middle School Curriculum
3 hrs.
This course provides experiences in mathematical problem solving for elementary/middle teachers. Content for the problems is selected from number theory, algebra, geometry, probability, and statistics. Emphasis is placed upon teaching problem solving. Computers are used extensively to solve problems. Prerequisite: MATH 352 or MATH 552 with a grade of "C" or better or consent of instructor.

MATH 570 Advanced Calculus I
4 hrs.
Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Prerequisites: MATH 272 and 314 (330 is recommended).

MATH 571 Advanced Calculus II
3 hrs.
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. Prerequisite: MATH 570 or approval of advisor.

MATH 572 Vector Calculus and Complex Variables
4 hrs.
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. Prerequisite: MATH 374.

MATH 574 Advanced Differential Equations
3 hrs.
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. Prerequisite: MATH 374.

MATH 580 Number Theory
3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330.

MATH 590 In-Service Professional Development in Mathematics
1–3 hrs.
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. Each offering of MATH 590 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. 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: Permission of instructor.

MATH 595 Topics in Elementary/Middle School Mathematics
3 hrs.
This course addresses topics in mathematics content and pedagogy relative to the teaching and learning of elementary/middle school mathematics. Prerequisite: MATH 352 or consent of instructor. Course may be repeated for credit.

MATH 599 Independent Study in Mathematics
1–6 hrs.
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. Prerequisite: Approval of chairperson of department.

MEDIEVAL INSTITUTE PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences.
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. Office hours are posted beside each instructor’s door.

Before preregistration each term, the faculty prepare brief written descriptions of the courses to be offered. These descriptions are posted on the department bulletin board outside the department office (additional copies may be obtained in the office) and online at www.wmich.edu/philosophy/ugrad, courses.html

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.

Honor Program
Applications to the departmental honors program are invited from qualified students. A student desiring to enter the program must submit a proposal for independent research to a faculty committee. Normally, the honors candidate works in close association with a professor of his/her choice and submits a paper (or other project of philosophic merit) to the department. To achieve honors in philosophy the candidate's academic record must be of high quality and the project must be outstanding.

Interdisciplinary work involving faculty from other departments is welcome. Normally, but not necessarily, the honors student is a senior major; in exceptional cases non-seniors or non-majors may be considered.

PHILOSOPHY MAJOR

A major consists of a minimum of 28 hours in philosophy, including PHIL 300 or PHIL 301, 480, and one of the following three courses: PHIL 322, 331, or 333.

Cognates: Appropriate courses in other departments may be used towards a philosophy major (not a minor) up to a maximum of four hours. Consult with the department chairperson.

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.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Philosophy major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

PHIL 300 Ancient and Medieval Philosophy
PHIL 301 History of Modern Philosophy
PHIL 331 Moral Philosophy
PHIL 332 Theory of Knowledge
PHIL 333 Metaphysics

PHILOSOPHY MAJOR—PROFESSIONAL AND APPLIED ETHICS CONCENTRATION

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 300, 301
3. TWO of the following: PHIL 201, 303, 311, 313, 314, 315, 316, 331, 334, 534
4. PHIL 410 Professional Ethics (3 hrs.)

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 the approval of the Department of Philosophy.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Philosophy major with the professional and applied ethics concentration will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

PHIL 300 Ancient and Medieval Philosophy
PHIL 301 History of Modern Philosophy
PHIL 331 Moral Philosophy
PHIL 332 Theory of Knowledge
PHIL 333 Metaphysics

PHILOSOPHY MINOR

A minor consists of at least 15 hours in philosophy. Minors may choose any courses they find suitable. Minors are strongly urged to consult with advisors (preferably after completing 8 hours). Students must complete a minor slip in the Philosophy Department office.

PHILOSOPHY MINOR—PROFESSIONAL AND APPLIED ETHICS

Minimum of 18 credit hours. Minor slip required. Required Philosophy courses:

1. ONE of the following: PHIL 300, 301
2. TWO of the following: PHIL 201, 303, 311, 313, 314, 315, 316, 331, 334, 534
3. PHIL 410 Professional Ethics

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 498: Independent Study, are applicable. Also, the student may apply up to four credit hours from an ethics-related course in another department, subject to approval of the Department of Philosophy.

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 220, PHIL 225, or for more advanced students PHIL 325. Students interested in a general introduction to philosophy should consider PHIL 200, students interested in a philosophical approach to a more specialized area should consider PHIL 201, 250, or some upper-level cognate. Students interested in a more technical appreciation of the central problems of philosophy should consider such courses as PHIL 332 (Theory of Knowledge) and PHIL 333 (Metaphysics). Many students will find it advisable to begin with PHIL 200, 201 or 250, and then continue on the upper level.

Philosophy Courses (PHIL)

A list of approved General Education courses can be found in “Graduation Requirements and Academic Advising” earlier in this catalog.

INTRODUCTORY COURSES

PHIL 200 Introduction to Philosophy
4 hrs.

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.

PHIL 201 Introduction to Ethics
4 hrs.

An introduction to the philosophical 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?

PHIL 220 Critical Reasoning
3 hrs.

A systematic study of extended arguments aimed at helping students develop the skills necessary for understanding, analyzing, and evaluating argumentative rhetoric. Topics include argument identification and argument structure, definitions and disputes, deduction and induction, premise verification and informal fallacies.

PHIL 225 Deductive Logic
3 hrs.

A study of the rules and techniques of deductive reasoning. Topics include syllogistic reasoning and the logic of propositions. Applications to every day reasoning are emphasized.

PHIL 255 Science, Technology, and Values
3 hrs.

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
PHIL 300 Ancient and Medieval Philosophy 4 hrs.
A study of the history of selected philosophical thinkers up to the sixteenth century. Great thinkers such as Plato, Aristotle, Augustine, Aquinas will be emphasized. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum.

PHIL 301 History of Modern Philosophy 4 hrs.
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum.

PHIL 303 Existentialist Philosophies 3 hrs.

PHIL 307 Philosophy in the American Context 3 hrs.
American philosophy from the 17th century to the present. Major schools, figures, and tendencies will be considered. Included are early theology, the enlightenment, Transcendentalism, Darwinism, 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, W.O. Quine, Susan Haack, Cornell West, Carol Gilligan, Rawls, Richard Nozick.

PHIL 311 Political Philosophy 3 hrs.
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.

PHIL 312 Philosophy of Art 3 hrs.
An analysis of the nature of art and aesthetic 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.

PHIL 313 Philosophy of Law 3 hrs.
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.

PHIL 314 Philosophy and Public Affairs 3 hrs.
A philosophical examination of the 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 ideas. Topics be announced in the Schedule of Classes. May be repeated for credit when topics vary.

PHIL 315 Race and Gender Issues 3 hrs.
A philosophical examination of principles and values underlying contemporary social issues involving race, gender, and related concepts. Topics include: identity, equality/inequality, equity, harm, prejudice, discrimination, affirmative action.

PHIL 316 Ethics in Engineering and Technology 3 hrs.
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.

PHIL 320 Introduction to Formal Logic 4 hrs.
The study of general methods of analyzing and validating deductive reasoning. Arguments expressed in everyday language are analyzed and translated into the symbolic notation of logic, and calculations are performed on this notation to check the validity of the arguments. The course may include a brief consideration of the application of logic to computers. Open to qualified first-year students.

PHIL 325 Inductive and Scientific Reasoning 3 hrs.
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 from probability theory.

PHIL 331 Moral Philosophy 4 hrs.
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum.

PHIL 332 Theory of Knowledge 4 hrs.
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum.

PHIL 333 Metaphysics 4 hrs.
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum.

PHIL 334 Biomedical Ethics 4 hrs.
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.

PHIL 350 Foundations of the Modern Worldview 4 hrs.
The study of some basic ideas with which today’s knowledgeable person must cope as part of his or her 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.

PHIL 355 Philosophy of Science 3 hrs.
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.

ADVANCED COURSES

PHIL 410 Professional Ethics 3 hrs.
A philosophical examination of the foundations of ethics in the professions and the professions themselves. 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.

PHIL 470 Seminar in Philosophy—Variable Topics 2-4 hrs.
Seminars deal with selected advanced topics in philosophy. Since content varies from semester to semester, students are advised to check course descriptions which are available in the department office. Suggestions for seminar topics from students are welcomed. Seminars may be set up to be taken for variable credit and to last more or less than a semester’s length. May be repeated for credit when topics vary.

PHIL 480 Senior Seminar 4 hrs.
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.

Prerequisites: Completion of 12 hours of philosophy, including either PHIL 300 or 301 and completion of the Baccalaureate-level writing requirement. May be repeated for credit when topics vary.
PHIL 498 Independent Study
2–4 hrs.
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. Prerequisite: Permission of the instructor with whom the student wishes to work.

500-LEVEL COURSES
The prerequisites for admission into 500-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.

PHIL 507 The Continental Tradition in Philosophy
2–4 hrs.
An examination of the Continental tradition in philosophy. Topics may vary from term to term. Examples include phenomenology, existentialism, post-modernism, structuralism, deconstructionism, critical theory, and hermeneutics. Prerequisite: 12 credit hours in Philosophy, including PHIL 301. May be repeated for credit, with advisor’s approval, when topics vary.

PHIL 512 Aesthetics
3 hrs.
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. Prerequisite: 12 credit hours in philosophy.

PHIL 520 Philosophical Applications of Symbolic Logic
3 hrs.
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 modal logic, antilogic, 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. Prerequisites: 12 hours of philosophy, including PHIL 225 or 320.

PHIL 525 Decision Theory
4 hrs.
Can there be a formal theory of what it is to be rational in one’s beliefs and actions? This course is an introduction to decision theory, which claims to be able to justify such a theory of rationality. Attention will be given to both its mathematical development and the issues it raises in the philosophy of science, the theory of knowledge, and action theory. A working knowledge of high school algebra is assumed. Prerequisite: PHIL 220, 225, or 320, and two other courses in philosophy, mathematics (above the level of MATH 110), or computer science (above the level of CS 105).

PHIL 534 Moral and Philosophical Foundations of Health Care
3 hrs.
In this course philosophical reflection and biological science are combined in a critical examination of the nature and purpose of the health sciences. Topics to be considered include: the aim of the health sciences; the interplay of fact and value in health care; competing images of human kind embedded in health science; patient autonomy, dignity, and medical paternalism. Prerequisite: 12 credit hours in philosophy and/or biological sciences or a health professional field.

PHIL 540 Philosophy of Mind
2–4 hrs.
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. May be repeated for credit, with advisor’s approval, when topics vary. Prerequisite: 12 credit hours in Philosophy, including PHIL 301.

PHIL 544 Practical Ethics
3 hrs.
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, law, government, science, psychiatry, etc.) will be used to highlight some of these issues. May be repeated for credit, with advisor’s approval, when topics vary. Prerequisite: 12 credit hours in philosophy.

PHIL 555 Advanced Philosophy of Science
2–4 hrs.
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. Prerequisite: 12 credit hours in Philosophy. May be repeated for credit, with advisor’s approval, when topics vary.

PHIL 560 Philosophy at Pre-College Levels
2–4 hrs.
A content-oriented course that explores topics, reading materials, and ways of approaching them in the teaching of philosophy at the pre-college level. A special emphasis is put on critical and creative thinking.

PHIL 570 Philosophical Topics
1–4 hrs.
An examination of special philosophical topics. Topics to be listed in the Schedule of Classes. Prerequisite: Specific course prerequisites may be stipulated for specific topics and substitutions for philosophy may be allowed. Usually at least one of PHIL 300 or PHIL 301 will be required. May be repeated for credit, with advisor’s approval, when topics vary. May be offered in an accelerated format.

PHIL 598 Readings in Philosophy
1–4 hrs.
Research on some selected period or topic under supervision of a member of the Philosophy faculty.

PHYSICS

John Tanis, Chair
Nora Berah
Clement Burns
Sung Chung
Thomas Gorczyca
Dean Halderson
Gerald Hardie
Emanuel Kamber
Dean Kaul
Kirk Korista
Arthur McGurn
Paul Pancella
Lisa Paulius
Robert Poel
Alvin Rosenthal
David Schuster
Robert Shamu
Aletta Zieltsman

The Department of Physics offers four programs of study leading to a major in physics. Three of these are in the Arts and Sciences Curriculum (Physics Major, Physics Major with Electrical Engineering Option, and Physics Major with Materials Physics Option) and are programs that prepare students for graduate study or professional employment in physics. The secondary education (SED) Physics major prepares students to teach physics at the high school level. A Geophysics Major, sponsored jointly by the departments of Geosciences and Physics, is also available, enabling students to prepare for a career in an important area of applied physics.

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. Any physics major may qualify for departmental honors in physics by fulfilling the following requirements:

1. Complete the courses recommended for students planning to enter graduate school.
2. Attain by the end of the semester preceding graduation an accumulated grade point average of at least 3.5 in physics courses and an accumulated grade point average of 3.0 in other courses.

Minor programs are available in physics, in secondary education physics, and in astronomy.

All students majoring or minoring in Physics are required to complete the introductory courses PHYS 205, PHYS 206, PHYS 207, PHYS 208, PHYS 209, and PHYS 310 with a grade of “C” or better in each course.

PHYSICS MAJOR

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<td>PHYS 205</td>
<td>Mechanics and Heat</td>
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<td>PHYS 206</td>
<td>Mechanics and Heat Laboratory</td>
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<td>PHYS 207</td>
<td>Electricity and Light</td>
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<tr>
<td>PHYS 208</td>
<td>Electricity and Light Laboratory</td>
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<td>PHYS 309</td>
<td>Introductory Modern Physics</td>
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<td>PHYS 310</td>
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<td>PHYS 330</td>
<td>Thermodynamics and</td>
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<tr>
<td>PHYS 342</td>
<td>Kinetic Theory</td>
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<tr>
<td>PHYS 420</td>
<td>Analytical Mechanics</td>
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<td>PHYS 440</td>
<td>Electricity and Magnetism</td>
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</table>
**PHYS 460 Quantum Mechanics** ............. 3
**PHYS 466 Advanced Laboratory** ............. 3

**REQUIRED COGNATES**

**MATH 122 Calculus I** ....................... 4
**MATH 123 Calculus II** ....................... 4
**MATH 272 Vector and Multivariate Calculus** ....................... 4
**MATH 374 Introduction to Linear Algebra and Differential Equations** ....................... 4
**MATH 572 Vector Calculus and Complex Variables** ....................... 4
**CHEM 110 and 111 General Chemistry I** ....................... 4
**CHEM 112 and 113 General Chemistry II** ....................... 4

**COMPUTER PROGRAMMING REQUIREMENT**

The Department requires Physics majors to have computer programming skills before graduation. This requirement may be met by previous programming experience or by taking appropriate course(s) in Computer Science.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Physics major with Electrical Engineering option will satisfy the Baccalaureate Writing Requirement by successfully completing PHYS 466 Advanced Laboratory.

**PHYSICS MAJOR WITH MATERIALS SCIENCE OPTION**

This program is designed for those students who wish to pursue a physics degree with a concentration in Materials Science.

**REQUIRED COURSES**

**PHYS 206 Mechanics and Heat** ....................... 4
**PHYS 205 Mechanics and Heat** ....................... 4
**PHYS 207 Electricity and Light** ....................... 4
**PHYS 208 Electricity and Light** ....................... 4
**PHYS 309 Introductory Modern Physics** ....................... 3
**PHYS 330 Thermodynamics and Kinetic Theory** ....................... 1
**PHYS 331 Problems in Thermodynamics and Kinetic Theory** ....................... 4
**PHYS 342 Electronics** ....................... 4
**PHYS 420 Analytical Mechanics** ....................... 3
**PHYS 460 Quantum Mechanics** ....................... 3
**PHYS 563 Solid State Physics** ....................... 3
**CMD 353 Physical Metallurgy I** ....................... 4
**CMD 457 Mechanical Behavior of Materials** ....................... 3
**CMD 471 Thermodynamics of Materials** ....................... 4
**CMD 476 Failure Analysis and Corrosion Science** ....................... 3
**CHEM 112 and 113 General Chemistry II** ....................... 4
**GEOL 335 Mineralogy** ....................... 4
**GEOL 396 Optical Mineralogy** ....................... 3

**ADDITIONAL REQUIRED COURSES**

In addition to the above courses the student is required to take a minimum of three courses from among the following. The courses must include at least four hours of ECE course work and be approved by the advisor.

**PHYS 352 Lasers and Modern Optics** ....................... 3
**PHYS 562 Atomic and Molecular Physics** ....................... 3
**PHYS 564 Nuclear and Particle Physics** ....................... 3
**ECE 320 Electronics II** ....................... 4
**ECE 330 Electrical Machinery** ....................... 4
**ECE 371 Linear Systems** ....................... 3
**ECE 380 Probabilistic Methods of Signal and System Analysis** ....................... 3
**ECE 420 Laboratory** ....................... 3
**ECE 430 Electrical Power Systems** ....................... 3
**ECE 451 Digital Systems I** ....................... 3
**ECE 455 Digital Signal Processing** ....................... 3
**ECE 460 Communication Systems** ....................... 3
**ECE 470 Feedback Systems** ....................... 3
**PHYS 203 Sky and Solar System Laboratory** ....................... 1
**PHYS 103 Sky and Solar System Laboratory** ....................... 1
**PHYS 104 Introduction to the Sky and Solar System** ....................... 3
**PHYS 205 Mechanics and Heat** ....................... 4
**PHYS 206 Mechanics and Heat** ....................... 4
**PHYS 207 Electricity and Light** ....................... 4
**PHYS 208 Electricity and Heat** ....................... 4
**PHYS 309 Electricity and Light Laboratory** ....................... 1
**PHYS 310 Introductory Modern Physics** ....................... 3
**PHYS 311 Introductory Modern Physics Laboratory** ....................... 1
**PHYS 320 Problems in Mechanics** ....................... 2
**PHYS 330 Problems in Thermodynamics** ....................... 1
**PHYS 342 Electronics** ....................... 4
**PHYS 352 Lasers and Modern Optics** ....................... 3
**PHYS 404 Teaching of Secondary Science** ....................... 3
**PHYS 420 Analytical Mechanics** ....................... 3
**PHYS 440 Electricity and Magnetism** ....................... 3
**PHYS 563 Solid State Physics** ....................... 3
**CMD 353 Physical Metallurgy I** ....................... 4
**CMD 457 Mechanical Behavior of Materials** ....................... 3
**CMD 471 Thermodynamics of Materials** ....................... 4
**CMD 476 Failure Analysis and Corrosion Science** ....................... 3
**CHEM 112 and 113 General Chemistry II** ....................... 4
**GEOL 335 Mineralogy** ....................... 4
**GEOL 396 Optical Mineralogy** ....................... 3

**COMPUTER PROGRAMMING REQUIREMENT**

The Department requires Physics majors with Electrical Engineering option to have computer programming skills before graduation. This requirement may be met by previous programming experience or by taking appropriate course(s) in Computer Science.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Physics major with Electrical Engineering option will satisfy the Baccalaureate Writing Requirement by successfully completing PHYS 466 Advanced Laboratory.

**PHYSICS MAJOR WITH MATERIALS SCIENCE OPTION**

This program is designed for those students who wish to pursue a physics degree with a concentration in Materials Science.

**REQUIRED COURSES**

**PHYS 206 Mechanics and Heat** ....................... 4
**PHYS 205 Mechanics and Heat** ....................... 4
**PHYS 207 Electricity and Light** ....................... 4
**PHYS 208 Electricity and Light** ....................... 4
**PHYS 309 Introductory Modern Physics** ....................... 3
**PHYS 330 Thermodynamics and Kinetic Theory** ....................... 1
**PHYS 331 Problems in Thermodynamics and Kinetic Theory** ....................... 4
**PHYS 342 Electronics** ....................... 4
**PHYS 420 Analytical Mechanics** ....................... 3
**PHYS 460 Quantum Mechanics** ....................... 3
**PHYS 563 Solid State Physics** ....................... 3
**CMD 353 Physical Metallurgy I** ....................... 4
**CMD 457 Mechanical Behavior of Materials** ....................... 3
**CMD 471 Thermodynamics of Materials** ....................... 4
**CMD 476 Failure Analysis and Corrosion Science** ....................... 3
**CHEM 112 and 113 General Chemistry II** ....................... 4
**GEOL 335 Mineralogy** ....................... 4
**GEOL 396 Optical Mineralogy** ....................... 3

**COMPUTER PROGRAMMING REQUIREMENT**

The Department requires Physics majors with Electrical Engineering option to have computer programming skills before graduation. This requirement may be met by previous programming experience or by taking appropriate course(s) in Computer Science.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Secondary Education Physics major will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society.

**GEOPHYSICS MAJOR**

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 Department as early as possible for advising.

Total Major: 48-52 hours

**MAJOR CORE: 39-40 hours**

**Geology (GEOL) (22 hours)**
**GEOL 130 Physical Geology** ....................... 4
**GEOL 131 Historical Geology** ....................... 4
**GEOL 301 Minerals and Rocks** ....................... 4
**GEOL 430 Structural Geology** ....................... 3
**GEOL 439 Geologic Mapping** ....................... 3
**GEOL 460 Geologic Communications** ....................... 1
**GEOL 560 Introduction to Geophysics** ....................... 3

**Physics (PHYS) (17-18 hours)**
**PHYS 206 Mechanics and Heat Laboratory** ....................... 1
**PHYS 207 Electricity and Light Laboratory** ....................... 1
**PHYS 208 Electricity and Heat Laboratory** ....................... 1
**PHYS 342 Electronics** ....................... 4

One of the following:

**PHYS 330 Thermodynamics and Kinetic Theory** ....................... 3
**PHYS 352 Lasers and Modern Optics** ....................... 4
**PHYS 440 Electricity and Magnetism** ....................... 3
ELECTIVES: 9–12 hours
Three electives from upper-level geology, physics, and engineering courses to be chosen with consent of advisor (9–12 hours).

REQUIRED MATHEMATICS MINOR (19 hours)
MATH 122 Calculus I ................................................. 4
MATH 123 Calculus II .................................................. 4
MATH 272 Vector and Multivariate Calculus .............. 4
MATH 374 Linear Algebra and Differential Equations .... 4
MATH 507 Numerical Analysis .................................... 3

BACCAULAUREATE WRITING REQUIREMENT
Students who have chosen the Geophysics major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
GEOL 432 Geomorphology
GEOL 435 Sedimentation and Stratigraphy
ENG 305 Practical Writing

REQUIRED SUPPORTING COURSES
CHEM 110 and 111 or 112 and 113 (4 hours)

PHYSICS MINOR

REQUIRED COURSES
PHYS 205 Mechanics and Heat ........................................ 4
PHYS 206 Mechanics and Heat Laboratory ..................... 1
PHYS 207 Electricity and Light ..................................... 4
PHYS 208 Electricity and Light Laboratory .................... 1
PHYS 309 Introductory Modern Physics ...................... 3
PHYS 310 Introductory Modern Physics Laboratory ...... 1

In addition, two physics courses numbered above 300 and totaling a minimum of six hours of credit are required.

PHYSICS MINOR—SECONDARY EDUCATION

REQUIRED COURSES
PHYS 205 Mechanics and Heat ........................................ 4
PHYS 206 Mechanics and Heat Laboratory ..................... 1
PHYS 207 Electricity and Light ..................................... 4
PHYS 208 Electricity and Light Laboratory .................... 1
PHYS 309 Introductory Modern Physics ...................... 3
PHYS 310 Introductory Modern Physics Laboratory ...... 1
PHYS 342 Electronics ................................................. 4
PHYS 352 Lasers and Modern Optics .......................... 3

ASTRONOMY MINOR

REQUIRED COURSES
PHYS 103 Sky and Solar System Laboratory .................. 1
PHYS 104 Introduction to the Sky and Solar System ....... 3
PHYS 106 Introduction to Stars and Galaxies ................. 3
PHYS 205 Mechanics and Heat ........................................ 4
PHYS 206 Mechanics and Heat Laboratory ..................... 1
PHYS 325 Introduction to Astrophysics .......................... 3
PHYS 498 Special Problems ........................................ 1-3

Students not majoring in physics should note that the following additional physics courses are required prerequisites for PHYS 325:
PHYS 207 Electricity and Light, 4 hrs.; PHYS

208 Electricity and Light Laboratory, 1 hr.; and PHYS 309 Introductory Modern Physics, 3 hrs.

Physics Courses (PHYS)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

A student is required to earn a grade of "C" or better in a prerequisite course before enrollment is permitted in the next sequence course.

PHYS 100 How Things Work 4 hrs.
This is a course in the physics of everyday life employing energy problem-solving techniques. 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.

PHYS 101 The Science of Music 3 hrs.
This course is an introduction to the physics of sound and music. Topics covered include the nature of sound, sources of sound, including musical instruments, musical tone, sound propagation; musical recording; synthesized music; sound perception. Prerequisite: MATH 110 or equivalent.

PHYS 102 Physics, Technology, and Society 3 hrs.
The main objective of this course is to provide the student with a quantitative understanding of physical principles which underlie selected environmental problems. Topics covered include the energy problem, pollution, and nuclear weapons. This course may not be applied toward either a major or minor in physics. Prerequisite: MATH 110 or equivalent.

PHYS 103 Sky and Solar System Laboratory 1 hr.
This is an astronomy laboratory course designed to illustrate and explore some of the topics covered in PHYS 104 Introduction to the Sky and Solar System. Corequisite: PHYS 104.

PHYS 104 Introduction to the Sky and Solar System 3 hrs.
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 stars; our constellation; 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. Students must take PHYS 103 concurrently with PHYS 104 if they wish to fulfill the requirements of General Education Area VI. Prerequisite: MATH 110 or equivalent.

PHYS 106 Introduction to Stars and Galaxies 3 hrs.
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; the origin and fate of the universe. Students must take PHYS 110 concurrently with PHYS 106 if they wish to fulfill the requirements of General Education Area VI. Prerequisite: MATH 110 or equivalent.

PHYS 108 Elementary Physics Laboratory 1 hr.
This is a laboratory course which includes exercises related to topics covered in PHYS 107. A student may not receive credit for both PHYS 108 and either PHYS 114 or PHYS 206. Corequisite: PHYS 107.

PHYS 110 Stars and Galaxies Laboratory 1 hr.
This is an astronomy laboratory course designed to illustrate and explore some of the topics covered in PHYS 106 Introduction to Stars and Galaxies. Corequisite: PHYS 106.

PHYS 113 General Physics I 4 hrs.
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 113 for transfer credit. Prerequisite: MATH 110 or equivalent; a student can not receive credit for both PHYS 113 and either PHYS 107 or PHYS 205.

PHYS 114 General Physics I Laboratory 1 hr.
This is a laboratory course which includes exercises related to topics covered in PHYS 113. Normally this course is taken concurrently with PHYS 113. A student may not receive credit for both PHYS 114 and either PHYS 108 or PHYS 206. Corequisite: PHYS 113.

PHYS 115 General Physics II 4 hrs.
This course follows PHYS 113 and consists of studies in electricity, magnetism, light, and atomic and nuclear physics. Prerequisite: PHYS 113.

PHYS 116 General Physics II Laboratory 1 hr.
This is a laboratory course which includes exercises related to topics covered in PHYS 115. Normally this course is taken concurrently with PHYS 115. A student may not receive credit for both PHYS 116 and PHYS 208. Corequisite: PHYS 115.

PHYS 205 Mechanics and Heat 4 hrs.
This first course in a sequence of three in calculus-based physics deals with mechanics and heat. PHYS 205 is intended for physics majors, engineering students, and future physics teachers, and is recommended for majors in other sciences. Corequisite: MATH 123. A student can receive credit for only one of the following courses: PHYS 107, PHYS 113, or PHYS 205.

PHYS 206 Mechanics and Heat Laboratory 1 hr.
This is a laboratory course which includes exercises related to topics covered in PHYS 205. A student may not receive credit for both PHYS 206 and either PHYS 108 or PHYS 114. Corequisite: PHYS 205.

PHYS 207 Electricity and Light 4 hrs.
This course follows PHYS 205 and consists of studies in electricity, magnetism, and light. Prerequisites: PHYS 205, MATH 123, and MATH 272 or MATH 230 concurrently. A
COLLEGE OF ARTS AND SCIENCES

PHYS 115 General Physics 3 hrs. Fall
This course covers such topics as properties of materials, crystal structure, quantum mechanics, and semiconductor devices. This course is designed for students who are interested in the field of physics and are planning to pursue a career in scientific research. It is also suitable for students who wish to improve their understanding of physical concepts and principles. It is recommended for students who have completed three years of high school science courses and have a strong interest in physics. It is designed to provide a comprehensive introduction to the field of physics and to prepare students for further study in the field.

PHYS 207 Electricity and Light Laboratory 1 hr.
This is a laboratory course which includes exercises related to topics covered in PHYS 207. A student may not receive credit for both PHYS 207 and PHYS 216. Corequisite: PHYS 207.

PHYS 214 Mechanics and Heat Problems 1 hr.
This course is intended for those who have had 111 General Physics II, or its equivalent at another school, and who need to show credit in PHYS 207. This course is designed for students who have already completed PHYS 205 Mechanics and Heat. The emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 205. This course plus PHYS 115 is equivalent to PHYS 207. Prerequisites: PHYS 113 General Physics I or equivalent, MATH 123 concurrently, or consent of instructor.

PHYS 215 Electricity and Light Problems 1 hr.
This course is intended for those who have had 111 General Physics II, or its equivalent at another school, and who need to show credit in PHYS 207. This course is designed for students who have already completed PHYS 205 Mechanics and Heat. The emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 207. This course plus PHYS 115 is equivalent to PHYS 207. Prerequisites: PHYS 113 General Physics I or equivalent, MATH 123 concurrently, or consent of instructor.

PHYS 207 Electricity and Light Laboratory 1 hr.
This is a laboratory course which includes exercises related to topics covered in PHYS 207. A student may not receive credit for both PHYS 207 and PHYS 216. Corequisite: PHYS 207.

PHYS 309 Introductory Modern Physics Lab 1 hr.
A laboratory course which includes exercises related to the topics covered in PHYS 309. Corequisite: PHYS 309.

PHYS 320 Problems in Mechanics 2 hrs. Fall
This course is designed to enhance the problem-solving techniques needed by Secondary Education instructors in the teaching of mechanics. Emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 207. This course plus PHYS 115 is equivalent to PHYS 207. Prerequisites: PHYS 115 General Physics I or equivalent, MATH 123, and MATH 272 (or MATH 230) concurrently.

PHYS 310 Introductory Modern Physics Lab 1 hr.
A laboratory course which includes exercises related to the topics covered in PHYS 309. Corequisite: PHYS 309.

PHYS 325 Introduction to Astrophysics 3 hrs. Winter
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 astrophysics. Prerequisite: PHYS 309 (PHYS 106 is recommended).

PHYS 330 Thermodynamics and Kinetic Theory 3 hrs. Fall
Classical equilibrium thermodynamics is developed from the macroscopic viewpoint. Postulates, empirically founded, are put forth and the consequences are developed and applied to problems of interest in physics and chemistry. Introductory kinetic theory with selected topics is also included, as is an introduction to quantum statistics. Prerequisite: PHYS 207.

PHYS 331 Problems in Thermodynamics 1 hr. Fall
This course is designed to enhance the problem-solving techniques needed by Secondary Education instructors in the teaching of thermodynamics. Emphasis is on the First and Second Laws, P-V diagrams, and the energy balance in simple thermodynamic systems. Prerequisite: PHYS 207.

PHYS 342 Electronics 4 hrs. Winter
This course deals with analyses of transistor and integrated circuits and includes practical experience in circuit analysis. There are three lectures and one 3-hour laboratory per week. A student cannot receive credit for both PHYS 342 and ECE 210. Prerequisite: PHYS 207.

PHYS 352 Lasers and Modern Optics 3 hrs.
This is an introductory course in wave optics and laser principles. Topics include: the basic properties of light, spectroscopy, fundamentals of laser operation, laser light properties, laser safety, varieties of lasers, optical sensing methods, holography, optical signal processing. Lecture and laboratory combined, two one-hour and one minute sessions per week. Prerequisites: PHYS 207 and 208.

PHYS 404 Teaching of Secondary Science 3 hrs.
This course addresses the topics of teaching and learning of science at the secondary level. It is designed for current or prospective secondary education who intend to be certified to teach the earth, life, or physical sciences (physics and chemistry) and focuses on the issues 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. Prerequisites: 15 hours of course work in a certifiable science discipline and ED 302 which may be taken concurrently with this course. Cross-listed with SCI 404.

PHYS 420 Analytical Mechanics 3 hrs. Fall
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 207 and either MATH 274 or 374. The mathematics course may be taken concurrently.

PHYS 440 Electricity and Magnetism 4 hrs. Fall
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 207 and either MATH 274 or MATH 374, and MATH 572. MATH 572 may be taken concurrently.

PHYS 460 Quantum Mechanics 3 hrs. Winter
This is a first course in quantum theory. It treats the historical basis of the quantum concepts in the theory of quantum mechanics, and also treats the photoelectric effect. Topics include the Schrödinger wave equation, hydrogenic atoms, two-electron atoms, angular momentum coupling, and perturbation theory. Prerequisites: PHYS 309 and 420 or consent of instructor.

PHYS 466 Advanced Laboratory 3 hrs. Winter
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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: PHYS 342 and PHYS 460 (460 may be elected concurrently with 466.)

PHYS 498 Special Problems 1–3 hrs.
In this course a student works on a laboratory project or a reading project under the direction of a faculty member. Prerequisite: Consent of instructor.

The following 500-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 two of the following courses: PHYS 562, PHYS 563, or PHYS 564.

PHYS 562 Atomic and Molecular Physics 3 hrs.
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. Prerequisite: PHYS 460.

PHYS 563 Solid State Physics 3 hrs.
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. Prerequisite: PHYS 460.

PHYS 564 Nuclear and Particle Physics 3 hrs.
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. Prerequisite: PHYS 460.

PHYS 598 Selected Topics 1–4 hrs.
This course offers an opportunity for advanced students with good scholastic records in physics to pursue independently the study of some subject of interest to them. Prerequisite: Consent of instructor.
The honors program in political science is designed to prepare a student to: (1) become a functioning 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, (6) understand the ability to evaluate political information critically, (7) 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 or public administration should consult with a departmental advisor as soon as possible to complete the appropriate declaration form and to consult with a departmental advisor.

The Institute of Government and Politics (IGP) is organized to serve the professional staff of the Department of Political Science in their varied fields of interest and specialization. It will assist in meeting the needs of the department's student body by extending their educational experiences beyond the confines of the classroom. IGP also reaches out into the larger community, to the university, its immediate environment, the state and national scene, as well as the international arena. In this regard, IGP gives particular attention to the practical applications of political science training. It is therefore charged with the development of relationships between the Department of Political Science and the various colleges, departments, and programs comprising the University.

Programs abroad are 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 consult the Study Abroad Director or Coordinator, B-2000 Ellsworth Hall.

Honors Program

The honors program in political science provides an opportunity for students to earn the bachelor's degree with honors in political science. To be eligible, a student must have sophomore standing, a better than "B" average, and a willingness to do original and independent work. 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 public law concentration; (4) a major in political science with a public policy concentration; (5) a major and minor in public administration; and (6) a teaching major and minor in political science.

Political Science Majors and Minor

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 administration, public law, public policy, and the general 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 200 National Government
PSCI 250 International Relations
PSCI 360 Scope and Methods of Political Science
PSCI 395 Quantitative Methods for Political Scientists

One course in comparative politics (to be chosen from PSCI 340, 341, 342, 344, 345, 346, 347, or 348)

One course in political theory (to be chosen from PSCI 360, 361, 362, 363 or 562)

Students who plan to become majors are encouraged to take PSCI 100, Introduction to Political Science, as their first course in the department during their freshman year.

Baccalaureate Writing Requirement

Students who have chosen the Political Science major (any concentration) or the Public Administration major may satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

PSCI 411 Gender and Law
PSCI 450 Seminar in International and Comparative Politics
PSCI 490 Political Science Honors Seminar
PSCI 494 Seminar in Political Science

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 languages and 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. For the political science major concentration in international and comparative politics, a student must complete the following:

Required Core Courses (19 hrs.)

PSCI 200 National Government
PSCI 240 Introduction to Comparative Politics
PSCI 250 International Relations
PSCI 360 Scope and Methods of Political Science
PSCI 395 Quantitative Methods for Political Scientists

Three of the Following Courses (12 hrs.)

PSCI 340 West European Political Systems
PSCI 341 The Politics of Sub-Saharan Africa
PSCI 342 East Asian Politics
PSCI 344 Russian and East European Politics
PSCI 345 Latin American Politics
PSCI 346 Women in Developing Countries
PSCI 347 Politics of Nationalism
PSCI 348 Religion and Politics
PSCI 350 American Foreign Policy

Each of the Following Courses (5-7 hrs.)

PSCI 450 Seminar in International and Comparative Politics

Cognate Courses (9-11 hrs.)

Complete at least three additional courses on foreign, international, or cross-national topics from at least two of the following departments: Anthropology, Economics, Science Studies, Geography, History, Foreign Languages and Literatures, Marketing, Comparative Religion, or Sociology. Students must receive prior permission from the concentration advisor before selecting courses in these departments.

Foreign Language Requirement

Students 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 201-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 Foreign 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.
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 Permanent Record Card.

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.

For the political science major concentration in public law, a student must complete the following:

A. REQUIRED CORE COURSES (24 hrs.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PSCI 200</td>
<td>National Government</td>
</tr>
<tr>
<td>PSCI 250</td>
<td>International Relations</td>
</tr>
<tr>
<td>PSCI 320</td>
<td>American Judicial Process</td>
</tr>
<tr>
<td>PSCI 366</td>
<td>Scope and Methods of Political Science</td>
</tr>
<tr>
<td>PSCI 395</td>
<td>Quantitative Methods for Political Scientists</td>
</tr>
</tbody>
</table>

ONE course in comparative politics (to be chosen from PSCI 340, 341, 342, 344, 345, 346, 347, or 348)

ONE course in political theory (to be chosen from PSCI 360, 361, 362, 363 or 562)

B. TWO OF THE FOLLOWING COURSES (6 hrs.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PSCI 325</td>
<td>Criminal Justice Policy</td>
</tr>
<tr>
<td>PSCI 420</td>
<td>Constitutional Law</td>
</tr>
<tr>
<td>PSCI 421</td>
<td>Gender and Law</td>
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<tr>
<td>PSCI 422</td>
<td>Civil Liberties and Civil Rights</td>
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</tbody>
</table>

C. TWO OF THE FOLLOWING COURSES (6 hrs.)

These courses cannot be substituted for any of the requirements in A or B above.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>FCL 380</td>
<td>Legal Environment</td>
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<tr>
<td>FCL 384</td>
<td>Criminal Law and Procedure</td>
</tr>
<tr>
<td>PHIL 313</td>
<td>Philosophy of Law</td>
</tr>
<tr>
<td>SOC 362</td>
<td>Criminology</td>
</tr>
<tr>
<td>SOC 363</td>
<td>Criminal Justice Process</td>
</tr>
</tbody>
</table>

D. BACCALAUREATE WRITING REQUIREMENT

ONE course to be chosen from PSCI 421, 450, 490, or 494

POLITICAL SCIENCE MAJOR—PUBLIC POLICY CONCENTRATION

This concentration is available within the political science major for students with particular career and/or advanced degree interests in public policy. The concentration provides for students completing the program to receive designation of this specialization on their Permanent Record Card.

The concentration in public policy is aimed at preparing students for careers in government service at national, state, and local levels, and in politics.

Students interested in a major in political science with a concentration in 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 public policy.

For the political science major concentration in public policy, a student must complete the following:

REQUIRED CORE COURSES (10 hrs.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PSCI 200</td>
<td>National Government</td>
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<tr>
<td>PSCI 202</td>
<td>State and Local Government</td>
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</tbody>
</table>

ONE course to be chosen from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PSCI 362</td>
<td>Contemporary Political Theory</td>
</tr>
<tr>
<td>PSCI 363</td>
<td>American Political Theory</td>
</tr>
<tr>
<td>PSCI 562</td>
<td>Modern Democratic Theory</td>
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</tbody>
</table>

METHODS (6 hrs.)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PSCI 366</td>
<td>Scope and Methods of Political Science</td>
</tr>
<tr>
<td>PSCI 395</td>
<td>Quantitative Methods for Political Scientists</td>
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</tbody>
</table>

POLICY APPLICATIONS AND INSTITUTIONS (16 hrs.)

Required Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PSCI 304</td>
<td>Intro. to Public Policy</td>
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<tr>
<td>PSCI 405</td>
<td>National Public Policy</td>
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</table>

ONE course from List A below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PSCI 300</td>
<td>Urban Politics</td>
</tr>
<tr>
<td>PSCI 306</td>
<td>Environmental Politics</td>
</tr>
<tr>
<td>PSCI 350</td>
<td>American Foreign Policy</td>
</tr>
<tr>
<td>PSCI 404</td>
<td>Making Public Policy</td>
</tr>
<tr>
<td>PSCI 526</td>
<td>Administrative Law and Public Reg.</td>
</tr>
</tbody>
</table>

ONE course to be chosen from List B below OR from the courses not already selected from List A above:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PSCI 314</td>
<td>The Presidency</td>
</tr>
<tr>
<td>PSCI 315</td>
<td>Politics of Congress</td>
</tr>
<tr>
<td>PSCI 320</td>
<td>American Judicial Process</td>
</tr>
</tbody>
</table>

BACCALAUREATE WRITING REQUIREMENT

ONE course to be chosen from PSCI 421, 450, or 494

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 political science minor shall complete:

- PSCI 200 National Government
- PSCI 250 International Relations
- ONE course in comparative politics (to be chosen from PSCI 340, 341, 342, 344, 345, 346, 347, or 348)
- ONE course in political theory (to be chosen from PSCI 360, 361, 362, 363 or 562)

Requirements may be waived with the written permission of the chairperson of the department.

PUBLIC ADMINISTRATION PROGRAMS

These programs are designed to prepare students for entrance level positions in public and public-related agencies by equipping them with a knowledge and understanding of the political, social, economic, and legal environment of public agencies, by introducing them to administrative tools.

The major in public administration has an interdisciplinary focus, which includes required courses in accounting, computers, economics, and statistics as well as political science.

Internships which permit students to assist public administrators in their work are available. Credit can be obtained for these internships.

All students who elect the public administration programs are to complete a major or minor slip in consultation with a public administration advisor in the Department of Political Science.

POLITICAL SCIENCE MAJOR IN PUBLIC ADMINISTRATION

REQUIRED CORE COURSES (22 hrs.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PSCI 200</td>
<td>National Government</td>
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<tr>
<td>PSCI 202</td>
<td>State and Local Government</td>
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</tbody>
</table>

POLITICAL SCIENCE MINOR IN PUBLIC ADMINISTRATION

REQUIRED COURSES

The minor in public administration requires 22 hours, including all REQUIRED CORE COURSES listed above for the major in public administration. Many political science majors choose to minor in public administration.
## Secondary Education Programs in Political Science

### Secondary Education Major in Political Science

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:

<table>
<thead>
<tr>
<th>REQUIRED COURSES</th>
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</thead>
<tbody>
<tr>
<td>PSCI 200 National Government</td>
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<tr>
<td>PSCI 202 State and Local Government</td>
</tr>
<tr>
<td>PSCI 250 International Relations</td>
</tr>
<tr>
<td>PSCI 395 Quantitative Methods for Political Scientists</td>
</tr>
</tbody>
</table>

**ONE course in comparative politics** (to be chosen from PSCI 340, 341, 342, 344, 345, 346, 347, or 348)

**ONE course in political theory** (to be chosen from PSCI 360, 361, 362, 363 or 366)

**Baccalaureate Writing Requirement** (to be chosen from PSCI 421, 450, 490, 494)

Students who may become teaching majors are encouraged to take PSCI 100, Introduction to Political Science, as their first course in the department during their freshman year.

Students planning to use this major to meet teacher certification requirements are required to complete GEOG 460,Concepts and Strategies in the Teaching of Geography, or HIST 396, Teaching Methods in the Secondary School.

Teaching majors must also complete the secondary education minor in group social studies.

### Secondary Education Minor in Political Science

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. The following are the program requirements for teaching minors:

<table>
<thead>
<tr>
<th>REQUIRED COURSES</th>
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<tbody>
<tr>
<td>PSCI 200 National Government</td>
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<tr>
<td>PSCI 202 State and Local Government</td>
</tr>
<tr>
<td>PSCI 250 International Relations</td>
</tr>
</tbody>
</table>

**ONE course in comparative politics** (to be chosen from PSCI 340, 341, 342, 344, 345, 346, 347, or 348)

**ONE course in political theory** (to be chosen from PSCI 360, 361, 362, 363 or 366)

**Baccalaureate Writing Requirement** (to be chosen from PSCI 421, 450, 490, 494)

**Courses By Topic**

**PRINCIPLES**

- 100 Introduction to Political Science
- 105 Critical Thinking about Politics
- 366 Scope and Methods of Political Science

**AMERICAN POLITICAL SYSTEM**

- 200 National Government
- 202 State and Local Government
- 210 Citizen Politics
- 300 Urban Politics in the United States
- 304 Introduction to Public Policy
- 306 Environmental Politics
- 310 Political Parties and Elections
- 311 American Politics and the Media
- 312 Interest Groups and Citizen Politics
- 314 The Presidency
- 315 The Politics of Congress
- 320 The American Judicial Process
- 325 Criminal Justice Policy
- 404 Making of Public Policy in the U.S.
- 405 National Public Policy
- 410 American Public Opinion
- 420 Constitutional Law
- 421 Gender and Law
- 422 Civil Liberties and Civil Rights
- 506 Problems of American Government
- 526 Administrative Law and Public Regulation

**PUBLIC ADMINISTRATION**

- 330 Introduction to Public Administration
- 530 Problems in Public Administration
- 531 Administration in Local and Regional Governments
- 532 Administration in Developing Countries
- 534 Administrative Theory
- 535 The Politics of Governmental Budgeting and Finance

**FOREIGN AND COMPARATIVE POLITICAL SYSTEMS**

- 240 Introduction to Comparative Politics
- 340 West European Political Systems
- 341 The Politics of Sub-Saharan Africa
- 342 East Asian Politics
- 344 Russian and East European Politics
- 345 Latin American Politics
- 346 Women in Developing Countries
- 347 Politics of Nationalism
- 348 Religion and Politics
- 544 Political Change in Russia
- 549 Problems of Foreign Political Systems

**INTERNATIONAL RELATIONS**

- 250 International Relations
- 350 American Foreign Policy
- 450 Seminar in International and Comparative Politics
- 552 Studies in International Relations
- 553 United Nations
- 555 International Law

**POLITICAL THEORY AND METHODOLOGY**

- 360 Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes
- 361 Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx
- 362 Theoretical and Ideological Bases of Contemporary Politics
- 363 American Political Theory
- 395 Quantitative Methods for Political Scientists
- 562 Modern Democratic Theory
- 563 Theories of Revolution

**SPECIAL STUDIES**

- 270 Political Topics
- 370 Issues in Contemporary Politics
- 390 Field Work in Political Science
- 391 Internship Seminar
- 449 Field Work in Foreign Political Systems
- 490 Political Science Honors Seminar
- 492 Political Science Honors Research

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**Political Science Courses (PSCI)**

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

**PSCI 100 Introduction to Political Science**

3 hrs.

An introduction to those concepts useful for an understanding of politics. These concepts and their interrelationships will be examined in the context of contemporary political systems.

**PSCI 105 Critical Thinking About Politics**

3 hrs.

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. Major topics to be covered include power, authority, political ideology, and the structures and processes of political systems.

**PSCI 200 National Government**

3 hrs.

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.

**PSCI 202 State and Local Government**

4 hrs.

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.

**PSCI 240 Introduction to Comparative Politics**

3 hrs.

This course introduces students to the field of comparative politics, its key concepts and major theoretical approach. The bulk of the course is a broad introduction to the major types of political systems in the modern world (liberal democratic, communist/post-communist, fascist, and developmental authoritarian systems), including their guiding ideologies, historical/social origins, key institutions, and their companion economic systems. Problems of democratization in non-democratic systems, the forces for change and dilemmas of reform, are key themes.

**PSCI 250 International Relations**

4 hrs.

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.

**PSCI 270 Political Topics**

1–3 hrs.

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, and the course may be repeated for credit with a different topic.
PSCI 300 Urban Politics in the United States
3 hrs.
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.

PSCI 304 Introduction to Public Policy
3 hrs.
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 200.

PSCI 306 Environmental Politics
3 hrs.
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.

PSCI 310 Political Parties and Elections
3 hrs.
A study of the nature of politics, the organization and function of political parties and elections, and the elective process in the U.S.

PSCI 311 American Politics and the Media
3 hrs.
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.

PSCI 312 Interest Groups and Citizen Politics
3 hrs.
An examination of interest group politics and citizen participation. Topics include interest group roles, formation and growth, resources, tension between interest groups, and an analysis of the influence of interest groups on the American political process. The citizen politics portion of the course focuses largely on the non-electoral forms of political participation including participation through interest group association, activities that use various institutional channels, and those forms of participation which occur outside such channels.

PSCI 314 The Presidency
3 hrs.
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.

PSCI 315 The Politics of Congress
3 hrs.
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.

PSCI 320 The American Judicial Process
4 hrs.
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.

PSCI 325 Criminal Justice Policy
3 hrs.
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.

PSCI 330 Introduction to Public Administration
3 hrs.
An introductory course in the administrative process in the public service. Special attention given to the environment and politics of administration, the role of the chief executive and the legislature. Detailed consideration of personnel and financial problems of administration.

PSCI 340 West European Political Systems
4 hrs.
Considers the organization, political behavior and decision-making process of the major countries of West Europe, including Britain, France and Germany. Political trends and forces challenging and reshaping democratic institutions are examined.

PSCI 341 The Politics of Sub-Saharan Africa
4 hrs.
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.

PSCI 342 East Asian Politics
4 hrs.
Examines the politics of the major countries of East Asia, focusing on China and Japan. Considers the political histories, political cultures, political economies, formal and informal institutions, and political and policy-making processes found in East Asian countries. Analyzes current trends and problems in historical and comparative perspectives.

PSCI 344 Russian and East European Politics
4 hrs.
The politics of transition from Communist to post-Communist societies is the focus of this course. The region of the former Eastern bloc has experienced a "return to diversity," reflecting differences in language, religions, social structure and history that greatly impact the development of these post-Communist countries. Choices, constraints and context represent the themes of the course as we try to understand successful and failed transitions to democracy and the market.

PSCI 345 Latin American Politics
4 hrs.
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 and dictatorship, and democracy, the politics of race and religion, women's movements, and globalization.

PSCI 346 Women in Developing Countries
4 hrs.
Women's socioeconomic and political role and status will be examined in relation to the impact of colonialism, forces of modernity, and developmental issues.

PSCI 347 Politics of Nationalism
4 hrs.
A critical examination of nationalism as a global phenomenon. Emphasis on the origins of nationalism, nationalist ideologies, colonialism and nationalism in non-Western countries, nationalism in public institutions and popular cultures, and the nature of nationalism in the face of increasing interdependence.

PSCI 348 Religion and Politics
4 hrs.
A comparative examination of the interplay between religion and politics. Considers the many ways that religious beliefs influence politics and the ways in which religions are in turn shaped by political contexts and events. Includes country cases from North America, Latin America, Western Europe, former Communist societies, Africa, and the Middle East.

PSCI 350 American Foreign Policy
4 hrs.
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.

PSCI 360 Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes
3 hrs.
A survey of political philosophy as it developed in Classical Greece, Rome, Medieval Europe, the Renaissance and the Enlightenment. Emphasis placed on comparative analysis of political philosophies as they reflect the richly diverse sociocultural conditions of these periods.

PSCI 361 Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx
3 hrs.
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.

PSCI 362 Theoretical and Ideological Bases of Contemporary Politics
3 hrs.
A survey of the more significant developments beginning with the confrontation between socialism and liberalism and concluding with an analysis of those theories and ideologies that have emerged in our own times.

PSCI 363 American Political Theory
3 hrs.
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.

PSCI 366 Scope and Methods of Political Science
3 hrs.
An introduction to the discipline of political science, including an examination of the development of political science and the methods and approaches used by contemporary political scientists to describe, explain, predict and evaluate political phenomena. Prerequisite: 9 hours of political science.

PSCI 370 Issues in Contemporary Politics
3-4 hrs.
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. Students may repeat the course for credit.

PSCI 390 Field Work in Political Science 1–2 hrs.

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 private-related official. Students wishing to apply must have a minimum of fifteen hours in Political Science and department approval before registering. Approval of application required. Graded on a Credit/No Credit basis.

PSCI 391 Internship Seminar 3 hrs.

An undergraduate seminar taken in conjunction with Field Work in Political Science (PSCI 390). 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. Department approval must be obtained to enroll for this seminar.

PSCI 395 Quantitative Methods for Political Scientists 3 hrs.

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: General education math proficiency.

PSCI 404 Making of Public Policy in the U.S. 3 hrs.

A study of the formation of public policy at the local, state, and national levels with emphasis on the impact of decision processes upon policy outcomes.

PSCI 405 National Public Policy 4 hrs.

This seminar places primary attention on emerging trends and issues that will affect the political, economic, and social character of American public life a decade or more ahead, and analyzes potential changes in existing public policies. Significant analysis and writing are required. Prerequisite: PSCI 304 or consent of instructor.

PSCI 410 American Public Opinion 3 hrs.

A study of public opinion in the American context and its potential influence on the governmental process. Topics include measurement of public opinion, the psychology of opinion holding, the role of political ideology and party identification, the formation of political attitudes, trends in public opinion, the group basis of public opinion, the influence of public opinion during elections, and the existence of political linkages between public opinion, elected officials and policy decisions. Prerequisite: PSCI 395.

PSCI 420 Constitutional Law 3 hrs.

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. Prerequisite: Junior status.

PSCI 421 Gender and Law 3 hrs.

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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: 12 hours in Political Science.

PSCI 422 Civil Liberties and Civil Rights 3 hrs.

Course will use selected Supreme Court rulings to examine how individual rights are protected under terms of the U.S. Constitution. The course will feature those tensions prompted by cultural diversity in the United States. Prerequisite: Junior status.

PSCI 449 Field Work in Foreign Political Systems 3–4 hrs.

Experience and field research in a particular foreign nation or region. Emphasis will be placed on the observation of political, economic, and social manifestations of the international political economy; local, regional, and national policies and governments in the area visited; and issues of political importance in the area visited. An overview of both general themes of political economy and the political history of the region visited will be included in the course. Prerequisite: 12 hours of social science or permission of the instructor.

PSCI 450 Seminar in International and Comparative Politics 3 hrs.

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 is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites are PSCI 250, 350, any one of the PSCI 340 series, and approval of the instructor.

PSCI 490 Political Science Honors Seminar 3 hrs.

An undergraduate seminar for honor students and others admitted by consent of the Department Honors Committee. The content of the seminar will be announced in advance. May be repeated. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Admission by permission of the Department Honors committee.

PSCI 492 Political Science Honors Research 2–3 hrs.

Honor students, with the guidance of a faculty advisor, conduct research and write the Honors Paper on a topic of individual interest. Prerequisite: Membership in the Political Science Department Honors Program and approved application required.

PSCI 494 Seminar in Political Science 3 hrs.

An undergraduate seminar for Political Science and Public Administration 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. Restricted to students majoring in Political Science or Public Administration. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: advanced political science/public administration majors.

Undergraduates may enroll in 500-level courses only after (1) attaining junior status and (2) taking PSCI 100 or PSCI 200 and three additional courses in political science or by obtaining prior approval of the department chair.


A critical examination of major problems facing national, state, or local governmen with emphasis upon contemporary efforts and studies designed to understand or solve such problems. May be repeated for credit when topics vary.

PSCI 525 Administrative Law and Public Regulation 3 hrs.

A study of the requirements for, and the limits of the exercise of administrative powers by public officials. Charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to the extent of governmental regulations and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determination. Prerequisite: PSCI 200 or a course in Economics.

PSCI 530 Problems in Public Administration 3–4 hrs.

Consideration of issues and problems of current interest in the field of public administration. The course is intended to provide advanced work for undergraduates and to serve as an introduction to the field for graduate students without previous training in public administration.

PSCI 531 Administration in Local and Regional Governments 3 hrs.

The administrative organization, structure, procedure and forms of local units of government are analyzed.

PSCI 532 Administration in Developing Countries 3 hrs.

This course compares public administration systems in a development context. It analyzes the role of the administrator in developing countries, notably the administrator's varied responsibilities as a career public official, and as an agent of change. The character of the development administrator as both a development administrator and (2) taking PSCI 1100 or PSCI 200 and three additional courses in political science or by obtaining prior approval of the department chair.

PSCI 534 Administrative Theory 3 hrs.

A study of descriptive theories of organizational and administrative behavior relevant to governmental administrative agencies. Theories of complex formal organization, decisional theories and systems theories will be analyzed.

PSCI 535 The Politics of Governmental Budgeting and Finance 3 hrs.

A survey of the political process of governmental budgeting and finance. Budget systems, including program planning and budgeting systems, are studied. The politics of taxation and other governmental revenues, including intergovernmental transfers, are studied for their impact on public policy choices.

PSCI 544 Political Change in Russia 3 hrs.

An examination of processes of political change in Russia in areas of policy and structure. Past reform efforts in the former Soviet Union and Russia are studied, followed
by an extensive inquiry into system change. The course relates the Soviet and Russian experience to the literature on political change and theories of comparative politics.

PSCI 549 Problems of Foreign Political Systems
3–4 hrs.
Course will consider selected problems of the governements and political systems of Western and Eastern Europe, Asia, Africa, and Latin America. The specific problems, topics, and countries to be studied will be announced each semester. May be repeated for credit when topics vary.

PSCI 552 Studies in International Relations
3 hrs.
Examines selected topics within the field of international relations. Topics will vary and will be announced each semester. May be repeated for credit when topics vary.

PSYCHOLOGY
R. Wayne Fuqua, Chair
Galen J. Alessi
John Austin
Lisa E. Baker
Dale M. Brethower
James E. Carr
Edward J. Daly
Allyce M. Dickinson
Kristal Erhardt
Ruth A. Ervin
Scott T. Gaynor
Bradley E. Hufman
Linda A. LeBlanc
Richard W. Malott
Jack L. Michael
Arny Nague
Adam Poling
C. Richard Spates
Lester W. Wright, Jr.

Pre-Psychology Major (PPY)

ADMISSION REQUIREMENT
Any freshman or transfer student planning to pursue psychology as a major will be admitted as a pre-psychology student (PPY) and will work with a psychology advisor to develop a planned program. Admission as a major requires that the student complete PSY 100, 160, and 250, all with grades of "C" 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 PSY 100, 160, and 250, and receive a grade of "C" or better in each course.

Application forms and additional information can be obtained from the department office or from a psychology advisor. Transfer students who do not meet admission requirements will be informed of steps they can take to earn admission. Admission of students on a probationary status to the psychology major will be considered on an individual basis.

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 PSY 499, Honors Project in Psychology (6 credit hours) and the preparation of an Honors Thesis.
4. The successful defense of the Honors Thesis before a departmental committee.
5. Participation in a professional apprenticeship program (2 credit hours).

PSYCHOLOGY MAJOR

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 major. Majors are required to satisfy College-Level Mathematics or Quantitative Reasoning Proficiency before registering for PSY 300.

Self-instructional courses will not generally count toward the Psychology major.

34 hours
INTRODUCTORY CORE (9 hrs.)

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<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>PSY 100</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 160</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 250</td>
<td>Abnormal Psychology</td>
<td>3</td>
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METHOD AND THEORY CORE (13 hrs.)

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PSY 300</td>
<td>Statistics for the Behavioral Sciences</td>
<td>3</td>
</tr>
<tr>
<td>PSY 330</td>
<td>Behavioral Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>PSY 360</td>
<td>Concepts and Principles of Behavior Analysis</td>
<td>4</td>
</tr>
<tr>
<td>PSY 460</td>
<td>Survey of Behavioral Analysis Research</td>
<td>3</td>
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PRACTICUM OR LABORATORY EXPERIENCE (3 hrs.)

Take one of the 3 hour practicum or laboratory courses

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<thead>
<tr>
<th>Course</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>PSY 347</td>
<td>Practicum: Learning and Self-Management</td>
<td>3</td>
</tr>
<tr>
<td>PSY 357</td>
<td>Practicum: Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>PSY 378</td>
<td>Laboratory in Physiological Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 387</td>
<td>Practicum in Behavior Analysis in Education</td>
<td>3</td>
</tr>
<tr>
<td>PSY 397</td>
<td>Special Arranged Practicum in Psychology</td>
<td>3/3</td>
</tr>
<tr>
<td>PSY 547</td>
<td>Practicum: Organizational Performance Improvement</td>
<td>3</td>
</tr>
<tr>
<td>PSY 599</td>
<td>Practicum in Psychology</td>
<td>1-4</td>
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ELECTIVES (9 hrs.)

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PSY 372</td>
<td>Physiological Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 444</td>
<td>Industrial/Organizational Behavior Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PSY 463</td>
<td>Health Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 517</td>
<td>Psychology in the Schools</td>
<td>3</td>
</tr>
<tr>
<td>PSY 524</td>
<td>Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>PSY 526</td>
<td>Human Drug Use and Abuse</td>
<td>3</td>
</tr>
<tr>
<td>PSY 560</td>
<td>Behavioral Medicine</td>
<td>3</td>
</tr>
<tr>
<td>PSY 561</td>
<td>Introduction to Clinical Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 570</td>
<td>A Behavior Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PSY 574</td>
<td>Cross Cultural Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 595</td>
<td>History of Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Acceptable minors: anthropology, biology, chemistry, communication, economics, English, linguistics, mathematics, philosophy, physics, political science, practical writing, sociology, social work, and others approved by the department advisor.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Psychology major will satisfy the Baccalaureate Writing Requirement by successfully completing PSY 330 Behavioral Research Methods or PSY 460 Survey of Behavior Analysis Research.

PSYCHOLOGY MINOR

Minimum 15 hours

Of the minimum total of fifteen (15) 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 the Psychology minor courses—PSY 100, 160, and 250—and obtain a grade of "C" or better in any course that counts toward the minor.

Self-instructional courses will not generally count toward the Psychology major.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PSY 100</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 160</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 250</td>
<td>Abnormal Psychology</td>
<td>3</td>
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APPROVED ELECTIVES

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<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>PSY 344</td>
<td>Organizational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 424</td>
<td>The Psychology of Human Sexuality</td>
<td>3</td>
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</tbody>
</table>
Psychology Courses (PSY)

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

PSY 100 General Psychology
3 hrs. Fall, Winter
An eclectic approach to a social and behavioral survey of major topics in psychology, including learning, motivation, intelligence, personality, mental illness, and social relations. Approved for General Education.

PSY 155 Teaching Apprenticeship in Introductory Psychology
2–4 hrs.
A laboratory course in the instructional methods of teaching introductory psychology.
Prerequisite: Consent of instructor. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 160 Child Psychology
3 hrs. Fall, Winter
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 material retardation, behavioral problems in childhood, emotional development and language learning. Prerequisite: PSY 100.

PSY 165 Teaching Apprenticeship in Child Psychology
2–4 hrs.
A laboratory course in the instructional methods of teaching child psychology.
Prerequisite: Consent of instructor. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 197 Special Programs in Psychology
1–3 hrs.
The department of psychology offers special programs of study for students at academic risk in the University. The program follows a Learning to Learn curriculum which is supervised by advanced students enrolled in a practicum course.

PSY 250 Abnormal Psychology
3 hrs. Fall, Winter
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. Prerequisite: PSY 100.

PSY 255 Teaching Apprenticeship in Abnormal and Social Psychology
2–4 hrs.
A laboratory course in the instructional methods of teaching abnormal psychology. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 300 Statistics for the Behavioral Sciences
3 hrs. Fall, Winter
Interpretation and application of descriptive and inferential statistical techniques necessary in the understanding of data presentations in behavioral research. Major topics include: Measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory and the binomial, hypothesis testing, the t-test, chi square and correlation.
Prerequisites: PSY 100 and MATH 109 or an equivalent score on the placement test offered by the Mathematics and Statistics department. MATH 109 must be completed with a "C" or better to qualify as a prerequisite for this course. Students must also satisfy the College-Level Mathematics or Quantitative Reasoning Proficiency before registering for PSY 300.

PSY 330 Behavioral Research Methods
3 hrs.
An examination of the quantitative methods utilized in behavioral research. Topics include behavioral research design, data analysis, single-case and between-subject designs, and data analysis. Prerequisite: PSY 300.

PSY 344 Organizational Psychology
3 hrs.
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 100.

PSY 345 Employee Assistance Program Organization and Change
3 hrs.
This course reviews strategies for organization management and change as relates to Employee Assistance Programs (EAP's). Emphasis is placed on methods of creating organization support for EAPs and ways of integrating EAPs into existing organization structures. Topics include leadership, communication, decision making, organization structure and design, and employee motivation and stress. Open only to Employee Assistance Academic Program majors. Prerequisite: PSY 100.

PSY 347 Practicum: Learning and Self-Management
3 hrs.
Supervised experience in the application of principles of behavior analysis to college learning and academic self-management. The site of this practicum is The Center for Research in Learning and Self-Management (Psychology Department). Prerequisites: PSY 100, PSY 160, PSY 250.

PSY 355 Teaching Apprenticeship in Statistics
2–4 hrs.
A laboratory course in the instructional methods of teaching elementary statistics. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 357 Practicum with Special Populations
3 hrs.
Supervised experience in the application of principles of behavior analysis to special populations. The Croyden Avenue School, which is the site of this practicum, provides an opportunity for students to work with emotionally disturbed, behaviorally handicapped and multiply-handicapped students. Students serve as tutors in the classroom and may also participate in research projects. The course is designed to familiarize the student with the principles of behavior analysis in a remedial education setting. Prerequisites: PSY 160, PSY 250.

PSY 372 Physiological Psychology
3 hrs.
An introduction to physiology and its relationship to behavior, including brain behavior interactions, behaviorally induced chemical changes and behavioral changes induced by chemical alterations. Lecture only. May be taken concurrently and academic self PSY 378. A previous course in biology or chemistry is helpful but not required. Prerequisites: PSY 360.

PSY 378 Laboratory in Physiological Psychology
3 hrs.
An intermediate laboratory and companion to PSY 372 emphasizing the acquisition of laboratory techniques in physiological psychology and brain behavior interactions. Laboratory procedures, research methodology, data analysis and professional writing are stressed. Concentrated enrollment in PSY 372 is required.

PSY 387 Practicum in Behavior Analysis in Education
3 hrs.
Supervised experience in the application of the principles of behavior analysis to remedial education. Project HELP, which is the site of this practicum, is designed to provide remedial education to school-age children in math and reading using the techniques of direct instruction. This course teaches the techniques of direct instruction and provides tutorial experience. Prerequisites: PSY 100, PSY 160, PSY 250.

PSY 396 Topical Studies in Psychology
1–3 hrs.
A course on selected topics in psychology. Topics may include basic science and applied aspects of the discipline. Permission of the instructor. Course may be repeated for credit. Course does not count on Psychology Major.

PSY 397 Practicum in Psychology
3 hrs.
Supervised experience at a community based mental health site as announced in the schedule of classes 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: PSY 100, PSY 160, PSY 250.

PSY 398 Independent Study
1–5 hrs.
This course provides the undergraduate student with the opportunity for independent reading and/or research under the direction of a Department staff member. Written permission must be obtained on forms available in the department office. May be repeated for credit up to 12 hours.

PSY 424 The Psychology of Human Sexuality
3 hrs.
This course is 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. Prerequisite: PSY 100.
PSY 426 Introduction to Human Drug Use and Abuse

3 hrs.
This is a course for non-majors and for minors in Psychology only. It cannot be applied towards the requirements for the Psychology major. This course introduces the student to the action of several classes of recreational and medical drugs and provides an overview of the factors that influence drug use. Human drug use and abuse will be the primary focus, although non-human research findings will be discussed as well. Prerequisite: PSY 100.

PSY 444 Industrial/Organizational Behavior Analysis

3 hrs.
This course focuses on conducting effective performance improvement projects in organizations. Topics include identifying performance targets, worth of change, developing measurement systems and tracking performance, behavior and performance analyses, behavior change strategies, and evaluation of organizational impact. Prerequisites: Psychology major; PSY 360.

PSY 460 Survey of Behavior Analysis Research

3 hrs.
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 genetics. Prerequisite: PSY 330 and 360.

PSY 462 Individual, Group, and Family Treatment

3 hrs.
This course provides an overview of individual, group and family treatment modalities. Concepts, intervention strategies, and specific methods of current treatment models are presented through lecture, assigned readings, handouts and film. Included are also three sessions on demonstration and practice of micro-counseling skills. Treatment focus is the employed adult whose job performance is adversely affected by mental health and/or substance abuse problems. Open only to Employee Assistance Academic Program majors. Prerequisite: PSY 250.

PSY 463 Health Psychology

3 hrs.
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. Prerequisites: PSY 100.

PSY 499 Honors Projects in Psychology

1–5 hrs.
Independent study and research projects completed under the supervision of a faculty member and coordinated with the Department Honors Program. Prerequisite: Permission of instructor.

All 500 level courses in the Department of Psychology have a prerequisite of junior status and of PSY 360 (Concepts of Principles of Behavior Analysis) and PSY 330 (Methodology of Behavior Analysis). Exceptions to this requirement must be approved by the course instructor on a case-by-case basis.

PSY 510 Advanced General Psychology

3 hrs.
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. Prerequisite: Permission of instructor.

PSY 517 Psychology in the Schools

3 hrs. Fall, Winter
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. Prerequisite: PSY 330 or permission of instructor.

PSY 524 Human Sexuality

3 hrs. Fall
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. Prerequisite: Psychology majors only.

PSY 526 Human Drug Use and Abuse

3 hrs.
This course provides a general overview of basic pharmacological principles, discusses the behavioral and physiological mechanisms of action of several classes of medical 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.

PSY 547 Practicum: Organizational Performance Improvement

3 hrs.
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. Prerequisite: Permission of the instructor.

PSY 560 Behavioral Medicine

3 hrs.
Application of behavioral technology to medical patients with emphasis on in-patient treatment. Sample topics include bio-feedback, pain control, compliance with medical regimens and issues of work in a medical setting.

PSY 561 Introduction to Clinical Psychology

3 hrs.
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 activities 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. Prerequisites: Psychology major for undergraduates, instructor’s permission for graduate students.

PSY 570 A Behavior Analysis Approach to the Area of Developmental Disability

3 hrs.
Topics will include: Historical background, assessment, training and legal implications of treatment.

PSY 574 Cross Cultural Psychology

3 hrs.
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, African, and Arabic cultures. This course is specifically not a course in American ethnicity. It will instead 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. Prerequisite: For undergraduates—having declared a psychology major; for graduate students—permission of instructor.

PSY 595 History of Psychology

3 hrs.
The historical and philosophical foundations of contemporary American psychology.

PSY 597 Topical Studies in Psychology

2–4 hrs.
A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. Permission of instructor. Courses may be repeated for credit although the total number of credits may be limited by the degree program. Students should consult the program advisor. Courses may include the following:

Parent Training Studies in Industrial Psychology

Computer Assisted Instruction

Theory of Direct Instruction

PSY 598 Special Projects in Psychology

1–5 hrs.
This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member. Graduate standing and permission of instructor. May be repeated for credit, although the total number of hours in a degree program may not exceed 5 hours.

PSY 599 Practicum in Psychology

2–4 hrs.
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 Classes. Each hour of credit requires 10 clock hours. May be repeated for credit although number of credits may be limited by program requirements. Written permission must be obtained from the department.
PUBLIC AFFAIRS AND ADMINISTRATION

Robert A. Peters, Director
Peter Kobrak
Barbara Liggett
Janice Maatman
Matthew S. Mingus
Brent Smith
James A. Visser

The School of Public Affairs and Administration offers courses, seminars, and workshops designed to prepare Master of Public Administration (MPA) and Doctor of Philosophy in Public Administration (Ph.D.) degree candidates for leadership positions with public and independent sector agencies.

Public Affairs and Administration (PADM)

Undergraduates with senior status in appropriate major fields may enroll in 500-level courses with prior approval of the student's advisor or with the consent of the program director.

PADM 532 Program Planning and Proposal Writing 3 hrs.
This course seeks to build skill in program planning, program management, and proposal writing. The first part of this course will be devoted to the grantsmanship process, including how to formulate and promote a project concept; prepare the project proposal; submit the project proposal; and follow-up after acceptance or rejection of the proposal. Emphasis will be placed upon the project proposal as an integral component of agency planning, program management, and assessment activities, from both grantor and grantee perspectives. In the second part of this course each participant will prepare a project proposal.

PADM 580 Nonprofit Board-Staff Relations 1 hr.
This course examines the unique relationship between the governing board and staff of nonprofit organizations. Special attention is given to the relationship between the board and the chief executive officer (CEO) along with strategies for the CEO to build an effective working relationship with the governing board. The role of the governing board with respect to staff in the organization is also examined.

PADM 581 Strategic Planning 1 hr.
Strategic planning in nonprofit organizations should be a leadership activity that is proactive, comprehensive, and long-range. This course examines the theory and practice involved in strategic work and provides real world practice through the creative development and discussion cases. The discussion includes an introduction to the skills needed to determine the guiding values of the organization in its environmental context, and to develop a corresponding mission, goals, and strategies to achieve these values-grounded ends.

PADM 582 Volunteer Recruitment and Retention 1 hr.
This course will draw on empirical research on volunteers, practice-oriented experiences, and case studies to examine central issues in the recruitment, retention, and development of effective volunteers.

PADM 584 Promoting Nonprofit Organizations 2 hrs.
A practical course in the application of marketing principles to nonprofit organizations. Emphasis will be placed on techniques for defining and identifying the organization's commitment to quality and measurement of market satisfaction will also be covered. Participants will develop marketing strategies to meet the needs of identified markets. These strategies will include the identification of market offers, communication messages and methods, location issues, and the development of market budgets.

PADM 586 Budget Development for Nonprofit Organizations 2 hrs.
This course will examine procedures for projecting revenues, the extent to which tax policies affect private contributions to nonprofits, and the process for developing budgets. Line item and alternative budget formats will also be considered. An ability to use spreadsheets (e.g., Excel or Lotus) is strongly recommended.

PADM 587 Fund Raising for Nonprofit Organizations 2 hrs.
A practical course for those who wish to develop their fund raising 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 learn to assess their own organizations' fund raising readiness and develop fund raising plans unique to their organizations.

PADM 599 Topics in Public Administration 1–4 hrs.
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.

SCIENCE AND MATHEMATICS

TEACHING MINOR

See "Interdisciplinary Programs" in the College of Arts and Sciences.
American Humanities extra-curricular requirements. For details, please see the American Humanities description in the College of Arts and Sciences Interdisciplinary Program section of this catalog. Details are also available from the Sociology academic advisor and from the American Humanities director.

Honors Program
Students in sociology and criminal justice may participate in the department honors program in three ways:
1. Membership in Alpha Kappa Delta, the national sociology honor society. A minimum of 12 hours of course work required with an overall grade point average of 3.0 or better, and whose overall average is at least 3.0.
2. Membership in Alpha Psi Sigma, the national criminal justice honor society. A minimum of 12 hours of course work required with an overall grade point average of 3.0 or better, and whose overall average is at least 3.0.
3. Membership in the Kercher Center for Social Research.

SOCILOGICAL MAJOR
A major in Sociology consists of a minimum of 30 hours of course work in Sociology.

Required Courses (18 hours)
SOC 200 Principles of Sociology
SOC 300 Sociological Theory
SOC 310 Introduction to Sociological Psychology
SOC 480 Advanced Sociology

Electives (12 hours)
Students may choose any twelve hours of electives from any offerings in the Department. No more than one course at the 100-level may be included. An overall grade point average of 3.0 or better, and whose overall average is at least 3.0.

American Humanities Certificate Program
Sociology majors and minors may choose to participate in the American Humanities Certificate Program. This program is designed to provide students with a broad perspective on the social and political aspects of society's reactions to crime. 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.

Criminal Justice 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.

SOCIOLGY MINOR
A minor in sociology consists of 18 hours of course work in Sociology. SOC 200 and 210 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 at the 100-level or above; (3) no more than one 100-level course may be included. Minor slips are required.

SOCIOLGY MINOR—Social Psychology Concentration
Sociology Minor—Social Psychology Concentration
Sociology 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.

Required Courses (18 hours)
SOC 200 Principles of Sociology
SOC 300 Sociological Theory
SOC 320 Introduction to Social Psychology
SOC 282 Methods of Data Collection
SOC 283 Methods of Data Analysis
SOC 480 Advanced Sociology

Electives (12 hours)
Three of the following electives (9 hours) are required:
SOC 412 Child Abuse
SOC 421 Child Abuse Socialization
SOC 422 Adolescent Socialization
SOC 479 Female/Male Interaction
SOC 500 Studies in Social Psychology: Variable Topics

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Sociology Major—Social Psychology Concentration will satisfy the Baccalaureate Writing Requirement by successfully completing SOC 480 Advanced Sociology.

SOCIOLOGY MINOR
A minor in sociology consists of 18 hours of course work in Sociology. SOC 200 and 210 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 at the 100-level or above; (3) no more than one 100-level course may be included. Minor slips are required.

SOCIOLGY MINOR—Social Psychology Concentration
Sociology Minor—Social Psychology Concentration
Sociology 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
SOC 200, 210, and 300. Two electives (6 hours) from among the following are required: SOC 412, 421, 422, 479, and 520. The student may include any other sociology courses to complete the required eighteen (18) hours.

Criminal Justice Major
This program is designed to provide a broad perspective on the 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. Not all students are guaranteed internships and some placements require the applicant to undergo security checks. Applications are required.

36 hours

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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3 hrs.</td>
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<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>SOC 210 Modern Social Problems</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 282 Methods of Data Collection</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Writing Expectation
Students should have completed ENGL 105 or equivalent and write at the college level before enrolling in the following advanced courses.

BACCALAUREATE REQUIREMENTS
Students who have chosen the Criminal Justice major will satisfy the Baccalaureate Writing Requirement by successfully completing SOC 466 Advanced Criminology.

REQUIRED CORE COURSES
All of the following courses (22 hours) are required. It is important to check with the advisor so courses are taken in proper sequence.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 362 Criminology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 363 Criminal Justice Process</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 364 Sociology of Law Enforcement</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 365 Correctional Process</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>FCL 384 Criminal Law and Procedure</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>SOC 454 Juvenile Delinquency</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 468 Advanced Criminology</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

REQUIRED RESEARCH METHODS
SOC 282 Methods of Data Collection
SOC 283 Methods of Data Analysis

ELECTIVES
To complete the required total of 33 hours, students may take any of the following courses.

Contemporary Issues in Sociology and Criminology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOC 314 Ethnic Relations</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 320 Introduction to Social Psychology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 412 Child Abuse</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 456 Social Stratification</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 495 Special Topics in Sociology and Criminal Justice (when applicable)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 560 Corporate and Governmental Crime</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 561 Violence and the U.S. Society</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 562 Victimology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 563 Gender and Justice</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 568 Race, Ethnicity, and Justice</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>BAS 300 Black Experience</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Correctional Issues</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 465 Non-Instructional Corrections</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Courts</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PHIL 313 Philosophy of Law</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PSCI 320 American Judicial Process</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>PSCI 325 Criminal Justice Policy</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PSCI 422 Civil Rights and Civil Liberties</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 578 Sociology of Law</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Juvenile Justice</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 422 Adolescent Socialization</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 458 Juvenile Justice Casework</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 459 Juvenile Justice</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Internship and Directed Study</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 496 Criminal Justice Internship</td>
<td>2-8 hrs.</td>
</tr>
<tr>
<td>SOC 498 Sociology Internship (2-8 hrs.)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 598 Directed Individual Study</td>
<td>1-6 hrs.</td>
</tr>
</tbody>
</table>

Law Enforcement Administration
SOC 467 Police and Community Dynamics
SOC 468 Police and Crime Prevention

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOC 260 Introduction to Criminal Justice</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 261 Law Enforcement Certification</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

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).

NOTE: All WMU classes are 3 credit hours unless otherwise noted.

CRIMINAL JUSTICE MINOR
An 18-hour criminal justice minor is available, patterned after the major. Minor slips are required.

REQUIRED CORE (9 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 210 Modern Social Problems</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 260 Introduction to Criminal Justice</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

THREE OF THE FOLLOWING ARE REQUIRED

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>SOC 363 Criminal Justice Process</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 364 Sociology of Law Enforcement</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 365 Correctional Process</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SOC 454 Juvenile Delinquency</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Sociology Courses (SOC)

A list of approved General Education courses can be found in "Geration Requirements and Academic Advising" earlier in this catalog.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOC 100 American Society</td>
<td>3 hrs.</td>
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</table>

An analysis of contemporary American society, including continuity and change in value systems, major institutions and their interrelationships, and other aspects of social life.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOC 122 Death, Dying, and Bereavement</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Social structures, attitudes, beliefs and values about death, dying and bereavement in contemporary American society as well as in other societies and other time periods will be considered. Medical, legal, religious, and psychological issues in relation to death, dying, and bereavement will be discussed. (Not recommended for persons recently bereaved.)

SOSC 171 Social Impacts of Science and Technology

3 hrs.

An analysis of social consequences of major scientific and technological changes, including the actual and potential impact of advances in the physical and natural sciences.

SOSC 182 Computer Usage in the Social Sciences

3 hrs.

An introduction to BASIC programming language. This course reviews ethical-professional issues such as privacy, and provides training with software applications in social sciences such as SPSS, SOS, MINITAB, plus introducing students to microcomputers. This course meets the University's computer literacy requirement. Not for sociology or criminal justice major or minor credit. Credit cannot be earned for both SOSC 182 and either BIS 102 or 110, FCS 225, PEPR 149, or CS 105.

SOSC 190 Men and Women in Contemporary Society

3 hrs.

A systematic analysis of roles of men and women, with particular emphasis upon problems of adjustment and conflict in contemporary society.

SOSC 200 Principles of Sociology

3 hrs.

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.

SOSC 210 Modern Social Problems

3 hrs.

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.

SOSC 260 Introduction to Criminal Justice

3 hrs.

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 process required to process suspects from arrest to release.

SOSC 261 Law Enforcement Certification—Variable Topics

Variable hrs.

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. Prerequisite: Permission of Criminal Justice Program advisor.

SOSC 282 Methods of Data Collection

3 hrs.

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.

SOSC 283 Methods of Data Analysis

3 hrs.

This course is an examination of data analytic techniques employed to introduce the beginning student to the formulation, measurement, causation, cross-tabulation, statistical inference...
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(significance tests), and bivariate regression and correlation.

SOC 300 Sociological Theory 3 hrs.
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 200.

SOC 304 Nonwestern World 4 hrs.
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 relentless 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."

SOC 314 Ethnic Relations 3 hrs.
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.

SOC 320 Introduction to Social Psychology 3 hrs.
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.

SOC 334 Pacific Rim — Asian Societies 3 hrs.
A sociological analysis of Asian Pacific Rim societies (such as China, Japan, Taiwan, South Korea, and Singapore) in various stages of industrialization and modernization, with consideration of their influence on American society.

SOC 335 Modern Latin American Societies 3 hrs.
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.

SOC 336 Modern Japanese Society 3 hrs.
An introduction to Japanese society, focusing upon current developments in the process of industrialization and urbanization. Examines the impact of these processes on Japanese population, family life, village organization, urban community, class structure, and personality.

SOC 352 Introduction to Social Gerontology 3 hrs.
An exploration of the social, psychological, economic, and physical aspects of aging. Consideration will be given to institutional programming for older people in the United States and other societies.

SOC 353 The City and Society 3 hrs.
An examination of the city and the process of urbanization from earliest times to the present. Focusing upon the United States, emphasis will be placed on the characteristics, problems, and consequences of urban growth and development.

SOC 354 Population and Society 3 hrs.
A sociological investigation into the dynamics and consequences of the world-wide population explosion, and U.S. population problems such as family planning, the baby boom, zero population growth, and ecological issues. Prerequisite: SOC 200.

SOC 362 Criminology 3 hrs.
An overview of the field of criminology. The areas considered range from the definitions, origins, and consequences of crime and law, to causal theories of criminal behavior, and to types of crimes and victims. Particularly stressed is an analysis of the relationship between law and society and social structure to crime.

SOC 363 Criminal Justice Process 3 hrs.
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 362.

SOC 364 Sociology of Law Enforcement 3 hrs.
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 362.

SOC 365 Correctional Process 3 hrs.
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 362.

SOC 373 Sociology of Health and Illness 3 hrs.
Introduction to the concepts of health and illness in our society; ways of measuring disease; the impact of social class, race, religion, and ethnicity on the perception and distribution of disease. Attention will also be paid to the social structure of the health care delivery system and of alternative systems of medical care. Prerequisite: SOC 200.

SOC 390 Marriage and Family Relations 3 hrs.
A sociological analysis of the structural and interactional aspects of marriage and family groups in contemporary society, with emphasis on the American middle class. Consideration is given to change and diversity in family patterns, norms, and values, and to factors contributing to family unity or disorganization. Prerequisite: SOC 200.

SOC 412 Child Abuse 3 hrs.
This course is an examination of child abuse in American society. Medical, psychological, educational, and 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.

SOC 421 Childhood Socialization 3 hrs.
An investigation of social development of the child from birth to adulthood. The course will focus on the child's interaction with parents and peers as these influence processes of learning, language acquisition, role playing, the organization of knowledge, and development of self. Prerequisite: SOC 320.

SOC 422 Adolescent Socialization 3 hrs.
An investigation of social learning and personality development in adolescence. This course examines the effects of interaction partners and group allegiances, social class membership, biological maturation, sex roles and self-awareness on adolescent behavior, personality development, and orientation toward the adult world and adulthood. Prerequisite: SOC 320.

SOC 454 Juvenile Delinquency 3 hrs.
A study of juvenile delinquency as a social problem. Extent, causal factors, methods of treatment, and programs of prevention are covered. When feasible, students visit community programs. Prerequisite: SOC 200.

SOC 456 Social Stratification 3 hrs.
An analysis of the nature, causes and consequence of class and status differences within societies. Stress is placed upon such concepts as mobility, class, status and differential power. Conflict and functional theories of stratification are treated. Prerequisite: SOC 200.

SOC 458 Juvenile Justice Casework 3 hrs.
This course is a seminar/practicum in the area of non-formal treatment of juvenile offenders and their families. The course focuses on the holistic assessment, decision making and treatment of juveniles brought to the attention of the court for delinquent behavior. Each student is expected to provide a wide range of casework services for a minimum of one hour per week. These services include home visits, interaction with schools and numerous other community agencies. Prerequisite: SOC 454.

SOC 459 Juvenile Justice 3 hrs.
This course deals with the processing of offenders through the juvenile court 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. Prerequisite: SOC 454.

SOC 465 Non-Institutional Corrections 3 hrs.
This course examines correctional alternatives to incarceration. Specific activities include visits to probation, parole, community correction centers, substance abuse treatment programs, electronic monitoring, and community service projects. The rationales for using intermediate sanctions are critically assessed and policy implementation are addressed. Prerequisite: SOC 365.

SOC 466 Advanced Criminology 3 hrs.
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...
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which underlie these policies, the research evidence on their effectiveness, and their political implications. This course is approved as a writing-intensive course which may fulfill the bachelor’s-level writing requirement of the student’s curriculum. Prerequisites: SOC 362, SOC 363, SOC 364, and SOC 365.

SOC 467 The Police and Community Dynamics 3 hrs.
Study of the role of the police in the community by focusing on the police’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 the police such as the use of deadly force, police performance, neighborhood patrols, policies of law enforcement, minority relations, victimless crime, and the resolution of intercommunity differences. Prerequisite: SOC 364.

SOC 468 The Police and Crime Prevention 3 hrs.
This course provides an intensive examination of the important issue of crime prevention. Crime prevention is viewed within the larger political process and is related to the etiology of criminal behavior. The utility of general and specific prevention is discussed, looking at technical and programmatic aspects of both the police and community including target hardening and methods of decreasing the opportunity for victimization. The security business and various security techniques will also be analyzed. Prerequisite: SOC 364.

SOC 479 Female/Male Interaction 3 hrs.
Examines the variable of gender as it influences interaction between women and men. Topics include female/male stereotypes, differences in female/male verbal and non-verbal codes, and female/male interaction on the job. (Cross-listed with COM 479.)

SOC 480 Advanced Sociology 3 hrs.
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 within which we live, the theoretical underpinnings, and the relevant research evidence dealing with several illustrations of social institutions and social processes. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student’s curriculum. Prerequisites: SOC 282, 283, 300, and 320.

SOC 490 Social Context of Sexual Behavior 3 hrs.
This course focuses on a systematic analysis of contemporary sexual codes and behavior in American society. Present-day beliefs and practices are viewed in historical context (especially from 1900 to the present) to gain insight into what is today, with the purpose of propelling society into the future. The sociological, historical, social psychological analysis examines current patterns of beliefs and behavior in terms of their immediate and potential effects and consequences both for individuals and couples, and also for society. Prerequisite: SOC 200.

SOC 492 The Family as a Social Institution 3 hrs.
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. Prerequisite: SOC 200 or equivalent.

SOC 496 Special Topics in Sociology or Criminal Justice: Variable Topics 1–3 hrs.
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. Prerequisite: SOC 200.

SOC 496 Criminal Justice Internship 2–4 hrs.
Opportunity is provided through the Criminal Justice Program for supervised experiences in state and local criminal justice agencies. Approved application is required.

SOC 498 Sociology Internship 2–8 hrs.
Opportunity is provided for supervised experiences in local organizations or activities in such areas as criminal justice, gerontology, and urban studies. Approved application required.

SOC 499 Honors Seminar 2–6 hrs.
Investigation of selected topics in seminars by advanced undergraduates. May be repeated for credit with a different topic. 500-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be allowed to enroll. Prerequisites must include SOC 200 or its equivalent in another related social science discipline; and two 300- or 400-level courses (i.e., one of each; or two of one). Exemptions for these may be granted on a case by case basis.

SOC 500 Computer Application in Social Research 3 hrs.
An introduction to computer applications for graduate students in the social sciences. Since they all have utility in the research process, the full range of applications will be covered, including: word processing, spreadsheets, graphics, data base management, communications, and statistical processing. A hands-on course, it includes individual assignments relating to each of the application areas. Special attention will be paid to the use of SPSS (The Statistical Package for Social Scientists) in the analysis of quantitative data. Several assignments will relate to the use of this software package. Primarily for graduate students in the social and behavioral sciences with no special mathematical or computer experience. Undergraduates admitted only with the permission of instructor.

SOC 515 Sociology of Mental Illness 3 hrs.
This course will be concerned with examining the contemporary meaning of concepts of mental health and mental illness. The course will also consider the amount and kind of mental illnesses (especially the differences by social class, age, gender, race, marital status, urban versus rural living, and migration); the structure of the mental health care delivery system; the nature of help-seeking for mental illness; and community care and public policy for mental illness. Prerequisite: SOC 200.

SOC 520 Studies in Social Psychology: Variable Topics 3 hrs.
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. Prerequisite: SOC 320.

SOC 521 Social Psychology of Emotions 3 hrs.
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 by placing 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. Prerequisite: SOC 320 or graduate standing.

SOC 522 Social Psychology of Prejudice 3 hrs.
An analysis of the processes through which prejudice is learned and influences individual thought and social interaction. The nature of contemporary forms of prejudice will be analyzed, along with their cultural, cognitive, and motivational bases. Emphasis will be placed on how stereotypes are acquired and maintained, the consequences of prejudice for social interaction and intergroup conflict, and classic and contemporary strategies for the reduction of prejudice and discrimination. Students will be encouraged to conduct research projects involving the defense of their own bias. Prerequisite: SOC 320 or graduate standing.

SOC 525 Research Design and Analysis in Social Psychology 3 hrs.
This course will provide students with the knowledge necessary to evaluate research, to understand the relationship between theory and the research operations that are used to test and generate theory, and to design and carry out original research on social psychological topics. Students will learn about the appropriate use of survey, observational, experimental, and quasi-experimental methods as applied to both field and laboratory settings. Class projects will teach students to design and conduct original research in social psychology, and to analyze data using relevant statistical techniques. Prerequisites: SOC 282 and 320 or graduate standing.

SOC 540 Sociology of Medicine 3 hrs.
A comprehensive survey of concepts and research findings in the field of the sociology of medicine. Topics to be covered include: the distribution of illness in society, relationships between social stress and illness, illness as a social process, health care professionals, the sociology of health care delivery. Prerequisite: SOC 373.

SOC 552 Sociology of Aging 3 hrs.
An examination of the process of aging in American society, with particular emphasis on the periods of late maturity and old age. Consideration will be given to theories of aging and the social implications of age grading, the meaning of work and retirement, and the status and roles of the aged. Prerequisite: 6 hours of sociology including SOC 200.

SOC 560 Corporate and Governmental Crime 3 hrs.
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. Prerequisite: SOC 200 or 210, SOC 260, and SOC 362, and
SOC 561 Violence and U.S. Society
3 hrs.
This course analyzes the nature, extent, and causes of violence associated with the United States. The forms of violence to be analyzed include interpersonal, institutional, and structural violence; recent theory and research on violence will be reviewed and various prevention and control policies will be discussed. Prerequisites: SOC 200 or 210, SOC 260, and SOC 362, and one other upper-level (300- or 400-level) course.

SOC 562 Victimology
3 hrs.
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. Prerequisites: SOC 200 or 210, SOC 260, and SOC 362, and one other upper-level (300- or 400-level) course.

SOC 563 Gender and Justice
3 hrs.
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. Prerequisites: SOC 200 or 210, SOC 260, and SOC 362, and one upper-level (300- or 400-level) course.

SOC 568 Race, Ethnicity, and Justice
3 hrs.
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 200 or 210, SOC 260, and SOC 362, and one upper-level (300-400) course. SOC 314 is encouraged.

SOC 573 Sociology of Political Behavior
3 hrs.
Systematic sociological theory and research applied to the study of political organization and behavior in the United States and in selected countries abroad. Such topics as political parties, voting, bureaucracy, and political ideology will be considered. Prerequisite: SOC 200.

SOC 578 Sociology of Law
3 hrs.
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. Prerequisite: SOC 200 or equivalent.

SOC 590 Variable Topics in Sociology
3 hrs.
An examination of a selected topic in the field of sociology. The focus of the course may be theoretical, methodological, or substantive.

SOC 598 Directed Individual Study
2-6 hrs.
A program of independent study (reading or research) to provide the unusual 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. Prerequisite: Consent of instructor and the department chairperson.
STATISTICS

Daniel Mihalko, Chair
Robert Buck
Joseph McKean
Joshua Naranjo
Magdlena Niewiadomska-Bugaj
Gerald Severs
Michael Stollme
Jung Chao Wang

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 throughout the next decade.

The department offers a major in statistics and two minors in statistics and one in general statistics. The majority of courses make use of the computer. Course work for the major requires calculus and linear algebra. These are usually taken in the first two years of course work but can be taken later. The applied statistics minor does not require any mathematics courses. During the first two years, students should contact the Department of Statistics in 3306 Everett Tower or write to the Department of Statistics, Western Michigan University, Kalamazoo, MI 49008. All majors must contact a faculty advisor in their first or second year. All minors must contact an advisor.

At most, one course with a grade below "C" may be applied toward a major or minor in Statistics.

STATISTICS MAJOR

The field of statistics is concerned with collection of data, with various descriptive and inferential methods of analyzing data and with proper interpretation of the results. Statistics is frequently used in government and industry as part of a team of specialists, in areas such as business, biology, pharmaceutics, demography, economics, and the health sciences.

CORE REQUIREMENTS

MATH 122 Calculus I .... 4
MATH 223 Calculus II .... 4
MATH 230 Elementary Linear Algebra .... 4
MATH 272 Multivariate Calculus and Matrix Algebra .... 4
MATH 314 Mathematical Proofs .... 3
STAT 362 Probability .... 4
STAT 364 Statistical Methods .... 4
STAT 391 Statistical Consulting .... 1
STAT 460 Introduction to Mathematical Statistics .... 3
STAT 567 Statistical Design and Analysis of Experiments .... 4
Two of STAT 561, 563, 565, 566, 568 .... 6
MATH 570 .... 6
Plus CS 111, CS 201, and STAT 464 or CS 306 (5-8 hrs.). A minor in Computer Science is recommended. Students planning to pursue graduate study in statistics should elect MATH 570.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Statistics major will satisfy the Baccalaureate Writing Requirement by successfully completing MATH 314 Mathematical Proofs.

STATISTICS MINOR

STAT 260 Elementary Statistics
STAT 364 Statistical Methods

APPLIED STATISTICS MINOR

STAT 464 .... 3
STAT 366 or equivalent .... 4
STAT 567
Two of STAT 561, 563, 565, 566, 568 ..... 6

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:

1. Grade point average of at least 3.7 in statistics and mathematics courses
2. Overall grade point average of at least 3.25
3. Completion of two of the following:
   - an honors seminar
   - an upper-level theoretical course
   - an approved independent study project

Interested students should see their advisor in their junior year or early in their senior year to plan an "honors program."

Statistics Courses (STAT)

Students who fail to earn a "C" or better grade in a prerequisite course will not be permitted to enroll in the next sequence course. A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

STAT 160 Statistics and Data Analysis 3 hrs.
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 graphs, normal distribution, cross-classified data, correlation and association, formal statistical inferences, and resampling methods. Prerequisite: MATH 110 or satisfactory score on Mathematics Department Placement Examination.

STAT 216 Business Statistics 3 hrs.
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, regression and time series. 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. Students can receive credit for only one of STAT 216, 260, 364, or 366. Prerequisite: MATH 116, and BIS 102.

STAT 261 Engineering Statistics 3 hrs.
Introduction to statistical methodology, emphasizing applications in engineering. Topics include descriptive and inferential statistics, least squares curve fitting, correlation, and analysis of variance. Prerequisite: MATH 122 and a course in the use of computers. Cross listed with IME 261.

STAT 262 Probability for Engineers 3 hrs.

STAT 362 Probability 4 hrs.
Discrete probability spaces, conditional probability, discrete and continuous random variables, expectations, joint distributions, special distributions. Prerequisite: MATH 123.

STAT 364 Statistical Methods 4 hrs.
This course treats both the theory and applications of statistics. Topics include: empirical distributions, discrete probability, random variables and probability distributions, special distributions, the central limit theorem, sampling distributions, point and interval estimation, hypothesis testing, analysis of variance, correlation and regression, the design of experiments. Students can receive credit for only one of STAT 216, 260, 364, or 366. Prerequisite: MATH 123.

STAT 366 Introduction to Statistics 4 hrs.
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—confidence intervals and tests of hypotheses for one- and two-sample problems.

Students can receive credit for only one of STAT 216, 260, 364, or 366. Prerequisite: MATH 110 or the equivalent or satisfactory score on the departmental placement exam.

STAT 391 Statistical Consulting 1 hr.
An undergraduate course on the practice of statistical consulting in industry. This course will consider both the statistical and the nonstatistical aspects of consulting: statistical modeling, statistical judgment, quality improvement technology, the psychology of consulting, the importance of communication and the entrepreneurial role. Students will work in groups to solve problems arising with real data or with class experiments. Prerequisite: At least one of STAT 563, 565, 566, or 568.

STAT 460 Introduction to Mathematical Statistics 3 hrs.
Topics to be included are multivariate probability distributions, sampling distributions, asymptotic theory, theory of estimation, and likelihood ratio tests. Prerequisites: MATH 230 and 272, STAT 362 and 364.
STAT 464 Introduction to Statistical Computing 3 hrs.
This course provides an introduction to the use of statistical computer software in the MINITAB, SAS, SPSSX, and BMDP packages with particular emphasis on SAS and MINITAB. 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. 
**Prerequisites:** Western Michigan University's computer literacy requirement and an introductory statistics course.

STAT 560 Applied Probability 3 hrs.
A first course in probability for upper division and graduate students interested in applications. Topics will include: probability spaces, expectation, moment generating functions, central limit theorem, special discrete and continuous distributions. Applications will include reliability and production problems, and Markov chain methods. **Prerequisite:** MATH 272.

STAT 561 Applied Multivariate Statistical Methods 3 hrs.
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. **Prerequisite:** an introductory course in statistics and a course in linear algebra.

STAT 562 Statistical Theory 4 hrs.
A first course in statistical theory. Topics include: random variables, distributions of statistics, limiting distributions, elementary theory of estimation, and hypothesis testing. **Prerequisite:** MATH 230; STAT 364 and (560 or 460).

STAT 563 Sample Survey Methods 3 hrs.
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. **Prerequisite:** An introductory statistics course and consent of instructor.

STAT 565 Design of Experiments of Quality Improvement 3 hrs.
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. **Prerequisite:** An introductory course in statistics.

STAT 566 Nonparametric Statistical Methods 3 hrs.
This course presents a broad overview of nonparametric methods commonly referred to as nonparametric or distribution-free methods. Topics include: inference 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. **Prerequisite:** An introductory statistics course.

STAT 567 Statistical Design and Analysis of Experiments 4 hrs.
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. **Prerequisite:** An introductory statistics course.

STAT 568 Regression Analysis 3 hrs.
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. **Prerequisite:** An introductory statistics course.

STAT 569 Quality Improvement Concepts and Methods 4 hrs.
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 capability, principles of experimental design, robust product and process design. **Prerequisite:** An introductory statistics course such as STAT 260 or 364.

STAT 599 Independent Study in Statistics 1–6 hrs.
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. **Prerequisite:** Approval of chairperson of department.

WOMEN'S STUDIES
PROGRAM
See “Interdisciplinary Programs” in the College of Arts and Sciences.

WORLD LITERATURE
MINOR
See “Interdisciplinary Programs” in the College of Arts and Sciences.
General Information

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 transfer credit must be approved by the advisor, the curriculum committee, or the Faculty Chair. Academic advising is available in room 5330 McCracken Hall, phone (616) 387-0347. Because of the prerequisites and the limited offering times, students must consult an academic advisor for proper course sequence.

ACADEMIC PERFORMANCE
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to pre-aviation curriculum and University requirements stated elsewhere in this catalog:
1. A “C” average or better must be earned in required courses with an AVS prefix and all courses in the pre-aviation flight science curriculum.
2. No more than two grades of “D” or “DC” in 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.

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. Current fees range from approximately $800 to $9,500, depending on the course. Flight fees are based on the scheduled 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.

Admission to the Pre-Aviation Flight Science Curriculum (PFL)
All students admitted to the University and planning to major in Aviation Flight Science will be enrolled in the pre-aviation flight science curriculum (PFL), which consists of the following courses:

AVS 120 Introduction to Aviation ..... 2 hrs.
AVS 121 Aerodynamics and Performance ..... 2 hrs.
IME 102 Technical Communication ..... 3 hrs.
PHYS 107, 108 Elementary Physics/Lab ..... 5 hrs.
MATH 200 Calculus ..... 4 hrs.
PSY 100 Psychology ..... 3 hrs.
COM 170 Interpersonal Communication ..... 2 hrs.

CURRICULA
The College of Aviation offers the following curricula:
- Aviation Flight Science — Bachelor of Science
- Aviation Science and Administration — Bachelor of Science
- Aviation Maintenance Technology — Bachelor of Science

These programs are designed to produce graduates who think critically, communicate effectively, and participate meaningfully and ethically in the dynamic profession of aviation.

AVIATION FLIGHT SCIENCE (AFL)
Bachelor of Science
126 hours
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 insures 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, and airline regulations, profitability, management and administration. Equipment includes a modern fleet of single- and multi-engine aircraft and state-of-the-art simulators 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.
Students must complete each of the courses within the pre-aviation flight science curriculum with a grade of “C” or better. Additionally, students must see an aviation advisor to declare their major and be admitted into the Aviation Flight Science curriculum before they will be allowed to enroll in any 200 or higher level AVS course.

**FAA MEDICAL CERTIFICATE**

Students considering this curriculum are highly encouraged to obtain an 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 222).

**DRUG TESTING**

All students are required to subject themselves to the College approved drug testing procedure before being allowed to participate in any flight activity in University aircraft.

**Program Requirements for AFL Curriculum**

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.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Aviation Flight Science curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing BUS 370 Integrated Communication in Business.

**AVIATION SCIENCE AND ADMINISTRATION (AVA) Curriculum**

Bachelor of Science 126 hours

The Aviation Science and Administration 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, aviation administration, and general aviation management.

**Program Requirements for the AVA Curriculum**

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Aviation Science and Administration curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing BUS 370, Integrated Communication in Business.

**AVIATION MAINTENANCE TECHNOLOGY (MTE) Curriculum**

Bachelor of Science 126 hours

The Aviation Maintenance Technology curriculum provides preparation for a variety of positions in the demanding field of aircraft maintenance. 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. Satisfaction completion of all requirements prepares one to take the Federal Aviation Administration (FAA) Airframe and Powerplant written and practical examinations.

**Program Requirements for the MTE Curriculum**

**GENERAL**

Candidates for the Bachelor of Science must satisfy the following requirements in addition to University requirements stated elsewhere in the bulletin:

1. A “C” average or better must be earned in required courses with an AVS, CHEM, IME, or PHYS prefix.
2. No more than two grades of “D” or “DC” in required courses.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Aviation Maintenance Technology curriculum will...
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AVS 120</td>
<td>Introduction to Aviation</td>
<td>2</td>
</tr>
<tr>
<td>AVS 121</td>
<td>Aerodynamics and Performance</td>
<td>2</td>
</tr>
<tr>
<td>AVS 122</td>
<td>Aircraft Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVS 205</td>
<td>Aviation Safety</td>
<td>2</td>
</tr>
<tr>
<td>AVS 206</td>
<td>Flight Physiology</td>
<td>2</td>
</tr>
<tr>
<td>AVS 212</td>
<td>Aviation Meteorology</td>
<td>2</td>
</tr>
<tr>
<td>AVS 217</td>
<td>Aviation Legislation</td>
<td>3</td>
</tr>
<tr>
<td>AVS 218</td>
<td>Aircraft Maintenance and Regulation</td>
<td>4</td>
</tr>
<tr>
<td>AVS 263</td>
<td>Aircraft Electrical I</td>
<td>3</td>
</tr>
<tr>
<td>AVS 265</td>
<td>Aircraft Propellers</td>
<td>2</td>
</tr>
<tr>
<td>AVS 306</td>
<td>Advanced Aerodynamics and Performance</td>
<td>3</td>
</tr>
<tr>
<td>AVS 307</td>
<td>Advanced Aircraft Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVS 308</td>
<td>Aircraft Systems Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>AVS 309</td>
<td>Aviation Legislation</td>
<td>2</td>
</tr>
</tbody>
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**AVS 120 Introduction to Aviation**

2 hrs. Development of aviation, fundamentals of flight, federal regulations, and basic navigation.

**AVS 121 Aerodynamics and Performance**

2 hrs. Theory of flight, aircraft structure and control, propulsion, performance, and weight and balance. Prerequisites: AVS 107 and 108, or taken concurrently.

**AVS 122 Aircraft Systems**

3 hrs. Flight, navigation, and electrical systems. Maintenance and airworthiness requirements.

**AVS 205 Aviation Safety**

2 hrs. 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. Prerequisite: AVS 120 or consent of instructor.

**AVS 206 Flight Physiology**

2 hrs. 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. Prerequisite: AVS 205.

**AVS 207 Crew Resource Management**

2 hrs. Social and task requirements of effective group performance. Topics include communications, leadership, roles, decision making, resources and team building. Prerequisites: AVS 120, COM 170, and PSY 100.

**AVS 212 Aviation Meteorology**

2 hrs. 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. Prerequisite: GEG 225.

**AVS 221 Professional Flight I Theory**

3 hrs. Ground instruction leading to successful completion of the Private Pilot Knowledge Exam. Prerequisites: FAA second class medical certificate, AVS 120, 121, 122, and 222 must be taken concurrently.

**AVS 222 Professional Flight I Lab**

2 hrs. Initial flight and simulator instruction in aeronautical skills and knowledge necessary for private pilot certification and selection commercial pilot applications. Prerequisite: Must be taken concurrently with AVS 221.

**AVS 261 Maintenance Regulations**

2 hrs. 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. Prerequisite: AVS 120.

**AVS 262 Aircraft Structures I**

3 hrs. 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. Prerequisites: AVS 120, AVS 107 and 108, or taken concurrently.

**AVS 263 Basic Aircraft Engines**

4 hrs. Introduction of basic power plants concepts and principles, including Otto, Diesel, and Brayton cycles of operation. Laboratory work includes engine disassembly. Prerequisites: AVS 121, PHYS 107 and 108, or taken concurrently.

**AVS 280 Transportation Technology; Policy, Perils, and Promise**

3 hrs. 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.

**AVS 298 Private Pilot Helicopter**

3 hrs. Private pilot ground, flight and individual instruction leading to private pilot helicopter certification. Progression based on performance based standards with a minimum of 35 hours flight and 35 hours ground instruction.

**AVS 306 Advanced Aerodynamics and Performance**

3 hrs. 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. Prerequisite: AVS 121 and 122 (or FAA Private Pilot Certificate).

**AVS 307 Advanced Aircraft Systems**

3 hrs. A study of the design and operation of aircraft reciprocating powerplants, propellers, and turbine engines. Included are the pneumatic, fuel, ignition, lubrications, pressurization, and emergency aircraft systems. Prerequisite: AVS 122.

**AVS 308 Aircraft Systems Laboratory**

3 hrs. In depth study and operation of aircraft systems studied in courses AVS 122 and AVS 307. Prerequisite: AVS 307 (may be taken concurrently).

**AVS 319 Aviation Legislation**

3 hrs. Legal principles governing the aviation industry. Historical precedents, regulatory statutes, standards, contracts, liability and insurance, current developments and court decisions.
AVS 322 Global Navigation and International Flight Planning
3 hrs.
Advanced navigation systems and equipment including RNAV pictorial displays, flight directors, airborne radio, 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. Prerequisite: AVS 221 and 222.

AVS 330 Aerobatic Flight
1 hr.
Ground and flight instruction in aerobatic flight maneuvers. This course will improve aircraft handling capabilities, critical attitude recovery, understanding of performance, and self-confidence. Prerequisite: Private pilot certificate.

AVS 332 Single Engine Seaplane
1 hr.
Ground and flight instruction which would add a seaplane class rating to private or commercial pilot certificate holders. Prerequisite: Private pilot certificate.

AVS 351 Professional Flight II Theory
2 hrs.
Ground instruction emphasizing select professional pilot operations. Includes introduction to high performance aircraft systems, crew concepts and team operations, and application of advanced navigation systems. Prerequisite: FAA second class medical certificate, AVS 205, 221, 222 or permission, and AVS 207 must be completed or taken concurrently.

AVS 352 Professional Flight II Lab
2 hrs.
Continuing flight and simulator instruction in aeronautical skill, knowledge and experiences necessary for professional pilot applications. Includes transition from high performance aircraft, crew concepts, aerobatic training and instrument flight. Prerequisites: FAA second class medical certificate, AVS 205, 221, 222 (or permission), and AVS 207 and 351 must be completed or taken concurrently.

AVS 353 Professional Flight III Theory
3 hrs.
Ground instruction pursuant to commercial-instrument pilot certification with particular emphasis upon use of traffic facilities and airways in visual as well as instrument environments. Leads to the successful completion on the Instrument Pilot Knowledge Exam. Prerequisites: AVS 221, 222, 322, 351, 352, or permission.

AVS 354 Professional Flight III Lab
2 hrs.
Continuing flight and simulator instruction in aeronautical skill, knowledge and experiences necessary for professional pilot applications. Special emphasis is placed on crew concepts and instrument flight including the use of air traffic facilities. Prerequisites: FAA second class medical certificate, AVS 221, 222, 322, 351, 352, and 353 must be completed or taken concurrently.

AVS 355 Professional Flight IV Theory
2 hrs.
Completion of ground instruction requirements for commercial pilot and multi-engine pilot certification. Included significant focus on principles of flight in multi-engine airplanes and the transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operations. Prerequisites: AVS 353, 354 or permission.

AVS 356 Professional Flight IV Lab
2 hrs.
Completion of flight and simulator instruction in aeronautical skills, knowledge, complex aircraft and experience requirements for commercial, instrument and multi-engine pilot certification. Includes significant experience in crew concepts, upset training, high performance aircraft operations and multi-engine operations. Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operations. Prerequisites: FAA second class medical certificate, AVS 353, 354 (or permission), and AVS 355 must be completed or taken concurrently.

AVS 360 Reciprocating Engine Overhaul
3 hrs.
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. Prerequisite: AVS 263.

AVS 362 Aircraft Structures II
4 hrs.
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. Prerequisite: AVS 262.

AVS 363 Reciprocating Engine Systems
3 hrs.
Principles of operation of reciprocating engine, fuel metering, induction, exhaust, and ignition systems. Prerequisite: AVS 263.

AVS 364 Aircraft Electrical II
4 hrs.
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. Prerequisite: AVS 264.

AVS 365 Non-Destructive Testing
3 hrs.
Theory and application of non-destructive testing methods; liquid penetrant, magnetic particle, radiographic, eddy current, ultrasonic, and enhanced visual. Other methods are also discussed. Prerequisites: AVS 362, AVS 364.

AVS 366 Avionics
3 hrs.
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. Prerequisites: AVS 362, AVS 364.

AVS 367 Airframe Systems
4 hrs.
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. Prerequisites: AVS 262, AVS 364.

AVS 369 Testing Evaluation and Instrumentation
4 hrs.
Aircraft engine and systems performance testing, operation 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. Prerequisites: AVS 363, AVS 364. Corequisite: AVS 366.

AVS 399 Field Experience
1–3 hrs.
A program of practical experience and independent study to complement 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. Prerequisite: Consent of department.

AVS 402 Multi-Engine Flight (0–1.3)
1 hr.
Principles of flight in multi-engine airplanes. Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operation. Prerequisite: AVS 325 or equivalent.

AVS 403 Flight Instructor Fundamentals
2 hrs.
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 training. Prerequisite: Completion of AVS 355 with a grade of "C" or better and 356 or permission.

AVS 404 Instrument Flight Training (1–1)
1 hr.
Techniques of flight instruction applied to instrument flying. Designed to upgrade an airplane flight instructor to an instrument instructor. Instrumental techniques of attitude instrument flying, flight simulator utilization, instrument approach procedures, radio navigation, critical situations, and performance analysis. After certification, supervised teaching experience is required. Prerequisite: AVS 406.

AVS 406 Flight Instructor Certification
2 hrs.
A study and application of airplane performance skills, flight maneuvers, and pilot operations pursuant to qualification as flight instructor. Includes flight and ground instruction, lesson planning and execution, and analysis of common student errors. Prerequisite: AVS 403 (may be taken concurrently).

AVS 409 Multi-Engine Flight Instructor
1 hr.
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. Prerequisites: AVS 364, AVS 406.

AVS 410 Airport Administration and Finance
3 hrs.
Airport management organization and operations. Topics include airport and community relations, legislation, planning and financing airport, financial planning of airport construction programs, on-going maintenance, and future services. Prerequisites: FCL 320, FCL 390.

AVS 411 Airline Flight Operations
2 hrs.
Systems, performance, and regulation of transport aircraft and operations. Role of the dispatcher in flight operations. Prerequisites: Student must have completed concurrently AVS 306, AVS 307 and AVS 322.

AVS 412 Line Oriented Flight Crew Simulation
2 hrs.
Utilization of aircraft performance, systems, and resources (both human and information) to enhance flight operations and human performance. Prerequisites: AVS 354 and 411 (may be taken concurrently with AVS 411).
AVS 420 Airport Design and Operations
3 hrs.
Airport operations planning and design. A study of airport operations from the perspective of airport management and planning. Topics in environmental and economic assessment of projects, safety, and security design issues. Prerequisites: AVS 205, AVS 410 or concurrently.

AVS 424 Corporate Aviation Management
3 hrs.
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. Prerequisite: MGMT 250 or permission of instructor.

AVS 427 Airline Administration
2 hrs.
Economic characteristics of the airline industry and air carrier ownership and organization. Revenues, costs, and productivity. Route structure and scheduling. International competition and regulation. Prerequisites: AVS 120, IAE 102.

AVS 428 International Aviation
3 hrs.
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. Prerequisite: AVS 319.

AVS 460 Aircraft Inspection and Service I
4 hrs.
Required aircraft inspections are performed in accordance with the manufacturer's and FAA regulatory requirements. Servicing, airworthiness documentation, record keeping, data searches, inventory, parts tracking and accountability are performed with emphasis on computerized models. Prerequisites: Successful completion of all 200- and 300-level aviation maintenance core courses.

AVS 461 Aircraft Inspection and Service II
4 hrs.
Aircraft heavy maintenance, assembly, disassembly, rigging and engine removal and installations are performed. Includes corrosion control treatment, landing gear troubleshooting and repairs. Aircraft weight and balance, including compliance with airworthiness documentation, and record keeping is performed. Prerequisites: Successful completion of all 200- and 300-level aviation maintenance core courses.

AVS 462 Reliability, Maintainability and Supportability
3 hrs.
Aircraft reliability, maintainability and supportability (RMS) are examined. Methods of incorporating reliability and maintainability into aircraft design are discussed. Support and supportability requirements and the economic impact of maintenance on life cycle costs are covered. Prerequisite: AVS 367 Corequisite: AVS 464.

AVS 463 Airline Maintenance Operations
3 hrs.
Maintenance operations of commercial airlines will be examined. Topics include corporate structure, maintenance philosophy, authority and responsibilities of the maintenance organization, cost control, and economic impact of maintenance operations on airline profitability. Support organizations and the impact of Federal regulations will also be covered. Prerequisite: AVS 462.

AVS 464 Aircraft Turbine Engines and Systems
4 hrs.
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. Prerequisites: AVS 365, AVS 366.

AVS 470 Advanced Propulsion Systems
3 hrs.
Advanced propulsion systems with emphasis on aircraft turbine engines and systems. Component design, system integration, advanced testing, operations, and troubleshooting. Prerequisites: Senior standing and completion of maintenance core requirements.

AVS 471 Advanced Instrumentation Systems
3 hrs.
Advanced engine instrumentation systems with emphasis on the aircraft engine monitoring systems and flight deck integration. Advanced topics in electronic data acquisition, system integration, and applications to engine testing, operations, and troubleshooting. Prerequisites: Senior standing and completion of maintenance core requirements.

AVS 472 Advanced Structures and Materials
3 hrs.
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. Prerequisites: AVS 360, AVS 362.

AVS 473 Advanced Airframe Systems
3 hrs.
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). Prerequisites: Senior standing and completion of maintenance core requirements.

AVS 490 Senior Project I - Planning
1 hr.
First course of a two-semester sequence. Students work in teams on approved projects. Class discussion will include problem definition, project planning, task scheduling, ethics, and decision impact analysis. Use of case studies will add to the student's understanding of real world situations. This course, when completed satisfactorily with AVS 491, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Senior standing or by department approval.

AVS 491 Senior Project II - Analysis
2 hrs.
Second course in the two-course senior project. Solutions proposed for the problem identified in Senior Project I will be fully researched by the same team. This investigation will include ethical, financial, legal and environmental concerns. Written and oral status reports are required along with a formal report and professional presentation. Interaction with faculty and industry mentors is also necessary. This course, when completed satisfactorily with AVS 490, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: AVS 490.

AVS 492 Aviation Management Intern
1–6 hrs.
Under the direction of a faculty advisor, students obtain industrial experience with an aviation organization. Students are required to file periodic reports to the advisor. A final written and oral report must be presented to obtain credit. In addition, the student will be evaluated by the firm's executive or student supervisor. This course is only available to aviation majors. Prerequisites: Senior standing and departmental approval.

AVS 493 High-Performance Transition
2 hrs.
Ground and flight instruction that will lead to a high-altitude endorsement which will allow the holder of the endorsement to operate an aircraft above 25,000 feet and to obtain flight time in a turbo-charged, pressurized, multi-engine aircraft. Prerequisite: AVS 356 or equivalent.

AVS 494 Airline Transport Pilot
3 hrs.
Flight and ground instruction leading to an Airline Transport Pilot certificate. Prerequisites: AVS 356 or equivalent and 1500 flight hours.

AVS 497 Special Flight Instruction
1–3 hrs.
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.

AVS 499 Studies in Aviation Sciences
1–6 hrs.
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. Prerequisite: Consent of department.
James W. Schmotter  
Dean  
Richard L. Hodges  
Associate Dean  
Trudy Verser  
Assistant Dean  
Doralee N. DeRyke  
Director of Services and Operations  
Michele M. Moe  
Director of Office of Student Development  
David A. Witt  
Coordinator of College Media Services  
Ralph N. Yingling  
Director of College Computing Services  

Departments:  
Accountancy  
Business Information Systems  
Finance and Commercial Law  
Management  
Marketing  
Military Science  

Institutes:  
Business Research and Service Institute  
Service Quality Institute  

THE HAWORTH COLLEGE OF BUSINESS  

Creed  
Partners for Business Knowledge and Leadership  

Mission Statement  
The Haworth College of Business is committed to partnerships among students, employers, faculty, alumni and the business community that advance the achievement of high quality education. Such active partnerships challenge the foundation of our knowledge and skills and enhance our ability to change. Meeting these challenges requires an evolving combination of teaching, research and service activities among partners.  

College Goals  
1. To deliver the best undergraduate business program in Michigan and the surrounding states by the year 2006.  
2. To provide excellent targeted graduate education and business seminars primarily for business professionals and international students by the year 2004.  
3. To design, implement and support centers of excellence in designated, specialized educational programs by the year 2000.  
4. To achieve further cultural diversity among domestic and international partners.  
5. To develop business relationships which proactively support the mission of the Haworth College of Business.  
6. To build development programs for faculty and staff that increase their knowledge of contemporary business practices and technology innovations to improve the College's teaching and research programs.  

The Haworth College of Business offers three degree programs:  
1. Business Administration—Bachelor of Business Administration Degree.  
2. Master of Business Administration for graduate students with Liberal Arts, Engineering, Business, or other undergraduate preparation.  
3. Master of Science in Accountancy for students desiring preparation for a professional accounting career.  

Graduates of the Haworth College of Business, with a Bachelor of Business Administration (BBA) degree will be able to:  
- Understand essential business knowledge,  
- Make effective business decisions,  
- Communicate effectively,  
- Understand and apply global business knowledge and diverse perspectives,  
- Demonstrate effective teamwork and leadership,  
- Demonstrate an understanding of business operations and product and process technology,  
- Understand and use computer-based information and systems and infrastructures,  
- Practice acceptable standards of ethical and professional behavior, and  
- Participate in professional development activities.  

Two distinctive features of the BBA degree program are:  

A. Electronic Portfolio Project: The purpose of the required portfolio project for undergraduate business students is to foster individual and professional growth. The portfolio will help students develop greater responsibility for their own development through dynamic linkages among college courses, work and internship experiences, individual expectations, academic majors and professional goals. The portfolio is a cumulative project that chronicles important knowledge, skills and attitudes developed throughout the student's education.  

B. Program Option Alternative Requirement: The program option for undergraduate BBA degree students provides them with practical learning experiences in business. The program option will help students develop more realistic knowledge about business work and professional experience through three alternatives: an internship, an international education program, or a field research project. The program option requirement may or may not be related to a student's major field of study and must comprise a minimum of two semester hours of credit (completed prior to senior class standing) in one of the alternatives. The three alternatives may be accomplished at domestic or international business sites and study or through a combination of classroom and business site visits.  

Business Research and Service Institute  
The Business Research and Service Institute within the Haworth College of Business provides research assistance for business, industry, governmental, charitable, and educational organizations. Research requests must be business-related and may be performed by faculty or by student teams supervised by Haworth College of Business faculty.  

Service Quality Institute  
The Service Quality Institute is an interdisciplinary center that focuses on service quality issues in the service sector of the economy. It was formed to (1) provide for exchange of service quality ideas and information between University faculty and service industries on both a formal and informal basis, (2) conduct and facilitate research in the field of service quality by providing resources necessary to investigate problems in the services environment, (3) assist individuals, firms, and organizations in solving service quality problems, (4) distribute this information in scholarly
The Haworth College of Business Office of Student Development professional staff provide all advising services for business students throughout their academic careers. After a choice of major has been made, students will also be assigned an advisor in that particular area.

Students following non-business curricula within the University who wish to enter the prebusiness curriculum must realize that they could have difficulty graduating with a BBA degree in a four-year span.

PROFESSIONAL BBA CURRICULUM

In order to graduate from the professional BBA curriculum, a student must have a minimum of 122 non-repeated semester hours. In addition to the University requirements of general education and the specific requirements noted above, students must complete the following:

1. Business Administration Core Requirements:
   A. MGMT 250 Organizational Behavior
   B. MKTG 250 Marketing
   C. BIS 270 Information and Communication Infrastructure
   D. BUS 370 Integrated Communication in Business
   E. BUS 375 Production and Service Productivity
   F. BUS 475 Strategic Business Solutions
   G. FCL 390 Microeconomics
   H. FCL 380 Legal Environment
   I. Program Option: Internship or Study Abroad or Research Option
   J. An advanced economics course (as approved by student's major department)
   K. A "C" average grade point is required in the upper level core courses outlined above.

2. Major, minimum beyond core requirements previously listed
3. General Education to complete proficiency and distribution areas 1-8
4. Transfer work towards Business Administration Core Requirements must meet the following criteria:
   A. Approval by the Office of Student Development and the department
   B. Minimum grade of "C"
   C. 50% of all required business course work completed through Western Michigan University

Accountancy Major (ACT)

The accounting program has a core of courses to be taken by all majors. The core consists of the following required courses:

- ACTY 210, Principles of Accounting
- ACTY 311, Financial Accounting
- ACTY 313, Accounting Information Systems
- ACTY 322, Managerial Accounting
- ACTY 324, Income Tax Accounting
- ACTY 516, Auditing

Accountancy majors must complete a minimum of 30 credit hours of accountancy courses. Two additional courses to complete the accountancy major are to be selected from those described below. Courses may be
selected as the student chooses within the guidelines of the University and the Haworth College of Business.

ACTY 511 Advanced Accounting ....................... 3
ACTY 513 Advanced Accounting Systems .................. 3
ACTY 514 Institutional Accounting ..................... 3
ACTY 522 Cost Accounting—Theory and Practice .......... 3
ACTY 524 Studies in Tax Accounting ................... 3

Accountancy majors must complete at least 90 hours in courses outside the accounting discipline.

Note: ACTY 410, a non-major elective, may be substituted for BUS 390 in satisfying B.B.A. program options.

Accountancy Minor (ACT)

Students wishing to minor in accountancy are required to take a minimum of 21 hours. Fifteen of these hours must be in accountancy: ACTY 210, ACTY 211 are required, plus nine (9) additional accountancy hours for which the student meets the prerequisites to be selected with the student’s professional objectives in mind. The remaining six (6) hours must be selected from the following courses: FCL 320, FCL 390, MGMT 260, and MKTG 250.

Qualifications for Accounting Certification

Exams A graduate from the Haworth College of Business with a major in Accountancy will be qualified 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.

Advisors Report to the Department of Accountancy, 3190 Schneider Hall for assignment to an advisor.

Transfer Credits Up to 6 hours of elementary accounting may be accepted from other than a four-year accredited school. All majors must take a minimum of 12 hours of accounting courses at WMU.

BUSINESS INFORMATION SYSTEMS

The Department of Business Information Systems offers undergraduate areas of concentration as shown below. The courses are to be taken in the sequence indicated, following prerequisites as listed after the catalog course descriptions.

Administrative Systems Major (ADS)

27 hours
BIS 102 Introduction to Information Processing .................. 3
BIS 260 Microcomputer Business Applications .................. 3
BIS 386 Advanced Office Systems ......................... 3
BIS 388 Records Management ......................... 3
Plus 6 hours, as advised, from ................... 6
BIS 381 Information Systems Analysis and Design ............... 3
BIS 456 Office Management ......................... 3
BIS 484 Micrographics and Reprographics .................. 3
BIS 486 Corporate Records Centers ...................... 3
Plus 9 hours, as advised, from ................... 9
BIS 242 Organizational Communication ...................... 3
BIS 261 COBOL Programming ......................... 3
BIS 264 Report Program Generator ....................... 3
BIS 343 Report Writing ......................... 3
BIS 410 Internship in Administrative Systems ............... 3
BIS 458 Topics in Administrative Systems .................. 3
BIS 596 Independent Study in Administrative Systems ........ 3
BIS 598 Readings in Administrative Systems ............... 3

Business Communication Minor (BCM)

15 hours
BIS 242 Organizational Communication ...................... 3
BIS 343 Report Writing ......................... 3
BIS 483 Business Publications and Presentations ............... 3

One technical course from
BIS 380 Web Design ......................... 3
BIS 400 Topics/User Doc ......................... 3
BIS 480 Business Communication Technology ............... 3
BIS 456 Office Management ......................... 3

One elective from
A technical course (from above list) .................. 3
BIS 454 Intercultural Business Communication ............... 3
BIS 400 Topics/Persuasion ......................... 3
BIS 442 Senior Seminar ......................... 3
BIS 596 Independent Study in Business Communication .......... 3
BIS 598 Readings in Business Communication ............... 3

Computer Information Systems Major (CIS)

29 hours
Core Requirements for CIS Majors .................. 21 hrs. BUS 270 Information and Communication Infrastructure ............... 3
BIS 260 Microcomputer Applications ...................... 3
BIS 261 COBOL Programming ......................... 3
BIS 360 Systems Analysis and Design ....................... 3
BIS 460 Business Database Applications ............... 3
BIS 464 Knowledge Management ......................... 3
BIS 499 Enterprise Project ......................... 3

Internship Requirement for CIS Majors .................. 1–2 hrs.
BIS 410 Internship in Computer Information Systems .......... 3

Elective Courses for CIS Majors .................. 6 hrs.
BIS 266 LAN Administration ......................... 3
BIS 366 Computer Networking ......................... 3
BIS 380 Business Web Design ......................... 3
BIS 474 Information Resource Management ....................... 3
BIS 490 Electronic Commerce ......................... 3
BIS 555 Topics in Computer Information Systems ............... 3
BIS 596 Independent Study in Computer Information Systems ........ 3
BIS 598 Independent Readings in Computer Information Systems ........ 3

Other Requirements: Advanced Economics Course ECON 304, 310, 320, 380, or 400 is required as an economics course for the CIS Major.

Computer Information Systems Minor (CIS)

18 hours
Core Requirements for CIS Minors .................. 9 hrs. BUS 270 Information and Communication Infrastructure ............... 3
BIS 260 Microcomputer Applications ...................... 3
BIS 360 Systems Analysis and Design ....................... 3

FINANCE AND COMMERCIAL LAW

The Finance and Commercial Law Department offers a major in finance and minors in finance, insurance, law, and real estate. In addition, it serves as advisor for majors and minors in general business and for minors in international business.

Finance Major (FIN)

Advisor: Report to department office, 3290 Schneider Hall, for assignment to an advisor.

In addition to the completed curriculum requirements for all students pursing the Bachelor of Business Administration degree, for which FCL 320 is required, all finance majors must complete FCL 310, 345, and 351. The remaining twelve hours shall be selected from Finance courses in the FCL curriculum, in consultation with an advisor from the Finance faculty. BUS 370 Integrated Communication in Business will meet the baccalaureate writing requirement for the major. The advanced ECON requirement may be met by taking one of the following: ECON 310, 319, 387, 400, 403, or 406.

Proper sequencing of advanced courses allows a student in finance to study corporate financial management, securities and institutions, insurance, and real estate.

Finance Minor (FIN)

Advisors: Finance Area Faculty

Students wishing to minor in finance are required to take 15 hours. Of the 15 hours, 9 hours are required, and 6 hours are elective finance courses as shown below: FCL 310 Introduction to Financial Markets ............... 3
FCL 320 Business Finance ......................... 3
FCL 351 Investment Analysis ......................... 3
Six (6) additional hours from available finance courses at the 300-level or above must be selected in consultation with the advisor and with the student's professional objectives in mind.

Insurance Minor (INS)

Advisor: Kennedy

Students wishing to minor in insurance are required to take 18 hours. Fifteen of these hours are in insurance courses including:
ACTY 210 Principles of Accounting ....................... 3
FCL 320 Business Finance ......................... 3
FCL 360 Risk and Insurance ......................... 3
In addition, any three (3) of the following courses:

FCL 351 Investment Analysis 3
FCL 371 Personal Financial Planning 3
FCL 372 Estate Planning 3
FCL 373 Retirement Planning and Employee Benefits 3
FCL 448 Internship 3

Law Minor (LAW)
Advisors: Law Area Faculty
Students wishing to minor in law are required to take a minimum of 15 hours. The law minor consists of:

FCL 380 Legal Environment of Business 3
FCL 382 Business Law 3
or FCL 383 Commercial Law 3

Nine (9) additional semester hours in law 9

Real Estate Minor (REA)
Advisor: Scheu
Students wishing to minor in real estate are required to take 15 hours. FCL 320 and FCL 330 are required. The remaining 9 hours shall be from Real Estate courses selected in consultation with a Real Estate advisor.

Six (6) hours in required FCL courses:
FCL 320 Business Finance 3
FCL 330 Real Estate Fundamentals 3

Nine (9) hours in elective Real Estate courses from the Finance and Commercial Law Department.
FCL 331 Real Estate Finance 3
FCL 432 Real Estate Investments 3
FCL 433 Real Estate Appraisal 3
FCL 437 Real Estate Management 3
FCL 448 Internship 3

MANAGEMENT
Advisors: Report to the Department of Management, 3390 Schneider Hall, for assignment to an advisor.

Management Major (MGT)
24 hours
Six Management Courses (18 hours)
MGMT 250 Organizational Behavior 3
MGMT 301 Project Management 3
MGMT 302 Project Leadership 3
MGMT 352 Human Resource Management 3
MGMT 404 Business and Society 3
MGMT 499 Strategic Management 3

Two Elective Courses (6 hours)
The six remaining hours may be chosen from the list of “Department of Management Electives” or three hours may be chosen from this list and three hours may be chosen from the list of electives from other Departments in the Haworth College of Business, in consultation with a Department of Management faculty advisor.

Department of Management Electives
MGMT 314 Small Business Management 3
MGMT 316 Entrepreneurship 3
MGMT 465 Managing for Quality 3
Electives from other Departments in the Haworth College of Business
ACTY 322 Managerial Accounting—Concepts and Practices 3
CIS 474 Information Resource Management 3
FCL 330 Real Estate Fundamentals 3
FCL 483 Real Estate Law 3
MKTG 476 Retail Management 3

Additional Curriculum Requirements
Additionally, to meet the requirements of the Professional Business Administration Curriculum, BUS 370 Integrated Communication in Business must be taken to meet the baccalaureate-level writing course requirement for the Management Major, and the advanced ECON requirement may be met by taking one of the following: ECON 304, 310, 319, 320, 324, 380, 400, 403, or 406.

Human Resource Management Major (HRM)
30 hours
The major in Human Resource Management consists of the 24 hours of required courses in Management listed below, plus 6 hours of additional work: BUS 370, the baccalaureate-level writing course requirement, and ECON 310, the advanced economics course for the major.

MGMT 250 Organizational Behavior 3
MGMT 301 Project Management 3
MGMT 352 Human Resource Management 3
MGMT 353 Organizational Competencies 3
MGMT 432 Compensation and Benefits 3
MGMT 451 Staffing Organizations 3
MGMT 454 Employment Relations 3
BUS 370 Integrated Communication 3
ECON 310 Labor Economics 3

Management Minor (MGT)
18 hours
The minor in management requires eighteen credit hours consisting of the following three required courses and three electives:

Required Courses
BUS 175 Business Enterprise 3
MGMT 250 Organizational Behavior 3
MGMT 301 Project Management 3

Electives (three from among the following)
MGMT 302 Project Leadership 3
MGMT 314 Small Business Management 3
MGMT 352 Human Resource Management 3
MGMT 400 Professional Development 3
MGMT 404 Business and Society 3
MGMT 410 Multinational Management 3
MGMT 414 Entrepreneurship 3
MGMT 454 Employee Relations 3
MGMT 465 Managing for Quality 3

Marketing
Marketing involves the development, pricing, promotion, and distribution of goods and services to satisfy customer needs and achieve organizational goals. Because marketing applies to all industries and encompasses many different activities, it offers a wide variety of career opportunities in fields such as advertising, brand and product management, customer service, distribution and logistics management, international marketing, marketing research, purchasing management, retail management, sales and sales management, and sport marketing. A growing number of nonprofit organizations, such as arts councils, educational institutions, government agencies, hospitals, and museums, also employ marketers.

The Department of Marketing offers students a choice of four majors: Marketing, Advertising and Promotion, Food Marketing, and Sales and Business Marketing. The Department also offers minors in Advertising and Promotion and in Marketing.

The Marketing (MKT) major is intended for students who wish to receive general training in marketing while having the flexibility to choose marketing electives that correspond to their particular career interests. Marketing majors can pursue a variety of careers, such as sales and sales management, consumer/marketing research, sport marketing, or international marketing.

The Advertising and Promotion (ADV) major prepares students for a variety of creative-oriented or promotion-related positions, such as account management, copywriting, media buying, and advertising sales. Graduates typically find employment in the advertising industry or in firms with marketing communications, promotion, or direct marketing departments. Students are encouraged to pursue a related minor in Art, Communication, English (Writing Emphasis), or Graphic Arts to enhance their creative skills.

The Food Marketing (FMK) major prepares students for sales and marketing positions with food and consumer packaged goods manufacturers and brokers, and for management positions with food retailers and wholesalers. Western Michigan University is nationally recognized as one of only a few leading universities offering a specialized major in food marketing to prepare students for food industry careers.

The Sales and Business Marketing (SBM) major prepares students for sales and marketing careers with firms that emphasize business-to-business marketing. It is strongly recommended that Sales and Business Marketing majors complete a minor in Biological Sciences, Chemistry, Computer Science, Graphic Arts, Marketing, or Physics to enhance their career opportunities with technology-oriented employers.

PROGRAM REQUIREMENTS
Course requirements for each of the four majors and two minors are listed below. Course prerequisites are listed after the Marketing course descriptions later in this section. Any deviations from these course requirements and prerequisites must have the written approval of the department chairperson.

All Marketing major/minor programs must be approved in writing by a departmental advisor. Students should report to the Department of Marketing, 3210 Schneider Hall, for a list of faculty advisors and their office hours. BBA students wishing to declare a major or minor must bring with them an approved Curriculum Guideline issued by the College of Business Advising Office in 2130 Schneider Hall. Students not enrolled in the BBA curriculum who wish to declare a marketing minor should first meet with a College of Business advisor in 2130 Schneider Hall to obtain a written permission slip before reporting to the Department of Marketing.

Marketing Major (MKT)
24 hours
MKTG 250 Marketing Principles 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising and Promotion 3
MKTG 375 International Marketing 3
MKTG 466 Marketing Strategy 3

Select three courses from the following (9 hours):
MKTG 290 Food Marketing Systems 3
MKTG 360 Professional Selling 3
MKTG 372 Purchasing Management 3
MKTG 373 Electronic Commerce and Marketing 3
MKTG 376 Sales Administration 3
MKTG 377 Sales Promotion 3

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Other Requirements

Advanced Economics requirement must be satisfied through completion of one of the following courses:

- ECON 310 Labor Economics
- ECON 345 Business, Government, and Society
- ECON 380 International Economics
- ECON 400 Managerial Economics
- ECON 403 Intermediate Microeconomics

Sales And Business Marketing Major (SBM)

24 hours

- MKTG 250 Marketing Principles 3
- MKTG 375 Advertising and Promotion 3
- MKTG 476 Retail Management 3
- MKTG 477 Consumer Behavior 3
- MKTG 478 Special Topics in Marketing 3

Select one of the following courses (3 hours):

- MKTG 373 Electronic Commerce and Marketing 3
- MKTG 374 Advertising and Promotion 3
- MKTG 377 Sales Promotion 3
- MKTG 473 Interactive Marketing Strategy 3
- MKTG 475 International Marketing 3
- MKTG 478 Special Topics in Marketing 3
- MKTG 484 Business Logistics 3

Other Requirements

Advanced Economics requirement must be satisfied through completion of one of the following courses:

- ECON 310 Labor Economics
- ECON 345 Business, Government, and Society
- ECON 380 International Economics
- ECON 400 Managerial Economics
- ECON 403 Intermediate Microeconomics

Food Marketing Major (FMK)

26–27 hours

- MKTG 250 Marketing Principles 3
- MKTG 290 Food Marketing Systems 3
- MKTG 372 Purchasing Forecasting 3
- MKTG 391 Food Merchandising 3
- MKTG 392 Applied Marketing Analysis 3
- MKTG 393 Food Marketing Field Experience 2
- MKTG 484 Business Logistics 3
- MKTG 492 Marketing Information Technology 3
- MKTG 494 Food Marketing Issues and Strategies 3
- MGMT 352 Human Resource Management 3

Select one of the following courses (3–4 hours):

- FCS 466 Institutional Management 4
- MKTG 360 Professional Selling 3
- MKTG 392 Applied Marketing Analysis 3
- MKTG 393 Food Industry Survey 3
- MKTG 476 Retail Management 3
- MGMT 352 Human Resource Management 3

Advertising and Promotion Minor (ADV)

21–22 hours

(Note: Nonbusiness majors are limited to only one minor in the Haworth College of Business.

- MKTG 250 Marketing Principles 3
- MKTG 371 Marketing Research 3
- MKTG 476 Retail Management 3
- MKTG 477 Consumer Behavior 3
- MATH 366 or MATH 216 (or equivalent) 3

Select two courses (6 hours) from the following:

- MKTG 377 Sales Promotion 3
- MKTG 472 Media Planning and Research 3
- MKTG 473 Interactive Marketing Strategy 3
- MKTG 474 Creative Strategy 3
- MKTG 475 International Marketing 3

MARKETING MINOR (MKT)

18–19 hours

(Note: Nonbusiness majors are limited to only one minor in the Haworth College of Business.

- MKTG 250 Marketing Principles 3
- MKTG 371 Marketing Research 3
- MATH 366 or MATH 216 (or equivalent) 3

Select three courses (9 hours) from the following:

- MKTG 260 Food Marketing Systems 3
- MKTG 360 Professional Selling 3
- MKTG 376 Sales And Business Marketing 3
- MKTG 377 Sales Promotion 3
- MKTG 475 International Marketing 3
- MKTG 476 Retail Management 3
- MKTG 477 Consumer Behavior 3
- MKTG 478 Special Topics in Marketing 3
- MKTG 481 Marketing Communications Campaigns 3
- MKTG 484 Business Logistics 3

RELATED MAJORS

Students who complete the B.B.A. curriculum requirements may major in any of the following four areas and receive the B.B.A. degree. All students electing a "related major" option must meet the minimum requirement of 50 percent of their course work in business and upper division economics courses, in addition to the 50 percent in non-business requirement.

ECONOMICS (ECO)

Elect, in conjunction with an Economics advisor, an additional 21 semester hours of advanced courses (300-500 level) to include ECON 402, 403, 406, and 409.

GENERAL BUSINESS (GBS)

24 hours

Advisors: Please contact the Finance and Commercial Law department office, 3290 Schneider Hall, for an advisor.

In addition to the completion of the curriculum requirements for all students pursuing the Bachelor of Business Administration degree, all students must complete satisfactorily the following: 1) Six advanced (300-level or above) business college courses from the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, and Marketing with a maximum of two courses from any one department; 2) one advanced Economics course from among ECON 310, 319, 220, 380, 387, or 400; and 3) BUS 370 (Integrated Communication in Business) to meet the baccalaureate-level writing requirement for the major.

INTEGRATED SUPPLY MATRIX MANAGEMENT (ISM) 37 hours

Students with this major must complete satisfactorily either MATH 122 or MATH 200 to meet the mathematics requirement for the Pre-Business Curriculum. In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, Integrated Supply Matrix Management majors must complete the following:

- ECE 100 Fundamentals of Circuits and Electronics 3
- ECE 315, IME 508, CS 104 or 111 3
- FCL 486 Marketing and Sales Law 3
- IME 142 Engineering Graphics 3
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IME 487 Manufacturing Productivity .......................... 3
IME 328 Quality Assurance and Control .......................... 3
ME 220 Manufacturing Productivity .......................... 4
MGMT 464 Production Management .......................... 4
MGMT 480 Materials Management .......................... 3
MGMT 481 Integrated Materials Systems ......................... 3
MKTG 372 Purchasing Management .......................... 3
MKTG 484 Business Logistics .......................... 3
MKTG 485 Marketing Management .......................... 3

PUBLIC ADMINISTRATION (PAB)
Major Requirements: 24 hours
Advisor: Gossman, McCarty
In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, complete 24 hours from the following courses:

Select one of the following required courses:
FCL 380 Legal Environment .......................... 3
FCL 320 Business Finance .......................... 3

Select seven (7) courses (21 hours) from the following list of elective courses:
ACTY 322 Managerial Accounting .......................... 3
ACTY 324 Income Tax Accounting .......................... 3
ACTY 514 Institutional Accounting .......................... 3
BIS 345 Report Writing .......................... 3
BIS 398 Records Management .......................... 3
BUS 456 Office Management .......................... 3
FCL 330 Real Estate Fundamentals .......................... 3
FCL 331 Real Estate Finance .......................... 3
FCL 482 Management and Labor Relations Law .......................... 3
FCL 483 Real Estate Law .......................... 3
FCL 485 Government Regulation of Business .......................... 3
MGMT 352 Personnel Management .......................... 3
MKTG 372 Purchasing Management .......................... 3

Minor Requirements: 21 hours
PSCI 200 National Government .......................... 3
PSCI 202 State and Local Government .......................... 4
PSCI 330 Introduction to Public Administration .......................... 3
PSCI 526 Administrative Law and Public Relations .......................... 3
PSCI 533 Public Personnel Administration .......................... 3
PSCI 535 The Politics of Governmental Budget and Finance .......................... 3

Plus one of the following:
PSCI 404 Making of Public Policy in the U.S. .......................... 3
PSCI 531 Administration in Local and National Governments .......................... 3
PSCI 534 Administrative Theory .......................... 3
PSCI 591 Statistics for Political Science .......................... 3

STATISTICS (STB)
40-41 hours
Advisor: Sievers

The following courses from the Department of Mathematics and the Department of Statistics, plus one business elective, comprise the major in statistics. All students electing the statistics option must make sure they meet the minimum requirement of 50 percent of their course work in business and upper division economics courses.

CS 306 Introductory Programming/FORTRAN .......................... 2
MATH 122 Calculus I .......................... 4
MATH 123 Calculus II .......................... 4
MATH 230 Elementary Linear Algebra .......................... 4
MATH 272 Vector and Multivariate Calculus .......................... 4
STAT 362 Probability .......................... 3

STAT 364 Statistical Methods .......................... 4
STAT 460 Introduction to Mathematical Statistics .......................... 3
MATH 506 Scientific Programming .......................... 3
Two of STAT:
STAT 563 Sample Survey Methods .......................... 3
STAT 566 Nonparametric Statistical Methods .......................... 3
STAT 567 Statistical Design and Analysis of Experiments .......................... 4
STAT 568 Regression Analysis .......................... 4
Elective (one upper-level business course emphasizing statistical applications) .......................... 3

RELATED MINORS

GENERAL BUSINESS
18 hours Advisors: Finance and Commercial Law Faculty
With the exception of general business majors, any student who has completed the BBA curriculum requirements will automatically receive a general business minor. Students pursuing a degree other than a BBA degree may minor in General Business by completing the following 18 hours of coursework approved by a general business advisor (3290 Schneider Hall):

BUS 175 Business Enterprise .......................... 3
ACTY 210 Principles of Accounting .......................... 3

BUS 270 Information and Communication Infrastructure .......................... 3
Three of the following four courses:
FCL 320 Business Finance .......................... 3
FCL 380 Legal Environment .......................... 3
MGMT 250 Organizational Behavior .......................... 3
MGMT 250 Marketing Principles .......................... 3

BUS 175 must be completed during the freshman or sophomore year.

INTEGRATED SUPPLY MATRIX MANAGEMENT
15 hours This program was originally developed in 1989 to integrate business and technological concepts for a successful career in supply management. The program offers a major for students in the Haworth College of Business and a minor geared toward students in the College of Engineering and Applied Sciences.

Core Classes—9 hours (take all of the following):
IME 326 Operations Planning and Control .......................... 3
IME 416 Operations Control in Industry .......................... 3
MKTG 372 Purchasing Management .......................... 3
MKTG 484 Business Logistics .......................... 3

Capstone class—3 hours (take one of the following):
MKTG 485 Material Systems Analysis .......................... 3
MGMT 480 Materials Management Strategy .......................... 3
MGMT 481 Integrated Materials Systems .......................... 3

Elective—3 hours (one of the following):
IME 328 Quality Assurance and Control .......................... 3
IME 318 Statistical Quality Control .......................... 3
FCL 486 Marketing and Sales Law .......................... 3
MKTG 485 Material Systems Analysis .......................... 3
MGMT 480 Materials Management Strategy .......................... 3
MGMT 481 Integrated Materials Systems .......................... 3

INTERNATIONAL BUSINESS (INT)
15 hours
Four courses from the following list—12 hrs.
BIS 396 Computer Networking .......................... 3
BIS 454 Intercultural Business Communications .......................... 3

FCL 442 International Finance .......................... 3
FCL 484 International Business Law .......................... 3
FCL 494 International Seminar .......................... 3
MGMT 410 Multinational Management .......................... 3
MKTG 430 International Marketing .......................... 3

One course from the following list—3-4 hrs.
GEOG 390 China, Japan, and Korea: .......................... 3
GEOG 390 China, Japan, and Korea: .......................... 3
HIST 471 Latin America .......................... 3
HIST 477 Modern China .......................... 3
HIST 479 Modern Japan .......................... 3
PSCI 340 West European Political Systems .......................... 4
PSCI 342 Asian Political Systems .......................... 4
PSCI 343 Latin American Political Systems .......................... 4
Haworth College of Business Courses (BUS)

BUS 175 Business Enterprise 3 hrs.
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. Juniors and seniors in the BAD curriculum may not enroll in this course.

BUS 220 Introduction to Global Business 3 hrs.
An introduction to global business and its complex environment. Factors having an impact on global business including cultural differences, management theories, marketing activities and various legal and financial institutions are examined. Dominant international business policies will also be addressed. Prerequisite: Freshman/sophomore standing only. Not to be counted toward major/minor in BBA.

BUS 270 Information and Communication Infrastructure 3 hrs.
This course provides foundational knowledge about business information and communication infrastructures. A systems approach is used to present material on enterprise, national and global information, and communication infrastructures. The student will be introduced to applications for managerial information, data warehousing, decision support systems, CAD/CAM and logistic systems within the framework of integrated business and systems strategies. Electronic communication systems in networked, extended, and virtual enterprises also will be examined. Prerequisites: BIS 102 or 110 and BIS 142; enrollment open only to sophomores, students credited with 26 to 55 credit hours.

BUS 370 Integrated Communication in Business 3 hrs.
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 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 is approved as a writing-intensive course which fulfills the University Baccalaureate Writing requirement for BBA students. Prerequisites: BUS 270, MGMT 250; enrollment open only to juniors, students credited with 56 to 87 credit hours.

BUS 375 Production and Service Productivity 3 hrs.
This course examines core business operations and their impact on the productivity of functional business areas and, in turn, the entire organization. The techniques for the design, implementation, and innovation of process improvements in business operations, for example, product design, location and capacity decisions, aggregate operations planning, time systems, supply chain management, statistical process control, and quality function deployment comprise the body of knowledge. Prerequisites: MGMT 250, enrollment open only to juniors, students credited with 56 to 87 credit hours.

BUS 390 Business Internship 1–3 hrs.
The business internship is one of three alternatives for the program option core requirement for the BBA degree. The internship alternative is designed to provide practical hands-on business work experience within an organization and 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 business work. Internships must be approved in advance by the Haworth College of Business before credit is awarded. Graded on a Credit/No Credit basis only. Prerequisite: Students must be admitted to the BAD (Business Administration) curriculum.

BUS 391 International Business Education 1–3 hrs.
The international business education course is one of three alternatives for the program option core requirement for the BBA degree. The international education alternative is designed to provide international study abroad, international field trips, and, for non-USA residents only, with completion of Area 3, General Education as cross-cultural international experiences. Such international experiences 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. International experiences must be approved in advance by the Haworth College of Business or the Office of International Affairs before credit is awarded. Either letter grade or Graded on a Credit/No Credit basis. Prerequisites: BUS 175 (Business Enterprise) and admission to the BAD (Business Administration) curriculum.

BUS 392 Business Field Research 1–3 hrs.
The business field research course is one of three alternatives for the program option core requirement for the BBA degree. The business field research alternative is designed to enhance the student's knowledge through applied research projects for business, non-profit, or government organizations. This course may be an extension of classroom and site-based business research work. In some cases, this alternative may be an extension of a student's Honors College thesis or other substantial academic project. Such research projects 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. Business field research projects must be approved in advance by the Haworth College of Business before credit is awarded. Letter grades only. Prerequisites: Admission to the BAD (Business Administration) curriculum.

BUS 399 Field Experience (Community Participation) 2–8 hrs.
A program of independent study combining academic work with social, environmental, civic or political field work. Prerequisites: A written outline of the student's project, approved by a faculty supervisor, and approval from the office of the dean.

BUS 475 Strategic Business Solutions 3 hrs.
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. Prerequisites: Completion of all other BBA core courses, nine credit hours in declared major and senior class standing; enrollment open only to seniors, students credited with 88 or more credit hours.

BUS 591 International Business Seminar 1–6 hrs.
A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers and business executives. The seminar introduces participants to a firsthand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar. Students may receive six hours credit in any combination of departments as described, provided the seminar is planned and conducted by other institutions or for work done in independent seminars unless expressly approved by the Haworth College of Business.
ACCOUNTANCY

Jack M. Ruhl, Chair
Hans J. Dykochoho
J. Patrick F. Forrest
Laurie E. Haya
Charles F. Hines, Jr.
Richard L. Hodges
David N. Hurtt
Jerry G. Krenze
Sheldon A. Langsarn
William C. Morris
Gale E. Newell
David P. Rizzi
Kathleen E. Singing
Olaf M. Smith
Roger Y. W. Tang

The Department of Accountancy prepares its majors for positions as accountants in industrial, governmental, and public accounting enterprises. Accountancy majors must complete the business administration curriculum.

Accountancy Courses (ACTY)

ACTY 210 Principles of Accounting I
3 hrs.
This course introduces basic business concepts and the use of accounting information in business to plan, record, and evaluate the performance of operating activities. The course integrates the use of accounting information for both financial (external) reporting and managerial (internal) decision-making purposes.

ACTY 211 Principles of Accounting II
3 hrs.
This course examines the use of accounting information in planning and decision-making in business organizations. It includes the use of accounting information in planning for long-term financing and investing activities within an organization. The course also covers how a company's profitability from various activities, its cash flows, and its overall financial status are evaluated. *Prerequisite:* ACTY 210.

ACTY 310 Financial Accounting I
3 hrs.
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. *Prerequisite:* Students must earn a minimum grade of "C" in ACTY 211.

ACTY 311 Financial Accounting II
3 hrs.
This course is a continuation of Accounting 310. 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. *Prerequisite:* ACTY 310.

ACTY 313 Accounting Information Systems
3 hrs.
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. *Prerequisites:* ACTY 211, BI 102.

ACTY 322 Managerial Accounting—Concepts and Practices
3 hrs.
A study of the accounting methodology and concepts that have been developed to serve managers in decision-making for planning and control. Includes budgeting, standard costing, variance analysis, incremental analysis, cost and profit analysis, and product costing concepts and practices. *Prerequisite:* ACTY 211.

ACTY 324 Introductory Tax Accounting
3 hrs.
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. *Prerequisite:* ACTY 211.

ACTY 410 Internship in Accounting
1–4 hrs.
Under the direction of a faculty coordinator, students obtain full-time, accounting-related employment experience. 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 410 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 consent of the faculty coordinator. May be substituted for BUS 390 Business Internship, a BBA Program Option requirement.

Open to Upperclass and Graduate Students

ACTY 511 Advanced Accounting
3 hrs.
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. *Prerequisite:* ACTY 311.

ACTY 513 Advanced Accounting Systems
3 hrs.
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. *Prerequisite:* ACTY 313.

ACTY 514 Governmental and Nonprofit Accounting
3 hrs.
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 not-for-profit entities. *Prerequisite:* ACTY 211.

ACTY 516 Auditing
3 hrs.
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, and 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. *Prerequisites:* ACTY 311 and ACTY 313.

ACTY 522 Cost Accounting—Theory and Practice
3 hrs.
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. *Prerequisite:* ACTY 322.

ACTY 524 Advanced Tax Accounting
3 hrs.
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 regular and S corporations are analyzed. The differences in the taxation of corporations, partnerships, and limited liability companies are also addressed. *Prerequisite:* ACTY 324.

ACTY 598 Readings in Accounting
1–4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. *Prerequisite:* Written consent of instructor.
BIS 242 Organizational Communication
3 hrs.
A study of communication in modern organizations and the application of communication theory to information systems and current business practices. Group decision-making is emphasized.

BIS 260 Microcomputer Applications
3 hrs.
This is a course about developing business solutions that access data, automate business processes and routine tasks by using current microcomputer software packages and object-oriented programming language such as Visual BASIC for Applications. Students will learn to automate content creation, handle events, write function and procedures, customize menus and toolbars, and create components and integrate them into business applications. Open only to CIS major/minor, other BBA candidates, and CS major/minor.
Prerequisites: BIS 102 or BIS 110 or equivalent.

BIS 261 Business Programming
3 hrs.
Computer programming with a widely used business application language, an interactive and/or batch terminal environment. Topics include programming logic, modular design, documentation, software verification and validation. Open only to CIS major/minor, other BBA candidates, and CS major/minor.
Prerequisite: BIS 102 or 110 or equivalent.

BIS 264 Report Program Generator
3 hrs.
Study of feasibility and applicability of RPG (Report Program Generator) computer programming to business problems. Included are the design, coding, compiling and execution of programs in RPG, RPG II, and RPG III. Prerequisite: BIS 102 or 110 or equivalent.

BIS 266 LAN Administration
3 hrs.
This course provides an introduction into design, implementation, and administration of Local Area Networks (LAN). The characteristics, engineering, and economic tradeoffs among the essential hardware and software components are studied. Evolving standards, protocols, interfaces, and local area networking strategies are examined. This course supports the establishment of communication systems requirements and their translation into specific LAN configurations. Case projects are used throughout the course to emphasize design and administration options in practical situations. Open only to CIS major/minor, other BBA candidates, and CS major/minor.
Prerequisite: BIS 260.

BIS 343 Report Writing
3 hrs.
Intensive discussion and practice of the commonly used report-writing techniques. The study includes various formats and techniques of reports. In addition to writing several brief reports, students prepare a complete research report, give oral reports. Prerequisite: BUS 370.

BIS 344 Business Communication Problems and Practices
3 hrs.
An in-depth analysis of communication problems and practices as they occur in modern business. Special emphasis is given to development of business writing skills as they apply to decision making, report writing, and business communication systems.
Prerequisite: BUS 370.
introduces the student to hardware installation and troubleshooting, software installation, data back-up and recovery, and similar skills needed by the support person. **Prerequisite:** BIS 260.

**BIS 368 Records Management** 3 hrs.
The study of efficient methods, procedures, and systems for processing, controlling, and disposing of organizational records. Includes records inventory and classification, information retention and retrieval, and the administration of office information systems.

**BIS 400 Topics in Business Communication** 3 hrs.
An intensive study of a topic in business communication such as a communication system, business media, business publicity and others. The topic will be announced in advance. May be repeated for credit.

**BIS 410 Internship** 1-3 hrs.
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 required.

**BIS 442 Senior Seminar in Business Communication** 3 hrs.
The senior seminar in business communication is a capstone course designed to teach participants how to analyze communication in modern business organizations. Focus of the course will be on evaluating and improving organizational communication. Seminar emphasis will vary depending upon semester and instructor.

**BIS 454 Intercultural Business Communication** 3 hrs.
Intercultural Business Communication is designed to develop the effectiveness of students' communication skills with culturally diverse audiences, both at home and abroad. **Prerequisite:** BIS 370.

**BIS 456 Office Management** 3 hrs.
Procedures of office administration with attention to supervisory patterns in development, supervision, and management of human resources.

**BIS 458 Topics in Administrative Systems** 3 hrs.
Includes an intensive study of a selected topic in administrative systems such as communication audits, consumer relations, office systems, work measurement and simplification, forms control and design, and others. The topic will be announced in advance. May be repeated for credit.

**BIS 460 Business Database Applications** 3 hrs.
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. Open only to CIS major/minor, other BBA candidates, and CS major/minor. **Prerequisite:** BIS 360.

**BIS 464 Knowledge Management** 3 hrs.
This course focuses on the theoretical understanding and practical applications of Knowledge Management. Specifically, it covers data warehousing, data-mining along with the decision support theories and models from quantitative methods and artificial intelligence applications such as decision support systems, expert systems, fuzzy logic, and neural networks. Open only to CIS major/minor, other BBA candidates, and CS major/minor. **Prerequisite:** BIS 460.

**BIS 465 Trends in Information Systems** 3 hrs.
This course is designed to familiarize students with "leading edge" issues of computer information systems. Because the computer field continues to evolve at a rapid rate, the specific content of the course will change from year to year. **Prerequisite:** BUS 275.

**BIS 474 Information Resource Management** 3 hrs.
This seminar course provides an overview of the management of information systems resources. The student will gain an insight and understanding of the subject through study of the fundamentals of organizing, planning, controlling, and other significant management tasks that relate to management of information resources. Open only to CIS major/minor, other BBA candidates, and CS major/minor. **Prerequisite:** BIS 270.

**BIS 480 Business Communication Technology** 3 hrs.
Business Communication Technology reviews the changes in communication strategies and procedures being brought about by modern technology, especially the computer. The course provides a theoretical framework for understanding the application of communication technology in modern business organizations and affords hands-on experience with word processing, electronic mail, electronic conferencing systems, electronic databases, computer graphics, FAX, voice mail, and desktop publishing procedures. **Prerequisite:** BUS 370.

**BIS 483 Business Publications and Presentations** 3 hrs.
This course provides students with the theory and the practice to enable them to develop various types of publications and presentations in diverse formats, from conception through finished product. Using word processing, desktop publishing, and web authoring tools, students will employ various design techniques to produce documents according to business communication needs. **Prerequisite:** BUS 370.

**BIS 484 Micrographics and Reprographics** 3 hrs.
Fundamentals of micrographics and reprographics, including basic components of technology, legal implications, systems applications and trends, feasibility, and industry standards.

**BIS 486 Corporate Records Centers** 3 hrs.
An examination of commercial and corporate records centers including services, equipment, systems, and technology; addresses functions of planning, staffing, operating, and managing record centers. **Prerequisite:** BIS 389 or permission.

**BIS 490 Electronic Commerce Development** 3 hrs.
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. Web sites are developed with strong links to real world business applications. Open only to CIS major/minor, other BBA candidates, and CS major/minor. **Prerequisite:** BIS 380 and BIS 460, or instructor's permission for other BBA candidates.

**BIS 499 Enterprise Project** 3 hrs.
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. Open only to CIS major/minor, other BBA candidates, and CS major/minor. **Prerequisite:** BIS 460.

**BIS 555 Topics in Computer Information Systems** 3 hrs.
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. **Prerequisite:** BIS 360.

**BIS 560 Office Systems and Procedures** 3 hrs.
A study of paperwork systems and procedures. Emphasis is placed on office systems and the techniques of systems development including fact gathering and recording, work analysis, and office work simplification and measurement.

**BIS 596 Independent Study** 1-4 hrs.
A directed independent project in an area of Administrative Systems, Business Communication, or Computer Information Systems. **Prerequisite:** Approved application required.

**BIS 598 Readings** 1-4 hrs.
A series of direct readings in an area of Administrative Systems, Business Communication, or Computer Information Systems. **Prerequisite:** Approved application required.
FINANCE AND COMMERCIAL LAW

Ed Edwards, Chair
Robert Balik
Nicholas C. Batch
David Burnie
James Demello
Norman Hawker
A. D. Issa
Kenneth Kennedy
Christopher M. Korth
C. R. Krishna-Swamy
Inayat Mangla
F. William McCarty
Ali Metwalli
Craig Peterson
Ronald N. Prange
Ajay Samarit
Tim F. Scheu
Leo Stevenson
Neil T. Turner
Devrim Yaman

A major may be obtained in finance. Minors are available in finance, insurance, real estate, and law.

Finance and Commercial Law Courses (FCL)

FINANCE AREA

FCL 310 Introduction to Financial Markets

3 hrs.
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. Prerequisite: ACTY 210.

FCL 320 Business Finance

3 hrs.
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. Prerequisites: ACTY 210; MATH 216 or 366 or equivalent.

FCL 330 Real Estate Fundamentals

3 hrs.
Supplies the basis for comprehension of the basic economic characteristics and the organization and techniques used in the real estate business. Treats real estate resources, marketing, financing, valuation, and trends.

FCL 331 Real Estate Finance

3 hrs.
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. Prerequisite: FCL 320 and FCL 330, or consent of instructor.

FCL 341 eFinance

3 hrs.
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 futures 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. Prerequisite: FCL 320.

FCL 345 Computer Applications in Finance

3 hrs.
Apply commonly used computer software and data systems to finance. Examples of the computer software used are Excel, Expo, Mintab, SAS, and Word. Financial information is obtained from web sites or financial databases such as Compustat and CRSP. Some of the finance problems studied are creating cash budgets and loan amortization tables, estimating break-even and forecasting financial needs. Students demonstrate computer proficiency through projects, exams and team presentations. Prerequisite: FCL 320.

FCL 351 Investment Analysis

3 hrs.
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. Prerequisite: FCL 320 or consent of instructor.

FCL 360 Risk and Insurance

3 hrs.
A comprehensive course which 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. Prerequisite: FCL 320.

FCL 371 Personal Financial Planning

3 hrs.
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. Prerequisite: FCL 320.

FCL 372 Estate Planning

3 hrs.
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 attorney, retirement and custodial accounts are discussed. The influence of federal estate and gift and state taxation rules on estate planning techniques is examined. Prerequisite: FCL 320.

FCL 373 Retirement Planning and Employee Benefits

3 hrs.
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. Prerequisite: FCL 320.

FCL 412 Global Financial Markets

3 hrs.
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. Prerequisite: FCL 310 and FCL 320.

FCL 414 Management of Financial Institutions

3 hrs.
This course is devoted to in-depth analysis of the operations of selected financial institutions with emphasis on management and decision-making processes. Case analysis and analytical problems are included in the course content. Prerequisite: FCL 310.

FCL 425 Short Term Financial Management

3 hrs.
An analytical approach to the study of short term financial management. In connection with Treasury Management Association this course is 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 includes cases covering financial decision making in the area of working capital management, financial analysis, and forecasting. Prerequisite: FCL 320.

FCL 426 Corporate Finance: Theory and Practice

3 hrs.
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, corporate restructuring and valuation. Prerequisite: FCL 320.

FCL 432 Real Estate Investments

3 hrs.
The effect of various forms of taxation, market conditions and governmental policies as they affect the investor's spendable income are reviewed. Prerequisite: FCL 320 and FCL 330 or consent of instructor.

FCL 433 Real Estate Appraisal

3 hrs.
A study of the sources of real estate value, the techniques for estimating property value, and the effective use of appraisal information. Prerequisite: FCL 320 and FCL 330 or consent of instructor.

FCL 437 Real Estate Management

3 hrs.
Management of income producing properties as an agent of the owner. Consideration of professional standards, business promotion, leasing, insurance and maintenance. Prerequisite: FCL 320.

FCL 442 International Finance

3 hrs.
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. Prerequisite: FCL 320 or consent of instructor.

FCL 448 Internships

1-5 hrs.
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 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. Available only to students majoring in finance or minor in finance, insurance, or real estate. No more than 3 hrs. can be used as credit toward a major or minor. Written consent of instructor and department chair is required. (May be substituted for BUS 390 Business Internship.)

FCL 453 Securities Analysis 3 hrs.
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 between techniques used by the academician and the practitioner. Prerequisite: FCL 351.

FCL 463 Risk Management and Insurance 3 hrs.
This course covers the function of risk management and the responsibilities of risk managers. The sources of risk information are examined, the business risks analyzed and the alternative methods of handling risks evaluated. Criteria for selection of proper insurance coverages and selection of carriers and intermediaries are reviewed. Prerequisite: FCL 360 or consent of instructor.

LAW AREA

FCL 150 Personal Law 3 hrs.
Personal Law studies some of the legal problems faced in everyday living, such as traffic infractions, rental and property laws, consumer disputes, insurance, and wills. It presents a practical approach, which also provides a fundamental basis for further legal study. May not be taken to fulfill BBA requirements.

FCL 350 Computer Law 3 hrs.
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.

FCL 380 Legal Environment 3 hrs.
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.

FCL 381 Ecology and the Law 3 hrs.
The study of law as it relates to people’s efforts to protect the environment. Included will be an examination of traditional common law principles and federal and state statutes relating to environmental protection, analysis of recent cases, and discussion of techniques for the effective use of administrative procedures of the various environmental protection agencies.

FCL 382 Business Law 3 hrs.
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. Prerequisite: FCL 380.

FCL 383 Commercial Law 3 hrs.
The study of law affecting the organization and operation of business firms. Organizational concerns focus on partnership and corporation laws and regulations affecting the issuing and sale of corporate securities. The agency relationship and related laws that affect the operation of business activities are also examined. Prerequisite: FCL 380.

FCL 384 Criminal Law and Procedure 4 hrs.
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. Prerequisite: SOC 462 or PSCI 325 or FCL 380 or consent of Instructor.

FCL 385 e-Business Law 3 hrs.
This course examines the legal aspects of electronic business. Law is an essential part of any study of electronic business since law provides three types of infrastructure required for any economic system to function, including electronic business. First, law defines what is property (i.e., the objects of trade and ownership—without property definitions, the whole idea of business falls apart). Second, law plays an integral part in the creation of a secure system of payment for the purchase items on the Internet. Finally, law provides an enforcement mechanism is needed to punish transgressions of the substantive rules that govern electronic business. This course will also examine ethical concerns involved in electronic business. Prerequisite: FCL 350 or FCL 380.

FCL 482 Employment Law 3 hrs.
A survey of laws affecting management-labor relations. The course examines general employer-employee relationships, emphasizing the hiring and firing of employees, employee benefit programs, workman’s compensation laws, and civil rights rules and regulations. Prerequisite: FCL 380.

FCL 483 Real Estate Law 3 hrs.
The study of land ownership, sales agreements, mortgages, land contracts, leases, zoning, condemnation and urban land development problems. Prerequisite: FCL 380.

FCL 484 International Business Law 3 hrs.
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. Prerequisite: FCL 380.

FCL 486 Marketing and Sales Law 3 hrs.
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. Prerequisite: FCL 380.

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GENERAL AREA

FCL 494 International Business Seminar 1–6 hrs.
A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers and business executives. The seminar introduces participants to a firsthand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar. Students may receive six hours credit in any combination of departments as described, provided the seminar is planned with that combination in mind. No student will receive credit under the course plan indicated here except for work done in seminars planned and conducted or approved by the Haworth College of Business.

FCL 498 Readings and Research in Finance and Commercial Law 1–3 hrs.
Directed individual study of finance or legal problems which are not treated in departmental course offerings. Prerequisite: Written consent of instructor and department chair is required.
MANAGEMENT Courses (MGMT)

MGMT 250 Organizational Behavior
3 hrs.
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. Prerequisite: BUS 175.

MGMT 300 Fundamentals of Management
3 hrs.
An introduction to the concepts, theories, models, and techniques central to the practice of management. Historical and contemporary thought are presented in the context of the behavioral, structural, functional, quantitative, and ethical aspects of managing organizations. Cross-cultural aspects of management are also explored. Expected outcomes for the student are: a general familiarity with the management process, and limited situational application of course content. Prerequisite: Junior standing.

MGMT 301 Project Management
3 hrs.
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 computer applications for project management, the course advances students’ understanding of the human dimensions of work processes. Prerequisite: MGMT 250.

MGMT 302 Project Leadership
3 hrs.
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 301. Prerequisite: MGMT 301.

MGMT 314 Small Business Management
3 hrs.
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. Prerequisites: MGMT 250, MKTG 250.

MGMT 350 Managing Diversity in Organizations
3 hrs.
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. Prerequisite: MGMT 250.

MGMT 352 Human Resource Management
3 hrs.
This course covers various HRM functions including work force needs, staffing and development, compensation, appraisal; employee compensation and benefits; safety and health; approaches to employee problems, and labor relations. Prerequisite: MGMT 300.

MGMT 353 Organizational Competencies
3 hrs.
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.

MGMT 360 Quantitative Methods for Business Decisions
3 hrs.
Introduction to quantitative methods and their application to the functional areas of business. Topics covered will include system modeling, probability theory, forecasting methods, decision making under conditions of certainty, risk and uncertainty, inventory models, linear programming, elementary queuing theory, and introduction to techniques of mathematical simulation. Prerequisite: STAT 216 or equivalent.

MGMT 360 (Repeatable) Topics in Management
3 hrs.
An examination of advanced topical problems in management. (Repeatable)

MGMT 404 Business and Society
3 hrs.
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.

MGMT 410 Multinational Management
3 hrs.
An examination of management strategy, controls, environmental influences of the multinational corporation with consideration of geographic factors. 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.

MGMT 412 Management Internship
1–4 hrs.
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. Repeatable for a maximum of 4 hours credit. Graded credit/no credit. Does not count toward the major.

MGMT 414 Entrepreneurship
3 hrs.
An elective for students interested in entrepreneurial careers. Primary attention is given to managing a new or rapidly growing business. Alternative sources of capital are examined. Various growth strategies are considered along with personal requirements for entrepreneurial success. Prerequisite: MGMT 300, FCL 320, FCL 380, MKTG 250 or department consent.

MGMT 432 Compensation and Benefits
3 hrs.
This course is intended as an advanced undergraduate course for students with a commitment to Human Resources Management. The course builds on a 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. Prerequisite: MGMT 352.

MGMT 447 Aircraft Strategy
3 hrs.
The focus of this course is the application of strategic management concepts and tools to organizations in the airline industry. Students will study and analyze the competitive and regulatory/social forces affecting the airline industry, and the formulation and implementation of strategic choices and directions by successful and unsuccessful organizations in the airline industry. Prerequisite: BUS 175.

MGMT 451 Staffing Organizations
3 hrs.
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. Prerequisite: MGMT 352.

MGMT 454 Employment Relations
3 hrs.
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. Prerequisite: MGMT 352.

MGMT 460 Decision Analysis
3 hrs.
This course is designed to present methods and concepts of decision making in uncertain business environments. It will address both the philosophy, and the methodology of scientific decision processes to supplement intuitive decision making. The objective of the course is to provide a clear understanding of both the limitations and potential benefits of formal analysis and information gathering. Some of the topics covered include: utility functions, values of perfect and imperfect information, and preference assessment. Prerequisite: MGMT 350.

MGMT 463 Production and Operations Management
3 hrs.
Economic and socio-technical characteristics of the major types of production systems are
explore. Managerial aspects of workplace and facility design. Simple models for controlling operations in purposeful organizations. Prerequisite: MGMT 360 or equivalent (BIS 464, FCL 420, ECON 400, MKTG 471).

MGMT 464 Production Management and Control 3 hrs. Quantitative and computer-based methods of planning and controlling operations in manufacturing industries and service organizations. Areas covered in depth include scheduling, aggregate planning, and inventory control. This course is intended for students interested in quantitative applications in business as well as management majors concentrating in production and operations management. Prerequisite: MGMT 360.

MGMT 465 Managing for Quality 3 hrs. 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. Prerequisite: MGMT 300 and MKTG 250.

MGMT 470 Operations Simulation 3 hrs. Simulation is a managerial technique that imitates the operations of a real or planned system. It is applied in the analysis and improvement of system operations involving uncertainty and interactions between system components. It has been widely used by both manufacturing and service firms to evaluate effectiveness of operations strategies. This course introduces students to development, validation, and use of computer-based simulation models using software such as General Purpose Simulation language (GPSS/H). Students will use simulation approach to evaluate improvements in production/service systems. Prerequisites: MGMT 360 or equivalent.

MGMT 480 Materials Management Strategy 3 hrs. Introduces students to a framework for making longer-term decisions in operations management, and stresses the importance of developing and executing a production/operations management strategy, which is consistent with the business strategy of the organization. An emphasis will also be placed on production/operations capability as a competitive weapon. This course functions as the capstone experience in the Production/Operations Management concentration, and students are expected to have specialized knowledge for analyzing the operating characteristics of organizations. Prerequisites: MGMT 463, MGMT 464, or equivalent.

MGMT 481 Integrated Materials Systems 3 hrs. This course examines the interrelationships and coordination among the various activities necessary for the development and operations of materials and technology systems. Emphasis will be placed on engineering purchasing, logistics, and production systems. Students will have the opportunity to synthesize the concepts and concerns of team building, problem solving, communication, and organizational management. Prerequisites: MGMT 464, MKTG 372, MKTG 484, ME 220.

MGMT 495 Independent Study 1-4 hrs. Independent research on specialized management topics. Prerequisite: Consent of instructor. (Repeatable)

MGMT 499 Strategic Management 3 hrs. An integrative capstone course focusing on the formulation and implementation of organizational policy and strategy from the perspective of the general manager. Prerequisite: Senior standing and successful completion of all core courses.
the electronic customer relationship.

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).

**Prerequisite:** MKTG 250.

**MKTG 374 Advertising and Promotion**

3 hrs.

Topical topics will include the role of personal selling in the firm; determination of market and sales potential; recruiting; training; sales compensation; territories and quotas; motivation; and selling effectiveness.

**Prerequisite:** MKTG 250.

**MKTG 377 Sales Promotion**

3 hrs.

The course is designed to introduce the student to the principles and practices of sales promotion. The design of sales promotions is the topic related to the development and implementation of direct inducement or incentive programs offered to members of the sales force, distributors, or consumers with the primary objective of effecting an immediate sale.

**Prerequisite:** MKTG 371, and permission of instructor.

**MKTG 391 Food Merchandising**

3 hrs.

A course designed to acquaint students with merchandising principles and applications related to the marketing of food and other consumer products. The course will focus on product and category management, advertising, sales promotion pricing, purchasing and inventory control, and charging retail formats. The impact of consumer demographics and lifestyles will be related to store design/origination; product mix; and promotion methods used by retailers, manufacturers, and wholesalers.

**Prerequisite:** MKTG 250, MKTG 290, Food Marketing majors only, or consent of instructor.

**MKTG 392 Applied Marketing Analysis**

3 hrs.

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.

**Prerequisites:** MKTG 371, and permission of instructor. Department majors only. Course may be substituted for BUS 392, a BBA Program Option requirement.

**MKTG 396 Food Industry Survey**

3 hrs.

A two-week intensive survey and tour of midwestern food processors, wholesalers, and retailers, including presentations by industry executives. Students observe industry practices related to research, development, computer based sales planning, team selling, negotiation and elements of time and territory management. Written reports are required. Bus travel and overnight stays are necessary. A fee for transportation and housing is required. **Prerequisite:** MKTG 290.

**MKTG 397 Food Marketing Field Experience**

2–3 hrs.

Students are employed full-time in professional food industry work experiences under the supervision of participating employers. An application form, signed by the student's food marketing faculty advisor, is required for employment. Scheduled meetings with an advisor and written reports are required. A performance appraisal of the trainee must be submitted by the employer. May be repeated for a maximum of 2 credit hours. Graded on a Credit/No Credit basis to be included in the major for Food Marketing Majors only.

**Prerequisite:** Food Marketing major. Course may be substituted for BUS 390, a BBA Program Option Requirement.

**MKTG 460 Advanced Selling Strategies**

3 hrs.

This course examines advanced methods of questioning, customer need analysis and problem finding, realistic solution development, computer based sales planning, team selling, negotiation and elements of time and territory management. Exercises, extensive role playing, and cases are used.

**Prerequisites:** MKTG 360 and 372. Sales and Business Marketing majors only.

**MKTG 470 Business Marketing Strategy**

3 hrs.

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.

**Prerequisites:** MKTG 371, MKTG 372, and senior standing.

**MKTG 471 Quantitative Marketing Applications**

3 hrs.

Provides marketing student with a basic understanding of fundamental quantitative techniques and shows how these techniques will assist the decision maker in solving marketing problems. A term project applying the research process, concepts, and quantitative methods is required.

**Prerequisites:** MKTG 250, MKTG 290.

**MKTG 472 Media Planning and Research**

3 hrs.

This course examines the media used in integrated Marketing Communications (IMC). Students will learn media vocabulary and techniques of audience measurement and media scheduling and buying. Emphasis is placed on secondary data research and media sources to develop comprehensive media plans for solving marketing communications problems.

**Prerequisites:** MKTG 371 and MKTG 374. Advertising and Promotion majors and minors only.

**MKTG 473 Interactive Marketing Strategy**

3 hrs.

An applied course in interactive marketing strategy development. Covers principles, methods, and applications of direct mail, catalog, telemarketing, Internet, and other electronic media to the selling of goods and services. Students teams develop a complete interactive marketing strategy involving research, marketing plan, media plan, creative plan and execution, and budget for current case situation.

**Prerequisites:** MKTG 474, Advertising and Promotion majors and minors only.

**MKTG 474 Creative Strategy**

3 hrs.

Students will acquire an understanding of the creative process used to develop Integrated Marketing Communications (IMC) strategies for product/service positioning and rollout. Consumer, company, and product research will be integral parts of the learning process. Students will analyze campaigns, develop copy platforms and produce IMC strategies and executions.

**Prerequisites:** MKTG 374 and 477. May be taken concurrently with MKTG 477, Advertising and Promotion majors and minors only.

**MKTG 475 International Marketing**

3 hrs.

An examination of the theories and principles of International Marketing. This course focuses on consumer behavior considering both the theoretical and practical implications.

**Prerequisites:** MKTG 250 and 371. May be taken concurrently with MKTG 371.

**MKTG 476 Retail Management**

3 hrs.

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 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.

**Prerequisite:** MKTG 250.

**MKTG 477 Consumer Behavior**

3 hrs.

Investigate, analyze and interpret the extensive body of research information on consumer behavior considering both the theoretical and practical implications.

**Prerequisite:** MKTG 250 and 371.

**MKTG 478 Special Topics in Marketing**

3 hrs.

Study of advanced topics within the marketing discipline. The course topic will be indicated in the student record. Repeatable for different topics.

**Prerequisite:** MKTG 250 and permission of instructor.

**MKTG 479 Marketing Internship**

1–3 hrs.

Marketing internship experience under the supervision of participating employers. 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. Term reports required. Employer must submit a written performance appraisal. Graded on a credit/no credit basis. Cannot be counted toward major requirements. MKTG, IOM, RET, ADV majors only.

**Prerequisite:** MKTG 250, MKTG 371, and permission of instructor.

**MKTG 480 Franchising**

3 hrs.

This is an introductory course designed to study franchising operations from both franchisor and franchisee viewpoints. The topics examine the nature of franchise development, operation of a franchise system, evaluation of franchise opportunities, and the relationships between franchisees and franchisors.

**Prerequisite:** MKTG 250.
MKTG 481 Integrated Marketing Communications Campaigns
3 hrs.
This is the capstone course for advertising and promotion majors. It will include promotional and managerial case studies. Complete IMC campaigns will be developed based on research, marketing plans, media plans, creative plans, and creative executions. Advertising research will be explored. Budget strategies will be discussed and applied. Emphasis will be on integrated marketing communications planning. Development of "portfolio pieces" will be part of this course. Prerequisites: MKTG 472, 474; Advertising and Promotion majors only.

MKTG 484 Business Logistics
3 hrs.
An analysis of the movement, handling, and storage of products and materials, including work-in-progress and finished goods. Emphasis on customer requirements and customer satisfaction, total quality management, and optimization of total distribution costs. Prerequisite: MKTG 250.

MKTG 485 Applied Process Reengineering
3 hrs.
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. This course is cross-listed with IME 488. Prerequisites: Senior standing, ISM major or minor or permission of instructor.

MKTG 486 Marketing Strategy
3 hrs.
This course examines marketing strategy and its impact on business success and failure. Comprehensive marketing strategy requires the understanding of competitive dynamics, market forces, customer satisfaction and loyalty as they relate to specific target market and marketing mix decisions. Marketing strategy provides an opportunity for students to learn and apply strategic marketing decision processes to establish, maintain or improve an organization's competitive advantage. Case studies, examples from current business news, computer simulations or team projects all may be used to demonstrate the role of marketing strategy in business. Prerequisites: Completion of MKTG 250, 371, and two other marketing classes; enrollment restricted to senior level students with 88 credit hours or more.

MKTG 492 Marketing Information Technology
3 hrs.
Applications of information technologies utilized in the marketing of food and other consumer products. Emphasis will be on the use of computer technology to analyze price and cost controls; make merchandising, shelf management, and category decisions; develop sales forecasts; and interpret various operating performance ratios. Prerequisite: MKTG 391; Food Majors only, or consent of instructor.

MKTG 494 Food Marketing Issues and Strategies
3 hrs.
A study of current issues which impact the agricultural, manufacturing, wholesaling, transportation, and retail segments of the food industry. Students apply decision-making techniques to analyze food marketing issues and plan effective strategies. Course uses case studies, computer simulations, and/or company projects to focus on issues and strategies for the food industry. Prerequisites: MKTG 371, MKTG 391. Food Marketing Majors only.

MKTG 498 Readings in Marketing
1–3 hrs. Arranged
Directed individual study of bodies of knowledge not otherwise treated in departmental offerings. Prerequisite: Written permission of instructor.

MILITARY SCIENCE

LTC Robert F. Nipp, Chair
Sgt Scott Carney
MSG Randy R. Elmer
MAJ Stephen Fisher
Mrs. Cris Obreiter
MAJ James Purrenhage
MAJ Timothy J. Russell
SFC Lee D. Wynn
Mr. Jim Zesiger

The Department of Military Science 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 four-year and a two-year Military Science 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. ROTC scholarships are available to students.

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 program and conduct all classes offered by the department. The government provides uniforms for all Advanced Course students as well as additional financial assistance for students in the last two years of the program.

Career Opportunities

Army ROTC increases opportunities for students by giving them options and by 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 and an assignment in either active or reserve forces duty.

The active duty career option is usually three years for non-scholarship students, and assignment to a leadership position similar to the junior management level in the civilian sector. Starting salary for a second lieutenant on active duty is approximately $33,600, 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 a military branch school for the Officer Basic Course) and the remainder of an eight-year obligation in the reserve forces.

ROTC Admission Requirements

ROTC courses are open to all University students with no obligation. To be eligible to enter into the Advanced Course (Commissioning Program) students must be a full-time student; be a U.S. Citizen; be not more than 27 years of age; have a minimum cumulative GPA of 2.0; not be a single parent; satisfy the Basic Course requirements either through attendance at ROTC Camp Challenge, prior military service, or successfully passing all Basic Course academic requirements; be able to pass the Army Physical Fitness Test; be of good character as evidenced by no record of disciplinary problems or civil convictions; not be an alcohol abuser or drug user; and pass a Military Entrance Physical Exam.

Scholarships

Army ROTC has one of the largest scholarship programs in the nation.
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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 incoming college freshman. 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 all tuition, lab, and most student fees; a flat rate of $650 per year for textbooks; and a tax-free subsistence allowance (up to $2,000) each year the scholarship is in effect. Additionally, WMU provides ROTC 2- and 3-year scholarship recipients with a $1,000 annual incentive award and 4-year scholarship recipients with a $2,600 annual incentive award.

Facilities
The department is located in the AT Building, with a drill hall and classroom facilities. Special training is also conducted at Fort Custer Army Reserve Training Center near Augusta, Michigan.

More information about the ROTC program is available at the ROTC office in the AT Building by calling 616-387-8120 or 616-387-8122.

Four Year Program
The four year military science 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. Students who participate in the Basic Course are under no obligation to the active Army or the reserves.

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 course each semester. First year students normally take MLSC 140 in the fall and MLSC 150 in the winter semester. Sophomore students take MLSC 240 during the fall and MLSC 250 during the winter.

Exclusions 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 more than six months of active military 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 either Army or Air Force ROTC 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. Students accepted for the Advanced Course receive a non-taxable subsistence allowance of $200 per month while school is in session (up to $2,000 a year). The major emphasis of the Advanced Course is the development of individual leadership and military skills. During the junior year, students complete MLSC 340 and 350. Between the junior and senior year, students will receive pay for attending a five week camp. During the senior year, students complete MLSC 440 and MLSC 450. Course work is also required of students in the areas of history, behavioral sciences, written communications, mathematics, and computer science in order to complete the Military Science minor. These courses will be taken in the general education distribution program areas. The Department of Military Science advisor should be consulted on the specific courses which satisfy these requirements. Exceptions must be approved by the chair of the department.

Two Year Commissioning Program
For those students who are transferring into the University, graduate students, and currently enrolled students who have not taken military science classes, but desire to be commissioned as a second lieutenant, a two year program is available. Students enter this program by applying for attendance at no obligation, to a five week ROTC Summer Camp Challenge at Knox, Kentucky. Attendance and successful completion of Camp Challenge is substituted for the Basic Course classes. At Camp Challenge, which can qualify for academic credit (MLSC 140-250), the student is trained, fed, and housed at the expense of the government. The student also receives travel pay plus a salary of approximately $761. Contact the Department of Military Science for details.

Veterans need only to complete the Advanced Course requirements while they are finishing the overall degree requirements in order to be eligible for a commission. Contracted students in the two year program receive uniforms and a non-taxable subsistence allowance of $200 per month while school is in session (up to $2,000 a year).

Military Science Minors
A department minor slip is required.

### FOUR YEAR PROGRAM

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
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<tbody>
<tr>
<td>MLSC 140 and MLSC 150</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>Sophomore Year</td>
<td></td>
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<tr>
<td>MLSC 240 and MLSC 250</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>Junior Year</td>
<td></td>
</tr>
<tr>
<td>MLSC 340 and MLSC 350</td>
<td>6 hrs.</td>
</tr>
<tr>
<td>Senior Year</td>
<td></td>
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<tr>
<td>MLSC 440 and MLSC 450</td>
<td>6 hrs.</td>
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### TWO YEAR COMMISSIONING PROGRAM

**Prerequisite:** Veteran or Camp Challenge, or approval of department chair.

**Junior Year**
- MLSC 340 and MLSC 350: 6 hrs.
- Senior Year
- MLSC 440 and MLSC 450: 6 hrs.

### ADDITIONAL REQUIREMENTS

In addition to the courses listed above, all students in the minor program must complete one course from each group below:

**A. History**
- HIST 320
  - 3 hrs.

**B. Mathematics**
- MATH 111
  - 3 hrs.
- MATH 116
  - 3 hrs.
- MATH 366
  - 4 hrs.

**C. Political Science**
- PSCI 250
  - 4 hrs.
- PSCI 350
  - 4 hrs.

**D. Psychology**
- PSY 100
  - 3 hrs.

### Military Science Courses (MLSC)

A list of approved General Education courses can be found in "Academic Policies and Procedures" earlier in this catalog.

**BASIC COURSE**

<table>
<thead>
<tr>
<th>MLSC 140 Outdoor Survival Skills</th>
<th>1-2 hrs.</th>
<th>Fall, Winter</th>
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</thead>
<tbody>
<tr>
<td>Emphasis is placed on outdoor survival skills including land navigation, survival cooking, cold/hot weather injury prevention, basic first aid, CPR, and physical fitness. An off-campus exercise will put to use skills acquired during the course.</td>
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**MLSC 150 Basic Leadership**

<table>
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<tr>
<th>1-2 hrs.</th>
<th>Winter</th>
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<tbody>
<tr>
<td>Learn and apply principles of effective leading. Reinforce self-confidence through participation in physically and mentally challenging exercises with upper division ROTC students. Develop communication skills to improve individual performance and group interaction. Relate organizational values to the effectiveness of a leader. Course is one hour and a required leadership lab (2 hours) each week. Plus, participation in weekly physical fitness training and one weekend exercise during the course are optional, but highly encouraged.</td>
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</table>

**MLSC 240 Self/Team Development**

<table>
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<tr>
<th>2 hrs.</th>
<th>Fall</th>
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<tbody>
<tr>
<td>Learn and apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams. Develop skills in oral presentations, writing concisely, planning of events, coordination of group efforts, land navigation, and basic military tactics. Learn basic fundamentals of ROTC's Leadership Development Program. Two hours of class and a required weekly leadership lab (2 hours) plus required participation in two, one-hour sessions for physical fitness. Participation in a weekend exercise during the course is optional, but highly encouraged.</td>
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</table>

**MLSC 250 Individual/Team Building Using Military Tactics**

<table>
<thead>
<tr>
<th>2 hrs.</th>
<th>Winter</th>
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<tbody>
<tr>
<td>Introduction to individual and team aspects of military tactics in small unit operations. Includes use of radio communications, movement techniques, land navigation skills, hasty analysis and planning factors, and many other techniques used to employ tactics. Two hours of classroom time and a required two-hour leadership lab, plus participation in two, one-hour sessions for physical fitness. Participation in a weekend exercise is optional, but highly recommended.</td>
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</table>

**MLSC 259 Studies in Military Science**

<table>
<thead>
<tr>
<th>2 or 3 hrs.</th>
<th>Fall, Winter, Spring, Summer</th>
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<tbody>
<tr>
<td>An opportunity for students who have been unable to take military science courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the student. <strong>Prerequisite:</strong> Approval of department chair.</td>
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</tr>
</tbody>
</table>

### ADVANCED COURSES

<table>
<thead>
<tr>
<th>MLSC 340 Advanced Leadership</th>
<th>3-5 hrs.</th>
<th>Fall</th>
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<tbody>
<tr>
<td>Studies of authority and responsibility, communication, leadership fundamentals, planning, counseling skills, and ethical decision-making with emphasis on practical application to military situations. <strong>Prerequisite:</strong> Approval of department chair.</td>
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</tbody>
</table>
MLSC 350 Advanced Leadership II (3-2)
3 hrs. Winter
Development of advanced planning and coordination sequences applicable to the employment of military organizations. 
Prerequisite: Approval of department chair.

MLSC 440 Line and Staff (3-2)
3 hrs. Fall
A comprehensive course in the fundamentals of military administrative, logistical, training management, and the Army Officer Evaluation Reporting Systems. Prerequisites: Approval of department chair.

MLSC 450 Military Law, Ethics and Professionalism (3-2)
3 hrs. Winter
Course content includes a survey of military justice, ethics, and professionalism required of military leaders. Prerequisite: Approval of department chair.

MLSC 499 Studies in Military Science
1–4 hrs. Fall, Winter, Spring, Summer
An opportunity for students who have been unable to take military science courses in sequence to obtain needed course work at more convenient times. 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.
In general, the College of Education performs eight functions:

1. Supervises the selection, admission, and retention of students in advanced teacher education curricula;
2. Provides professional education courses designed to develop competent, efficient performance in the classroom and within a school system;
3. Provides advanced specialized courses in selected major and minor fields in departments within the college;
4. Provides service courses to students in other colleges within the University;
5. Provides clinical and curricular development services to teachers and school personnel;
6. Conducts experimentation and research at all levels of professional education;
7. Maintains liaison with professional organizations and learned societies involved in teacher education;
8. Prepares professionals for careers related to improving the quality of life of individuals and families and management of consumer resources.

**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 field 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 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 six through eight) or the Michigan Secondary Provisional Certificate (valid for major and minor subjects in grades seven through twelve).

The following undergraduate curricula lead to certification and are offered in the College of Education: Elementary Education, Secondary Education, Special Education, and Physical Education. Students seeking admission to these curricula must contact the Office of Admissions and Advising, 2504 Sangren Hall.

Students electing to major in Art, Career and Technical Education, Music, Physical Education, Health Education, or Industrial 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 must see the appropriate college or department advisor as well as the Office of Admissions and Advising:

- Art (see Department of Art advisor)
- Music (see School of Music for audition)
- Special Education (see Department of Educational Studies, Special Education advisor)
- Speech Pathology and Audiology (see Department of Speech Pathology and Audiology advisor)

Teaching certificates are granted only to those students who satisfactorily complete an approved teacher education program with an overall grade point average of 2.5 and a bachelor's degree. Students in Speech Pathology and Audiology must complete a master's degree.

**Office of Admissions and Advising**

2504 Sangren Hall
387-3474
Advisors:
Joyce DeRight, Director
Wendy Asmus
Sheena Bolton
Charon Carver
Cynthia DeRyke
Douglas Engelbreten
Paul Hildenbrand

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. The office also provides academic advisement for students enrolled in non-teaching and teaching curricula within the College and advises post-baccalaureate students seeking initial teacher certification.

All students seeking admission to teacher education curricula as entering freshman, 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 (PED) at the time of admission to the University.

Students wishing to enter the Elementary Education or Secondary 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 requirements if required (e.g. MATH 109, ED 104, ENGL 100)
- Completion of approved college level writing course
- Completion of ED 250 Human Development or an approved course, with a grade of "C" or better
- Achievement of a cumulative grade point average (GPA) of 2.5 or better
- Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) — Basic Skills Section
- Completion of a formal application by January 15 (Effective January 15, 1995)
- Applications will be processed only once a year
Students wishing to enter the Special Education program must meet the following minimum requirements at the time of application for consideration—admission is not guaranteed:

- Completion of 56 hours (Winter semester hours may be counted)
- Completion of all Western Michigan University Intellectual Skills Development requirements if required (e.g., MATH 109, ED 104, ENGL 100)
- Completion of approved college level writing course
- Completion of ED 250 Human Development or an approved course, with a grade of "C" or better
- Achievement of a cumulative grade point average (GPA) of 2.5 or better
- Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) — Basic Skills Section
- Documentation of thirty clock hours of experience with person(s) with a disability
- Completion of a formal application for admission to Special Education by January 15. Admission applications will be processed once a year.

TEACHER TESTING
Public Act 282 (1992) amends Section 1531 of Public Act 451 (1976), as amended by Public Act 98-377 (1998), to mandate 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 (reading, writing, math) test. Candidates for a secondary level teaching certificate must pass the appropriate major/minor area examination for each subject area in which they are to be certified. Candidates for an elementary level teaching certificate must pass the elementary certification examination, and the appropriate available subject area examination for each subject area, if any, for which they apply to be certified. The basic skills examination must be passed prior to enrolment in intern teaching. The elementary examination and the subject area examinations must be passed before a person is recommended for certification. 

Information regarding required teacher testing and test booklets may be obtained from the Office of Admissions and Advising, 2504 Sangren Hall.

APPEALS
A student aggrieved by an action taken within the College of Education has the right to appeal such action by filing an appeal form in the Office of Admissions and Advising 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 Certification
Jane Kramer, Certification Officer
Anita Tums, Certification Assistant
2104 Sangren Hall
387-3473

The Office of Teacher Certification processes all recommendations for certification and advises students seeking additional teaching endorsements. Further information about available certifications can be found under Types of Michigan Certificates elsewhere in this catalog.

CERTIFICATES

Michigan Teaching Certificates, Validity Level

There are two basic levels of Michigan teaching certificates currently available:

1. ELEMENTARY certificates issued after September 1, 1988 have the following validity: Kindergarten through fifth grade all subjects; kindergarten through eighth grade all subjects in a self-contained classroom; and sixth to, and including, eighth grade in the teachable major(s) and/or minor(s) for which a subject area test has been passed.

2. SECONDARY certificates issued after September 1, 1988 have the following validity: Seventh through twelfth grade in teachable major(s) and minor(s).

Types of Michigan Certificates

There are four basic types of Michigan regular and vocational certificates currently available: the required initial certificate, called the Provisional; the Professional certificate, which may eventually be obtained when the holder of a Provisional certificate meets the required initial certificate requirements as outlined in the "Professional Certificate" section below; the Temporary Vocational Authorization; and the Occupational Education certificate.

PROVISIONAL CERTIFICATE

A Provisional certificate is issued by the Michigan Department of Education upon satisfactory completion of an approved program, including a bachelor's degree, offered by a teacher preparation institution and payment of a $125.00 certificate fee. An overall grade point average of 2.5 is required at Western Michigan University for a Provisional certificate. Effective September 1, 1991, the Michigan Board of Education issues a teaching certificate to a person only after that person passes both a basic skills examination and an appropriate subject area examination for the subject in which certification is granted.

PROFESSIONAL CERTIFICATE

The requirements for the Professional certificate are:

1. Experience. The candidate must have taught successfully for the equivalent of three years following the issuance of an and within the grade level and subject area validity of the Provisional certificate. The success of the teaching experience is determined by the State Board of Education upon recommendation of the University and of the local school district(s) in which the candidate taught.

2. Planned Program. The candidate must earn eighteen semester hours after the issuance of the Provisional certificate in a course of study established and/or approved as a "planned program" by an approved teacher education institution. A person with an approved master's or higher degree (regardless of when earned) is not required to complete the eighteen semester hour program.

A "planned program" is a master's degree program, an additional subject endorsement (a major or minor program), an additional grade level examination, or an eighteen hour professional development program signed by the Certification Officer. Beginning September 1, 1993, Public Act 152 of 1992 was implemented. This act requires subject area testing prior to adding additional subject or grade-level endorsement(s).

WMU students who wish to be recommended for the Professional certificate by WMU must earn at least twelve semester hours of the eighteen semester hour program from WMU. Credits may not be earned by correspondence, from a two-year college, or from a non-accredited institution. The candidate must earn a grade equivalent to a "C" or better in all courses. All candidates for the Michigan Professional certificate must present a minimum of six semester hours of reading methodology credit for the elementary level certificate or three semester hours of reading methodology credit for the secondary level certificate. Such credit may have been completed at any stage of the candidate's college level preparation.

VALIDITY Span of Michigan Certificates

All initial Michigan Provisional certificates, Provisional Renewal certificates, Professional Education certificates, Occupational Education certificates, and Temporary Vocational Authorizations expire on June 30 of the appropriate year, determined by the month and year of issuance. The initial Michigan Provisional Certificate and the Temporary Vocational Authorization are valid for 5½ to 6½ years, depending on the month of issuance. A Provisional Renewal is valid for 2½ to 3 years depending on the month of issuance. Continuing certificates (issued prior to July 1, 1992) — predating the present Professional
6. Passing scores on the Michigan Basic Skills Test. Students must contact the Office of Field Placements at least one year prior to the semester in which they plan to complete their intern teaching requirements. The deadline for submitting intern teaching applications for the Fall Semester is October 1 of the preceding fall. The deadline for submitting intern teaching applications for the Winter Semester is April 1 of the preceding winter. Students may not select placements for intern teaching. Placements are made by the Office of Field Placements based on programmatic needs and are usually within a 50 mile radius from the main campus 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 EDUC 410 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 enrolment in courses requiring field experiences.

<table>
<thead>
<tr>
<th>Dorothy J. McGinnis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Center and</td>
</tr>
<tr>
<td>Clinic</td>
</tr>
<tr>
<td>3514 Sangren Hall</td>
</tr>
<tr>
<td>(616) 387-3470</td>
</tr>
</tbody>
</table>

The primary purpose of the Dorothy J. McGinnis Reading Center and Clinic is to provide educational and clinical experiences for students enrolled at Western Michigan University who are preparing to work with children and adults in reading. Special activities carried on by the clinic are designed to provide diagnostic and developmental and corrective instruction in reading for children and adults, and to furnish consultative services for teachers and schools in Southwestern Michigan. Furthermore, the clinic provides students in education an opportunity to observe and participate in the administration of educational and clinical tests, and the procedures employed in interviewing children, parents, and school personnel. The Center also houses the Reading Recovery Project. See Education and Professional Development course listings for reading courses offered.

<table>
<thead>
<tr>
<th>ELEMENTARY EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEMENTARY EDUCATION CURRICULUM</td>
</tr>
<tr>
<td>Advising: The Office of Admissions and Advising</td>
</tr>
<tr>
<td>2504 Sangren Hall</td>
</tr>
<tr>
<td>Bachelor of Arts or Bachelor of Science</td>
</tr>
</tbody>
</table>

Michigan Elementary Provisional Certificate

<table>
<thead>
<tr>
<th>Minimum Required Hours</th>
</tr>
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<tbody>
<tr>
<td>130 hours</td>
</tr>
</tbody>
</table>

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. (Courses listed in the elementary education program description with an * are approved for General Education credit. Two courses at the 300-400 level are required.)

MINORS/MAJORS APPROVED FOR ELEMENTARY EDUCATION

Students selecting the elementary education curriculum are required to complete the following minors: the Elementary Education Minor (EED, 26-31 hrs.), the Science and Mathematics Teaching Minor (SCM, 29 hrs.), and one additional minor selected from the following:

- Early Childhood Education (EEE), 20 hrs. (fourth minor only)
- Integrated Creative Arts (ICA), 24 hrs.
- English Elementary Education (ENG), 21 hrs.
- French (FRE), 30 hrs.
- German (GER), 29 hrs.
- Group Social Studies (SOE), 24 hrs.
- Physical Education Elementary (PFE), 24 hrs.
- Spanish (SPA), 29 hrs.

OR

Students may elect one of the following major and minor combinations:

- Art major (61 hrs.) with Elementary Education minor
- Music major** (65 hrs.) with Elementary Education minor
- Physical Education major (38 hrs.) with Elementary Education minor
- Speech Pathology and Audiology major** with Elementary Education minor. Teaching certificate awarded upon completion of master's degree.
- Special Education, Emotionally Impaired /Elementary major** (34 hrs.). Contact Department of Educational Studies to determine acceptable minors and desired level of preparation.
- Special Education, Mentally Impaired /Elementary major** (34 hrs.). Contact Department of Educational Studies to determine acceptable minors and desired level of preparation.
- Special Education, Visually Impaired /Elementary major** (34 hrs.). Contact Department of Educational Studies to determine acceptable minors and desired level of preparation.

Notes:** Special Education majors require admission to Special Education Curriculum. Music majors require admission to College of Fine Arts.*** Speech Pathology and Audiology majors are certified upon successful completion of the master's degree in speech pathology and audiology.

Requirements and approval for these required minors are available in the Office of Admissions and Advising. All students must have minor slips signed by an approved elementary education advisor.

GENERAL EDUCATION FOUNDATIONS

| ENGL 105 Thought and Writing | 4 hrs. |
| ENGL 282 Children's Literature | 4 hrs. |
| *HIST 211 American History Since 1877 | 3 hrs. |
| *PSCI 200 National Government | 3 hrs. |
**PROFESSIONAL EDUCATION PROGRAM (29 hours)**

An overall grade point average of 2.5 and no grade lower than “C” in any Professional Education course are required.

**Pre-Professional Foundations:** 3 hrs.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ED 250 Human Development</td>
<td>3</td>
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</tbody>
</table>

**Professional Education:** 14 hrs.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ED 309 Educational Psychology of Early Childhood (if Early Childhood minor)</td>
<td>3</td>
</tr>
</tbody>
</table>

(To be taken concurrently with ED 312)

Prerequisite: ED 250; admission to professional program in education

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ED 310 Educational Psychology of Childhood</td>
<td>3</td>
</tr>
</tbody>
</table>

(To be taken concurrently with ED 312 hrs.)

Prerequisite: ED 250; admission to professional program in education

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDT 347 Technology for Elementary Education</td>
<td>2</td>
</tr>
<tr>
<td>SPED 527 Learners with Disabilities in General Elementary and Middle School Programs</td>
<td>3 **</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 369 Early Childhood Classroom Organization and Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisite: ED 309

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 371 Classroom Organization and Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisite: ED 310

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ED 396 School and Society</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisite: Minimum 70 hours; satisfies Baccalaureate Writing Requirement

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>SPPA majors may substitute SPED 530</strong>; Physical Education majors/minors may substitute PEPR 346.</td>
<td></td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Professional Practicum</td>
<td>12</td>
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</tbody>
</table>

Prerequisite: All course work completed

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 410 Seminar in Education</td>
<td>2</td>
</tr>
<tr>
<td>ED 471 Intern Teaching: Primary Grades</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OTHER REQUIREMENTS</strong> University Intellectual Skills requirements in Reading, Quantification, Writing, College Writing, Baccalaureate Writing, and Computer Literacy must be met.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The College-level Writing Requirement may be met by selecting BIS 142 or ENGL 105 which are also approved for General Education credit. The Computer Literacy Requirement is met through the Science and Mathematics Teaching Minor courses: MATH 151, MATH 265, and MATH 352. Students not electing the Science and Mathematics Teaching Minor must select CS 105 or BIS 102 or FCS 225. The Baccalaureate Writing Requirement is met through ED 395.</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Students who have chosen the Elementary Education Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELEMENTARY MUSIC CURRICULUM</strong> Bachelor of Science</td>
<td></td>
</tr>
<tr>
<td>Margaret J. Hamilton, Advisor</td>
<td></td>
</tr>
<tr>
<td>School of Music</td>
<td></td>
</tr>
<tr>
<td>2146 Dalton Center</td>
<td></td>
</tr>
<tr>
<td>387-4672</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary Education Music</td>
<td></td>
</tr>
<tr>
<td>Grants certification to teach in elementary grade room (K-5) and music (K-8).</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNIVERSITY GENERAL EDUCATION REQUIREMENTS</strong></td>
<td>37</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MUSIC MAJOR</strong></td>
<td>40</td>
</tr>
<tr>
<td>Basic Music 160-161</td>
<td>6</td>
</tr>
<tr>
<td>Aural Comprehension 162-163-259</td>
<td>3</td>
</tr>
<tr>
<td>Contemporary Music 587</td>
<td>2</td>
</tr>
<tr>
<td>Music History and Literature 170-270-271</td>
<td>8</td>
</tr>
<tr>
<td>Conducting 215</td>
<td>1</td>
</tr>
<tr>
<td>Keyboard Musicianship 220-221-320-321</td>
<td>4</td>
</tr>
</tbody>
</table>

NOTE: All students in this curriculum will complete four semesters of keyboard, and/or pass an examination given by the Keyboard and Professional Education areas. No class piano course is to be counted twice. Students who do not qualify for entry in 220 must complete 120 and/or 121 as a deficiency. Students who test out of Advanced Keyboard Musicianship (321) are urged to consider taking Basic Music (260); American Music (350); Non-Western Music (352); Voice (200); or courses not taken in the Choral or Instrumental elective areas.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voice Class</strong></td>
<td>4</td>
</tr>
<tr>
<td>Four semesters of voice, including one of Vocal Techniques for Music Educators (117) and one at 100- or 200-level voice. Only one voice class is to be counted per semester. Choral Ensemble 107, 106, or 112</td>
<td>2</td>
</tr>
<tr>
<td>Two semesters of major or all choral ensembles plus two additional semesters of Grand Chorus. Only one ensemble is to be counted per semester.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>General Music Methods 336</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choral Elective</td>
<td></td>
</tr>
<tr>
<td>Select one of the following: Choral Conducting and Literature (330); Choral Techniques (339); Choral Methods (340)</td>
<td>2</td>
</tr>
</tbody>
</table>

Instrument Elective

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select two of the following: Fundamentals of Guitar (126); Instruments of the Band and Orchestra (279); Instruments of the Classroom (280)</td>
<td>2</td>
</tr>
<tr>
<td>Teaching and Learning in Music (348)</td>
<td>2</td>
</tr>
<tr>
<td>Music for the Special Student (385)</td>
<td>2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELEMENTARY EDUCATION MINOR</strong></td>
<td>28</td>
</tr>
</tbody>
</table>

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEG 105</td>
<td>4</td>
</tr>
<tr>
<td>SCI 180</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Courses (to be taken in this sequence):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 150</td>
<td>4</td>
</tr>
<tr>
<td>Admission to Professional Education Program for the following:</td>
<td></td>
</tr>
<tr>
<td>ED 312</td>
<td>3</td>
</tr>
<tr>
<td>ED 351</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 362</td>
<td>3</td>
</tr>
<tr>
<td>ED 407</td>
<td>3</td>
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</tbody>
</table>

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 369</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 373</td>
<td>4</td>
</tr>
</tbody>
</table>

Required course

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Professional Education Program</strong></td>
<td>17</td>
</tr>
</tbody>
</table>

Select two of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 250</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>EDT 347</td>
<td>3</td>
</tr>
<tr>
<td>SPED 527</td>
<td>2</td>
</tr>
<tr>
<td>ED 369</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>ED 371</td>
<td>3</td>
</tr>
<tr>
<td>ED 395</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Practicum</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 410</td>
<td>2</td>
</tr>
<tr>
<td>OR</td>
<td>4 or 5-10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baccalaureate Writing Requirement Students who have chosen the Elementary Music Curriculum major will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELEMENTARY EDUCATION MINORS</strong> These 26-31 hour interdepartmental programs are designed to prepare students to assume teaching responsibilities in a self-contained classroom in grades K-8.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 351 Literacy Development (to be taken concurrently with ED 347)</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 282* AND ED 312</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 352 Literacy and Language Arts in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 282* AND ED 312 and ED 351</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 352 Teaching of Elementary/Middle School Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: “C” grade in MATH 150, 151, 265</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 401 Teaching Elementary School Science</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: ED 310 (ED 309 Early Childhood), all</td>
<td></td>
</tr>
</tbody>
</table>
Elementary Education Minor with Science and Mathematics Teaching Minor and Third Minor of French, German, Spanish, or Group Social Studies

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select TWO courses from the following:

ART 200 The Creative Process Through Art .................................. 3 hrs.
MUS 240 Music for the Classroom Teacher ........................................ 3 hrs.
THEA 564 Drama in Education ............................................................... 4 hrs.

Required Courses—Admission to Professional Program for the following:

ED 312 The Foundations of Reading Instruction (to be taken concurrently with ED 309 or ED 310) .......................................................... 3 hrs.
ED 351 Literacy Development (to be taken concurrently with ED 347) .......................................................... 3 hrs.
ED 352 Literacy and Language Arts in the Content Areas ......................................................... 3 hrs.
MATH 352 Teaching of Elementary/Middle School Mathematics ........................................... 3 hrs.
ED 401 Teaching Elementary School Science ......................................................... 3 hrs.
ED 402 Practicum in Science and Mathematics Teaching ......................................................... 2 hrs.
ED 407 Elementary Social Studies and Multicultural Education ............................................ 3 hrs.

Elementary Education Minor with Science and Mathematics Teaching Minor and Third Minor of French, German, Spanish, or Group Social Studies

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.
ENGL 373 Reading as a Psycholinguistic Process ......................................................... 4 hrs.

Elementary Education Minor with a Major of Art, Music, or Physical Education

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of Speech Pathology and Audiology

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Required courses—to be taken in this sequence:

PHYS 105 Physical Geography .......................................................... 4 hrs.
SCI 180 Physical Science for Elementary Educators ............................................ 3 hrs.
PHYS 106 Elementary Physics Laboratory ......................................................... 1 hr.
MATH 150 Number Concepts for Elementary/Middle School Teachers (minimum "C" grade) ......................................................... 4 hrs.

Elementary Education Minor with a Major of Science, Mathematics Teaching Minor

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.
ENGL 373 Reading as a Psycholinguistic Process ......................................................... 4 hrs.

Elementary Education Minor with a Major of Plant Science

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of Social Science

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of Spanish

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of History

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of Psychology

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of Economics

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of Sociology

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of International Studies

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.

Elementary Education Minor with a Major of Cultural Studies

Minimum 2.0 GPA required in this minor. The courses in this minor cannot be used as part of any other minor or major.

Select ONE course from the following:

ENGL 369 Writing in the Elementary School ......................................................... 4 hrs.
Teachers (minimum "C" grade) ........................................ 4 hrs.
Prerequisite: MATH 110 OR adequate performance on placement test

Admission to the Professional Program for the following:
ED 312 The Foundations of Reading Instruction (to be taken concurrently with ED 309 or 310) .................. 3 hrs.
Prerequisite: ED 250
ED 407 Elementary Social Studies and Multicultural Education ........................................ 3 hrs.
Prerequisite: (a) Minimum of 75 earned hours; (b) ED 309 or ED 310; (c) ED 312; (d) GEOG 102* OR HIST 211* OR PSCI 200*

* Approved for General Education credit. See major advisor.

Select ONE course from the following:
ED 351 Literacy Development (to be taken concurrently with ED 347) .................. 3 hrs.
Prerequisite: ENGL 282* AND ED 312

ED 352 Literacy and Language Arts in the Content Areas .................. 3 hrs.
Prerequisite: ENGL 282* AND ED 312

Select ONE courses from the following:
ENGL 365 Writing in the Elementary School .................. 4 hrs.
Prerequisite: Admission to upper level professional education
ENGL 373 Reading as a Psycholinguistic Process .................. 4 hrs.
Prerequisite: Admission to upper level professional education

Required: Additional course to be approved by education advisor (e.g. ED 200, ED 396) .................. 3 hrs.

INTEGRATED CREATIVE ARTS MINOR
Advisor: Office of Admissions and Advising 2504 Sangren Hall
(616) 387-3474
This 24-hour interdepartmental program is offered to preserve elementary school teachers and special education teachers. The program stresses the integration of all the arts as a primary motivating agent in the teaching of all subject areas. It also emphasizes the stimulation and development of creative problem-solving behaviors.

A minor slip is required. Minimum 2.0 GPA required in this minor.

*ART 148 Direct Encounter with the Arts or
*DANC 148 Direct Encounter with the Arts or
*MUS 148 Direct Encounter with the Arts or
*THEA 148 Direct Encounter with the Arts or

*ED 230 The Nature of Creativity** .................. 3 hrs.

*DANC 290 Dance in the Elementary School .................. 3 hrs.
MUS 240 Music for the Classroom Teacher .................. 3 hrs.

*ART 200 The Creative Process Through Art .................. 4 hrs.

*THEA 564 Drama in Education .................. 4 hrs.
ED 430 Creativity in the Elementary School .................. 4 hrs.

*ED 309 Educational Psychology: Early Childhood .................. 3 hrs.
*ED 350 Young Children, Their Families, and Their Society .................. 3 hrs.
*ED 351 Literacy Development .................. 3 hrs.
*ED 369 Early Childhood Classroom Organization and Management .................. 3 hrs.
*ED 409 Seminar in Early Childhood Education .................. 1 hr.
*ED/FCS 575 Administration of Child Development Centers** .................. 3 hrs.
*ED 470 Intern Teaching (Early Childhood) .................. 5 hrs.

* This course is required for the Early Childhood minor only.

SECONDARY EDUCATION
SECONDARY CURRICULA
Bachelor of Arts or Bachelor of Science
State Secondary Provisional Certificate
(For the preparation of teachers in Grades 7–12)
Minimum hours required ............... 122 hrs.
This curriculum may require more than 122 credit hours.

A minimum grade point average of 2.5 must be attained for advancement from the Pre-Education (PED) curriculum to the Secondary Education (SED) curriculum. A minimum grade point average of 2.5 must be attained for enrollment in Intern Teaching and for recommendation for the teaching certificate. PED curriculum students are not permitted to enroll in upper level professional education courses until admission requirements are met and application is approved.

UNIVERSITY GENERAL EDUCATION REQUIREMENT (Minimum 40 hours)
The University General Education Requirement is 37 hours. An additional 3 hours from the General Education Program and/or courses in language and literature, science, or social studies areas (non-professional courses only).

PROFESSIONAL EDUCATION PROGRAM (34 hours)
Minimum grade of "C" required in each of these courses and a grade point average of 2.5 maintained in all courses after admission to teacher education. To be taken in sequence.

Secondary Education for students with majors in the College of Arts and Sciences
ED 250 Human Development .................. 3 hrs.
(Prerequisites: ENGL 101 or 102, or PSY 101)
ED 300 The Adolescent and School Learning .................. 3 hrs.
Prerequisite: ED 250
ED 301 Secondary Content Literacy .................. 3 hrs.
Prerequisite: ED 300, must be at least a junior. To be taken concurrently with ED 302.
ED 302 Teaching and Learning in the Secondary School .................. 4 hrs.
Prerequisite: ED 300, must be at least a junior. To be taken concurrently with ED 301.
ED 303 Organization and Management in Education .................. 3 hrs.
Prerequisites: ED 301 and ED 302
ED 396 School and Society .................. 3 hrs.
Prerequisite: ED 300

*ED 398A "Methods of teaching" course in either the major or minor (both, if required by the respective major and minor departments.)

EARLY CHILDHOOD EDUCATION MINOR
Advisor: Office of Admissions and Advising 2504 Sangren Hall
(616) 387-3474
The completion of a minor in Early Childhood Education offers a special professional sequence for kindergarten through eighth grade certification with an endorsement specializing in teaching young children. Taken as a fourth minor, the program leads to the Early Childhood Specialist endorsement on an elementary teaching certificate. The Early Childhood minor requires 21 hours.

Prerequisite: ED 250 Human Development and admission to professional program.
Students will have an intern teaching assignment one and one-half semesters (18 hours), which will be done in the Kalamazoo area or specified partnership school, where early childhood faculty are available. Students with an Early Childhood minor should satisfactorily complete the Elementary Education Curriculum requirements, with the following additional courses or substitutions:

Electives** .................. 1–4 hrs.

* Approved for General Education credit.
** ED 230 is geared to personal creative development and is not restricted to Integrated Creative Arts Minor students. Students enrolled in the minor must take ED 430 (Creativity in the Elementary School) after they have taken all other courses in this group minor.

SCIENCE AND MATHEMATICS TEACHING MINOR
Advisor: College of Education
Office of Admissions and Advising
2504 Sangren Hall
The minor is open only to students enrolled in the elementary education or special education curriculum. Transfer students will need to have their previous course work in science and mathematics evaluated by a College of Education advisor prior to enrolling in this minor. This minor results in an endorsement in science with a passing score on the MTTC science subject area test. To obtain information about an additional mathematics endorsement, contact the Department of Mathematics.
Mathematics courses must be taken in sequence. Minimum 2.0 GPA required in this minor.

Required Courses:
SCI 170 Chemistry for Elementary Educators I .................. 3 hrs.
SCI 270 Life Science for Elementary Educators II .................. 3 hrs.
SCI 180 Physical Science for Elementary Educators I .................. 3 hrs.
SCI 280 Physical Science for Elementary Educators II .................. 3 hrs.
SCI 190 Earth Science for Elementary Educators I .................. 3 hrs.
SCI 290 Earth Science for Elementary Educators II .................. 3 hrs.

*MATH 150 Number Concepts for Elementary/Middle School Teachers .................. 4 hrs.
*MATH 151 Geometry for Elementary/Middle School Teachers .................. 3 hrs.
*MATH 265 Probability and Statistics for Elementary/Middle School Teachers .................. 4 hrs.

*A "C" grade is required in MATH 150, 151, and 265.
ED 475 Intern Teaching
(Secondary) ................. 10
Prerequisite: All of the
above and successful
completion of all course work.

ED 410 Seminar in Education ....... 2
(Must be taken concurrently
with ED 475)
Note: ED 475 and ED 410 comprise the "intern
teaching semester."

Professional Education Program for Art and
Music majors—See the Department of Art
and the School of Music in this catalog.
Professional Education Program for Teacher/Coach and Health Education—See
the Department of Health, Physical
Education, and Recreation in this catalog.
Professional Education Program for Career
and Technical Education, Industrial
Education, and Secondary Education in
Business—See the Department of Family
and Consumer Sciences in this catalog.

BACCALAUREATE WRITING
REQUIREMENT
Students who have chosen the Secondary
Curriculum will satisfy the Baccalaureate
Writing Requirement by successfully
completing ED 395 School and Society.

MAJOR/MINOR REQUIREMENTS
A minimum of one major (at least 30 semester
hours or 36 for a group 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.
Art Teaching (ATE)
Biology (BIO) — Science Minor (SCI)
Career and Technical Education Majors:
Vocational Certification required**
Family and Consumer Sciences (FSE),
formerly Home Economics (HEE)
Secondary Education in Business (SEB)
Secondary Education in Marketing (SEM)
Industrial Technology (IDT) — This major
requires one of the following minors:
Drafting (DRA)
Graphic Arts (GRA)
Metalworking (MWK)
Power/Auto Mechanics (POW)
Woodworking (WPK)
Chemistry (CHM)
Earth Science (EAR)
English (ENG)
Geography (GEG) — (See advisor for required
minor)
Health Education (HET)
History (HIS) — Social Science Minor (SOS)
Industrial Education Technology Majors:
Non-Vocational Certification
Industrial Technology (IDT)
Technology and Design (TAD)
Language Department Majors:
French (FREN)
German (GER)
Latin (LAT)
Spanish (SPA)
Mathematics (MAT)
Music Education (MUE) (includes vocal or
instrumental minor)

Minors — At least 20 semester hours. Choose one.

Physical Education: Teacher/Coach (PYE)
Physics (PHY)
Political Science (POL) — Social Science
Minor (SOS)
Secondary Education in Business (SEB):
Non-vocational certification
Denotes K-12 certification given in that
subject.
**See advisor for vocational certification
requirements.

Physical Education: Exceptional Child (PEC)
— With PYE major only.

College of Education Course (ED)
ED 399 Field Experience (Community
Participation) 2-8 hrs.
A program of independent study combining
academic work in education with social,
environmental, civic or political field work.
Prerequisites: A written outline of the student’s
project, approved by a faculty supervisor, and
approval from the office of the dean.

COUNSELOR
EDUCATION AND
COUNSELING
PSYCHOLOGY
Joseph R. Morris, Chair
Mary Z. Anderson
Nicholas A. Andreadis
Gary H. Bischof
Robert O. Brinkerhoff
Stephen E. Craig
James M. Croteau
Lionne E. Duncan
Elson S. Floyd
John S. Geisler
Arlen R. Gullickson
Suzanne M. Hedstrom
Alan J. Hovestadt
Norman M. Kiracofe
Kelly A. McDonnell
Jerry E. McLaughlin
Patrick H. Munley
Theresa M. O’Halloran
David W. Parrott
Theresa A. Powell
Matthew G. Rushlau
Diane K. Swartz
Donna M. Talbot
Jennipher L. 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: community
counseling, rehabilitation counseling, school
counseling, and student affairs in higher
education. Most of the courses are open to
graduate students only, but the following
courses are open to qualified undergraduates.

Counselor Education and Counseling Psychology
(CECP)
CECP 483 Treating Diverse Clients in
Employee Assistance Programs
3 hrs.
This course emphasizes increasing
knowledge, understanding, and awareness of
diversity among course participants and the
contemporary American work force.
Significant attention is devoted to treating
racial minorities, women,
gay/lesbian/bisexuals, older adults, persons
with various religious affiliations, and the
disabled within the context of Employee
Assistance Programs. Open only to Employee
Assistance Academic Program majors.

CECP 520 Foundations of Rehabilitation
Counseling
3 hrs.
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,
postemployment, and advocacy. Major
emphasis is given to the operation of the state
vocational/educational system.

CECP 583 Workshops in Counselor Education
and Counseling Psychology
1-4 hrs.
Workshops designed to enhance skill
development related to Counselor Education and
Counseling Psychology practices. Open
to all students, but is not intended for
counseling majors. May be repeated for credit.
EDUCATIONAL STUDIES

The Department of Educational Studies offers undergraduate programs in teaching and related fields. The department provides advising to all students interested in teaching, learning, and leadership. Students interested in teaching courses are advised by a faculty member in Educational Leadership. Educational Leadership is one of the areas of specialization within the department. The educational technology faculty provides courses in educational technology. The special education program is designed to prepare teachers for the K-12 level of special education. Students completing the special education curriculum and who successfully pass the Michigan Test for Teaching Certification earn an Elementary Provisional Teaching Certificate in one of the areas of specialization. The educational technology and special education curricula are elective courses for all education majors seeking to integrate technology into their teaching methodologies.

Admission

Students who desire to major in Special Education must be admitted to the pre-education curriculum of the College of Education. 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 January each year after review of all applications by a departmental faculty committee. Each year the Department of Educational Studies establishes the maximum number of new students who can be admitted to each of 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 Pre-Education Curriculum.
2. Attainment of junior status (at least 56 semester hours completed or in process at the time of application).
3. Attainment of a minimum 2.5 grade point average.
4. Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) — Basic Skills Section.
5. Completion of a minimum of 50 clock hours of documented contact with a person(s) with disabilities. Students must contact the department to secure the appropriate forms for documenting this experience or to secure assistance in meeting this requirement.
6. Submission of an application for admission to the Special Education Professional Education Curriculum by the announced date.

All completed applications will be evaluated using the following specific criteria:

1. Forty percent weighting based on grade point average at the time of application.
2. Thirty percent weighting based on performance on the Basic Skills Test (state required literacy test).
3. Ten percent weightings each for semester hours completed, under-represented group membership, and other (subjective) criteria.

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 department provides 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 encouraged to meet with College of Education advisors and Special Education advisors early in their college careers.

Intern Teaching

Students complete two semesters of intern teaching, one in General Education and one in Special Education. Intern Teaching placement is only made within prescribed areas in Southwest Michigan, Detroit area, and Germany. Intern Teaching placement in or near home school districts should not be anticipated or expected.

SPECIAL EDUCATION CURRICULUM

Bachelor of Science or Bachelor of Arts

State Elementary Provisional Certificate

Minimum Hours Required .......... 130 hrs.

UNIVERSITY GENERAL EDUCATION REQUIREMENT (40 hrs.)

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.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Special Education Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society, which is included in the curriculum requirements for each of the special education endorsements.

ACADEMIC MINOR (20-24 hrs.)

For students interested in working primarily with students with disabilities at the elementary level, select from the following minors approved for Elementary Education certification: Creative Arts, Early Childhood Education, English, French, German, Group Social Science, Physical Education, Science and Mathematics Teaching Minor, Spanish, Special Physical Education. For students interested in working primarily with students with disabilities at the secondary level, select from the "Secondary Minors" section of this catalog.

ELECTIVES

To be selected as needed to reach the 130 hours required for the degree.
ENROLLMENT MAJOR
Students who have chosen the Special Education Curriculum will complete at least one endorsement major; the requirements for each are described below.

ENROLLMENT — EMOTIONALLY IMPAIRED-K-12
For the preparation of teachers who wish to work primarily with students with emotional impairments.

CURRICULUM REQUIREMENTS (34 hrs.)

| ART  | The Creative Process through Art | 3 |
| COM  | Interpersonal Communication I | 3 |
| COM  | Interpersonal Communication II | 3 | OR |
| ED  | Public Speaking | 3 |
| ED  | Human Development | 3 |
| ED  | The Foundations of Reading Instruction | 3 |
| ED  | Literacy Development | 3 |
| ED  | Literacy and Language Arts in the Content Areas | 3 |
| ED  | School and Society | 3 |
| ENGL | Children's Literature | 4 |
| MATH | Structure of Arithmetic | 4 |
| MUS  | Music in Special Education | 3 | OR |
| MUS  | Music for the Classroom Teacher | 3 |
| PEPR | Physical Education for the Elementary Classroom Teacher | 2 |
| PSY | General Psychology | 3 | * |

COURSE REQUIREMENTS IN EMOTIONALLY IMPAIRED MAJOR 30 hrs.
A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Emotionally Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements.

NOTE: Students must see a department advisor regarding the sequence in which the courses must be completed.

| SPED  | Teaching Practicum in Special Education | 3 |
| SPED  | Introduction to Special Education | 3 |
| SPED  | Classroom Practicum in Special Education | 3 |
| SPED  | Assessment and Prescription in Special Education | 3 |
| SPED  | Curriculum and Instruction in Special Education | 3 |
| SPED  | Technology in Special Education | 3 |
| SPED  | Introduction to Classroom Management | 3 |
| SPED  | Consultation and Communication in Special Education | 3 |
| SPED  | Introduction to Emotional Impairments | 3 |
| SPED  | Program Practicum in Special Education: EI | 3 |
| SPED  | Education of Learners with Emotional Impairment | 3 |
| SPPA | Communication Disorders and Sciences | 3 | * |

ENROLLMENT — MENTALLY IMPAIRED-K-12
For the preparation of teachers who wish to work primarily with students with mental impairments.

CURRICULUM REQUIREMENTS (34 hrs.)

| ART  | The Creative Process through Art | 3 |
| COM  | Interpersonal Communication I | 3 |
| COM  | Interpersonal Communication II | 3 | OR |
| ED  | Public Speaking | 3 |
| ED  | Human Development | 3 |
| ED  | The Foundations of Reading Instruction | 3 |
| ED  | Literacy Development | 3 |
| ED  | Literacy and Language Arts in the Content Areas | 3 |
| ED  | School and Society | 3 |
| ENGL | Children's Literature | 4 |
| MATH | Structure of Arithmetic | 4 |
| MUS  | Music in Special Education | 3 | OR |
| MUS  | Music for the Classroom Teacher | 3 |
| PEPR | Physical Education for the Elementary Classroom Teacher | 3 |
| PSY | General Psychology | 3 | * |

COURSE REQUIREMENTS IN MENTALLY IMPAIRED MAJOR (30 hrs.)
A minimum grade of "C" must be completed. Courses marked with * are approved for General Education and are not included in the hour totals for the following requirements.

NOTE: Students must see a department advisor regarding the sequence in which the courses must be completed.

| SPED  | Teaching Practicum in Special Education | 3 |
| SPED  | Introduction to Special Education | 3 |
| SPED  | Classroom Practicum in Special Education | 3 |
| SPED  | Assessment and Prescription in Special Education | 3 |
| SPED  | Curriculum and Instruction in Special Education | 3 |
| SPED  | Technology in Special Education | 3 |
| SPED  | Introduction to Classroom Management | 3 |
| SPED  | Consultation and Communication in Special Education | 3 |
| SPED  | Introduction to Mental Retardation | 3 |
| SPED  | Program Practicum in Special Education: MR | 3 |
| SPED  | Education of Learners with Moderate and Severe Retardation | 3 |
| SPPA | Communication Disorders and Sciences | 3 | * |

Intern Teaching (22 hrs.)

| ED  | Intern Teaching: Elementary/Middle School | 10 |
| ED  | Seminar in Education | 2 |
| SPED | Intern Teaching in Special Education: Mentally Impaired | 10 |

Educational Technology Courses (EDT)
The elective undergraduate educational technology courses provide learning opportunities for the integration of technology into teaching practices of education majors. There is no endorsement or certification in educational technology at the undergraduate level.

EDT 540 Introduction to Computing and Technology for Productivity 3 hrs.
This course is a basic introduction to computing and technology for productivity software. Designed for the beginning computer user, this course covers necessary information for the student to operate successfully a computer and other technology devices (CD-ROM, laser disc player, etc.). Operation includes running programs, accessing information, data organization, and publication. A variety of computer software programs that enhance personal productivity will be presented. Students will be provided with basic "hands-on" activities with many different software applications. Upon completing this course, the student will have a solid understanding of computer components and terminology. The student will be aware of the various types and uses of software for learning and productivity and will be able to evaluate educational software for classroom application.

EDT 541 Telecommunications for Teaching and Learning 3 hrs.
The course focuses on the implementation of telecommunication for teaching and learning. Telecommunication technologies used in the field of education and emerging technologies will be presented. Students enrolled in this course will learn to operate various telecommunication tools to support their own personal productivity, teaching, and instruction. Students will also be equipped with skills necessary to review studies pertaining to the application of technology in education. Many of the telecommunication methods presented in this course will be used to deliver the course material. Prerequisite: EDT 540 or equivalent.

EDT 542 Teaching with Technology: Design and Development for Learning 3 hrs.
This course focuses on the design, development, and integration of educational technology methods for teaching, learning, and personal productivity. This course provides an overview of learning theory and instructional design principles related to the development of educational technology programs. A review of the theory of individual learning styles and application of technology will be presented. Upon completion of this course, students will possess knowledge in the planning, delivery, and evaluation of instruction through the implementation of various technologies. Students will design and develop educational technology products (computer based, hypertext, multimedia, WWW, etc.) based upon learning theory and instructional design principles. Prerequisite: EDT 540 or equivalent.

Special Education Courses (SPED)

SPED 474 Intern Teaching in Special Education 10 hrs.
This final field experience is open only to 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. All courses except ED 410 and ED 471 must be completed prior to Intern Teaching in Special Education. 
Prerequisites: Completion of all professional education requirements. Consent of department.

SPED 500 Topical Issues in Educating Learners with Disabilities 1-4 hrs.
This course provides a survey or in-depth coverage of current issues related to the education of learners with disabilities. The course may be repeated for credit. 
Prerequisite: Consent of department.

SPED 504 Teaching Practicum in Special Education 1 hr.
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. 
Prerequisites: Consent of department and concurrent enrollment in SPED 533 and 534.

SPED 512 In-Service Professional Development 1-4 hrs.
This course is designed for teachers, counselors, psychologists, social workers and others interested in studying selected aspects of special education at appropriate locations, such as state hospitals or schools. A variety of instructional experiences are provided, including conferences. Credit not applicable toward a graduate degree in Special Education.

SPED 527 Learners with Disabilities in General Education and Middle School Programs 3 hrs.
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 adaptations and modifications, and available resources and services for these learners are stressed. Prerequisites: Consent of department. Not acceptable for Special Education majors.

SPED 529 Learners with Disabilities in General Education and Secondary Programs 3 hrs.
This course is designed for prospective and practicing middle school and secondary teachers. Emphasis is placed on meeting the needs of learners with disabilities in middle school and secondary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisites: Consent of department. Not acceptable for Special Education majors.

SPED 530 Introduction to Special Education 3 hrs.
This course introduces students to the characteristics and needs of learners with sensory, physical, mental, emotional, and learning disabilities. Students develop an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of disability. 
Prerequisite: Consent of department.

SPED 531 Classroom Practicum in Special Education 1 hr.
This course provides students with an opportunity to work in an elementary, middle school, or secondary classroom with learners who have disabilities. It is intended to provide students with an awareness of the nature and needs of these pupils and the role of the teacher in working with such learners. Graded on a credit/no credit basis. 
Prerequisite: Consent of department and concurrent enrollment in SPED 530.

SPED 532 Assessment, Teaching, and Curriculum Adaptations for Infants, Preschoolers, and Children Who Are Visually Impaired 3 hrs.
This course is designed to examine how to assess, teach, and modify existing curriculum for infants, preschoolers, and young school-aged children who are blind. This course combines these three elements and prepares teachers for the role of itinerant or classroom teacher as well as for the role of consultant for parents and other teachers.

SPED 533 Assessment and Prescription in Special Education 3 hrs.
The major focus of this course is understanding the Clinical Teaching Model. Emphasis is placed on the relevance of assessment and prescription to the teaching of learners with disabilities. 
Prerequisite: Consent of department and concurrent enrollment in SPED 504/534.

SPED 534 Curriculum and Instruction in Special Education 3 hrs.
This course focuses on application of the Clinical Teaching Model to the education of learners with mild and moderate disabilities. Emphasis is placed on implementation and evaluation activities. Additional topics include: service delivery systems, roles of teachers and ancillary personnel, legal requirements, and major issues confronting the field of special education. 
Prerequisites: Consent of department and concurrent enrollment in SPED 504 and 533.

SPED 537 Technology in Special Education 3 hrs.
This course is designed to provide specific information, exposure, and experience related to a variety of ways that current and emerging technologies may be used to improve the education and lives of learners with disabilities. 
Prerequisite: Consent of department.

SPED 538 Introduction to Classroom Management 3 hrs.
This course deals with methods of managing classroom behavior and dealing with specific behavior problems. Classroom management strategies will be discussed and related to the establishment of a positive classroom climate. Diagnostic and prescriptive techniques will be applied to problems of aggression, conduct, withdrawal, hyperactivity, distractibility, and impulsivity. 
Prerequisite: Consent of department.

SPED 539 Consultation and Communication in Special Education 3 hrs.
This course will provide an introduction to consultation and communication skills needed by special educators as they work with other professionals and parents. 
Prerequisite: Consent of department.

SPED 540 Introduction to Mental Retardation 3 hrs.
This course provides an introduction to the field of mental retardation. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. 
Prerequisite: Consent of department and concurrent enrollment in SPED 545.

SPED 541 Program Practicum in Special Education: MR 1 hr.
This course provides the student with guided observations of school and community agencies serving individuals with mental retardation. It provides an awareness of a continuum of special education placements and the role of non-school agencies serving persons with mental retardation and their families. Graded on a credit/no credit basis. 
Prerequisite: Consent of department and concurrent enrollment in SPED 540.

SPED 542 Introduction to Severe Impairments 3 hrs.
This course provides basic knowledge about individuals with severe mental, physical, emotional, and/or sensory disabilities. Biomedical, legal, sociological, and educational perspectives are examined. Special emphasis is placed on organization and management of educational programs, as well as assessment and instruction of pupils. 
Prerequisite: Consent of department.

SPED 544 Educating Individuals with Severe Impairments 3 hrs.
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. 
Prerequisite: Consent of department.

SPED 545 Education of Learners with Moderate and Severe Retardation 3 hrs.
This course focuses on understanding the ways in which teachers organize curriculum and implement assessment and instruction to ensure maximum learning for students with moderate and severe mental retardation. 
Prerequisite: Consent of department and concurrent enrollment in SPED 540.

SPED 550 Introduction to Emotional Impairments 3 hrs.
This course provides an introduction to the field of emotional impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. 
Prerequisite: Consent of department and concurrent enrollment in SPED 575.

SPED 571 Program Practicum in Special Education: EM 1 hr.
This course provides the student with guided observations of school and community agencies serving individuals with emotional impairments. It provides awareness of a continuum of special education placements and the role of non-school agencies serving persons with emotional impairments and their families. Graded on a credit/no credit basis. 
Prerequisite: Consent of department and concurrent enrollment in SPED 570.

SPED 575 Education of Learners with Emotional Impairments 3 hrs.
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. 
Prerequisite: Consent of department and concurrent enrollment in SPED 570.

SPED 580 Introduction to Learning Disabilities 3 hrs.
This course provides an introduction to the field of learning disabilities. Historical perspectives, definitions, service delivery
FAMILY AND CONSUMER SCIENCES

Linda L. Dannison, Chair
Karen R. Blaisure
Marlene R. Breu
Mozhdeh Bruss
Eileen Buckley
E. Bryce Dickey
Barbara J. Frazier
Chantel L. S. Lumpkin
Mary Jo Peterson
Maija Petersora
Andreas G. Philaretou
Bernard S. Proeschel
Anozoo Rofjani
Nancy H. Steenhans
Patricia B. Viard
Caril A. Woloszyk
Richard W. Zinser

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:
Dietetics
Family and Consumer Sciences Teacher Education
Family Studies—Family Studies Emphasis
Family Studies—Child Development Emphasis
Food Service Administration
Industrial Technology
Interior Design
Occupational Education Studies
Secondary Education in Business
Secondary Education in Marketing
Technology and Design
Textile and Apparel Studies—Merchandising Emphasis
Textile and Apparel Studies—Design and Development

Minors offered in the department include:
Family Life Education
Industrial Technology
Occupational Child Care
Occupational Foods
Secondary Education in Marketing
Textile and Apparel Merchandising
Vocational-Technical Drafting
Graphic Arts
Metalworking
Woodworking
Academic Advising
College of Education Undergraduate Advising
2504 Sangren Hall
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 an advisor.

Work Experience Programs

Programs offered in 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.
FAMILY STUDIES (FST)

Bachelor of Science

The family studies major has two emphases: Family Studies and Child Development. The Family Studies Emphasis is an interdisciplinary program designed with flexibility for students who desire leadership positions in public and private programs related to children and families. This program is also intended for those desiring to pursue a master's degree program in family and consumer sciences, counseling, and other related fields. A minimum of 122 hours is required for this curriculum. The Child Development Emphasis will prepare individuals for careers in child development centers, Head Start, Michigan School Readiness, and other preschool programs, as well as meeting the qualifications to be program director in a child care center or as parent educators. A minimum of 122 hours is required for this curriculum, including a six-hour supervised internship.

FAMILY STUDIES EMPHASIS

1. General Education Requirements — 37 hours

2. Required Core Courses — 34 hours
   - FCS 100 Career Seminar — FST
   - FCS 202 Field Experience
   - FCS 209 Consumer Education
   - FCS 210 Human Sexuality
   - FCS 214 Child Development
   - FCS 215 Adolescent Development
   - FCS 225 Computer Applications
   - FCS 429 Internship
   - FCS 575 Admin. of Child Devel.
   - PEPR 241 Phys. Ed. & Rec. for Teachers
   - PEPR 249 Internship
   - FCS 415 Effective Parenting
   - FCS 413 Later Life Family Relationships
   - CS 105 Introduction to Computers
   - CS 266 Food and Society
   - FCS 318 Intimate Relationships
   - FCS 410 Teaching Family Life Education
   - FCS 413 Later Life Family Relationships
   - FCS 590 Projects/Problems in FCS

3. Required Related Courses — 31 hours
   - FCS 150 Family and Consumer Sciences
   - FCS 156 Introduction to Family Life
   - FCS 220 Consumer Science
   - FCS 249 Special Populations
   - FCS 254 Career Planning
   - CMD 149 Social Science

4. Electives — As needed for graduation total of 122 hours.

CHILD DEVELOPMENT EMPHASIS

1. General Education Requirements — 37 hours

2. Required Core Courses — 34 hours
   - FCS 100 Career Seminar — FST
   - FCS 202 Field Experience
   - FCS 209 Consumer Education
   - FCS 210 Human Sexuality
   - FCS 214 Child Development
   - FCS 215 Adolescent Development
   - FCS 225 Computer Applications
   - CS 105 Introduction to Computers
   - FCS 266 Food and Society
   - FCS 318 Intimate Relationships
   - FCS 410 Teaching Family Life Education
   - FCS 413 Later Life Family Relationships
   - FCS 415 Effective Parenting
   - *Students in the child development emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 415.

3. Related Professional Courses — 25-27 hours
   - FCS 429 Internship
   - FCS 575 Admin. of Child Devel.
   - FCS 413 Later Life Family Relationships
   - FCS 415 Effective Parenting
   - *Students in the family studies emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 415.

4. Electives — As needed for graduation total of 122 hours.

FOOD SERVICE ADMINISTRATION (FSA)

Bachelor of Science

The food service administration curriculum is scientifically oriented for in-depth study of foods in relation to the business field. Students may pursue supervisory/managerial careers in commercial food institutions in the equipment field, food research, public utility companies, mass media productions, quality testing, technical writing, or governmental food agencies. A minimum of 122 hours is required for this curriculum.

1. General Education Requirements — 37 hours

2. Required Core Courses — 30 hours
   - FCS 100 Career Seminar — Di/FSA
   - FCS 165 Culinary Skills
   - FCS 202 Field Experience
   - FCS 205 Topics in FCS - Breads
   - FCS 205 Topics in FCS - Catering
   - FCS 225 Computer Applications
   - FCS 260 Nutrition

3. Related Electives — Choose 21 hours
   - FCS 368 Quantity Foods
   - FCS 466 Institutional Management
   - FCS 468 Advanced and Experimental Foods
   - FCS 590 Projects/Problems in FCS
   - *Students in the food service administration major will satisfy the Baccalaureate Writing requirement by successfully completing FCS 415.

4. Electives — As needed for graduation total of 122 hours.

INTERIOR DESIGN (ITD)

Bachelor of Science

The interior design curriculum emphasizes the application of analytical, technical, business, and aesthetic skills in the development of spaces for living, working, and/or relaxation. Career opportunities exist in architectural and design firms, in interior/facilities management divisions of large corporations, retailing home furnishings, and marketing positions and showroom management. An active student chapter of ASID (American Society of Interior Designers) provides additional exposure to professional activities. Students are encouraged to combine a major in interior design with a minor in marketing, management, art, or communications.

The program is accredited by FIDER (Foundation for Interior Design Education Research).

Portfolio Review Requirement

Any entering freshman or transfer student planning to major in interior design must apply for portfolio review after completing FCS 150, FCS 156, FCS 157, FCS 220, FCS 249, FCS 251. Portfolio review is held annually during winter semester and is
the basis for selective admission to the upper level interior design sequence. A student not admitted to the upper level interior design sequence may elect to reapply and participate in portfolio review again the following winter. See the FCS academic advisor for specifics. A minimum of 122 hours is required for this curriculum.

1. General Education/Liberal Arts Requirements 37 hours
   Courses below with an asterisk (*) immediately following the course number apply toward General Education; courses with a double asterisk (**) count toward Liberal Arts.

2. Required Core Courses 54 hours
   FCS 150 Introduction to Interior Design 3
   FCS 156 Apparel Construction Fundamentals 3
   FCS 157 Sketching for Interior Designers 3
   FCS 202 Field Experience 3
   FCS 220 Textiles 3
   FCS 249 Residential Architectural Design 3
   FCS 250 Interiors CAD Applications 3
   FCS 251 Period Interiors I 3
   FCS 252 Period Interiors II 3
   FCS 254 Interior Design Materials 3
   FCS 255 Lighting for Interiors 3
   FCS 350 Textiles for Interiors* 3
   FCS 351 Studio I 3
   FCS 352 Professional Practices 3
   FCS 359 Studio III 3
   FCS 405 Travel/Study (32 hours)
   FCS 405 Travel/Study Seminar 1
   FCS 422 Apparel Manufactures 3
   FCS 429 Internship 3
   FCS 522 Topics in FCS (TEX related) 3
   FCS 598 Independent Study 1
   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 18 hours
   FCS 124 Apparel Construction 3
   FCS 222 Flat Pattern Design I 3
   FCS 230 CAD for Textiles and Designers 3
   FCS 244 Experimental Clothing Techniques 3
   FCS 322 Flat Pattern Design III 3
   FCS 422 Apparel Manufacturing 3
   CHEM 105 Textiles and Design Environment 3
   and
   CHEM 106 Textiles and Design Media Laboratory 1
   OR
   COM 104 Public Speaking 3
   OR
   COM 170 Interpersonal Communications I 3
   Select one of the following Economics courses:
   ECON 107 Economics Issues in the U.S. Today 3
   OR
   ECON 108 Contemporary International Economic Issues 3
   OR
   ECON 201 Principles of Microeconomics 3
   OR
   ECON 202 Principles of Macroeconomics 3
   OR
   FCS 225 Computer Applications 3
   OR
   CS 105 Introduction to Computers 3
   OR
   PSY 100 General Psychology 3
   OR
   SOC 200 Principles of Sociology 3
   4. Related Electives — Choose 6 hours
   FCS 202 Field Experience 3
   FCS 209 Consumer Education 3
   FCS 224 Experimental Clothing Techniques (repeat) 3
   FCS 320 Visual Merchandising 3
   FCS 329 Promotion of Textile and Apparel Products 3
   FCS 405 Travel/Study Seminar 1
   OR
   FCS 429 Internship 3
   OR
   FCS 522 Topics in FCS (TEX related) 3
   OR
   FCS 598 Independent Study 1
   Computer Aided Design Career Option (32 hours)
   This option allows the student to blend knowledge of fibers, fabrics, pattern
making, and construction techniques with the principles of computer graphics
and software development in CAD/CAM systems operations. The graduate may find employment in the
apparel, furniture, or automotive industries in computerized design, pattern
development, cutting, and construction procedures.
IME 142 Engineering Graphics                             3
IME 150 Introduction to Manufacturing                   3
IME 246 Introduction to CAD                               3
IME 250 Plastics Properties and Processing               3
IME 305 Work Analysis and Design                         1
IME 316 Report Preparation                                3
IME 422 Engineering Teams Principles and Practices      3
IME 446 CAD Applications                                  3
IME 102 Technical Communications                         3
MATH 116 Precalculus Mathematics                          4

Fashion Design Career Option (24 hours)

Students interested in fashion design should plan to spend their junior year at the Fashion Institute of Technology in New York City or at the Intercontinental University in London, England. Both have excellent design and merchandising colleges. The department maintains a guest student program for qualified students. The Fashion Design courses completed at either of the schools are directly transferable. Students interested in studying the Fashion Design offer should consult their advisor.

FCS 155 Design Principles                                 3
FCS 220 Textiles                                          3
FCS 225 Computer Applications                             3

MINOR IN TEXTILE AND APPAREL MERCHANDISING

Candidates for the minor in Textile and Apparel Merchandising must complete the following program of 22 hours:

1. Required Courses                                      12 hours
FCS 126 The Fashion Industry                             3
FCS 155 Design Principles                                3
FCS 220 Textiles                                          3
FCS 320 Visual Merchandising                              3

2. Required Related Courses                               4 hours
CHEM 105 Textiles and Design Technology                  3
CHEM 106 Textiles and Design * Media Laboratory          1

3. Electives                                               6 hours
FCS 124 Apparel Construction                             3
FCS 226 Fashion/Retail Buying                            3
FCS 326 History of Costume                               3
FCS 329 Promotion of Textile and Apparel Products        3
FCS 430 Fashion Retailing                                 3

* Of the 22 hour total, students must complete a minimum of 6 hours at the 300-level or higher.

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, graphic arts, metalworking, and woodworking. The requirements listed below do not include Non-Vocational Majors and Minors.

FCS 170 Interpersonal Communication                     3
FCS 171 Consumer Education                               3
FCS 209 Marketing Principles                             3
FCS 329 Promotion of Textile and Design                 3
FCS 430 Fashion Retailing                                 3

Non-Vocational Majors

The requirements for each of the three non-vocational majors are described below. The non-vocational majors are Industrial Technology, Secondary Education in Business, and Technology and Design.

INDUSTRIAL TECHNOLOGY (IDT)

Bachelor of Science

The Industrial Technology group major is designed to prepare teachers of industrial technology (formerly known as industrial arts) for middle, junior, and senior high schools. The student must complete the group major in Industrial Technology and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum hours required for this curriculum..... 126 hrs.
2. General Education Requirements ..... 37 hrs.
3. Teaching Major from the following courses ..... 36 hrs.

FCS 214 Child Development                                 3
ED 250 Human Development                                  3
ED 305 K-12 Content Literacy                              3
CTE 305 Career and Employability Skills                   3
CTE 342 Curriculum and Technical Education in CTE*        3
CTE 344 Teaching Methods in CTE                          3
CTE 348 Student Assessment and Management                3
CTE 510 Special Populations in CTE                        3
CTE 512 Principles of CTE                                 3

*Students in the Industrial Technology major will satisfy the Baccalaureate Writing Requirement by successfully completing CTE 342.

7. Directed Internship                                      12 hrs.
CTE 410 Seminar in Education                              2
CTE 475 Intern Teaching in CTE                            10

SECONDARY EDUCATION IN BUSINESS (SEB)

Bachelor of Science

The Secondary Education in Business 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 group major in Secondary Education in Business and an approved teachable minor offered for Secondary Education Curriculum.

SEB 260 Microcomputer Applications                        3
BIS 380 Business Web Design                               3
BIS 483 Business Publications                             3
ACTY 210 Principles of Accounting I                       3
ACTY 211 Principles of Accounting II                      3
FCL 380 Legal Environment                                 3

*Prerequisite for program: Keyboarding (or BIS 182 Keyboarding Content)

4. Approved Minor for Secondary Education Curriculum ..... 20 hours

BIS 386 Advanced Office Systems                           3
BIS 388 Records Management                               3
BIS 456 Office Management                                3

5. Professional Education Courses                         21 hrs.
FCS 214 Child Development                                 3
ED 305 K-12 Content Literacy                              3
CTE 305 Career and Employability Skills                   3
CTE 342 Curriculum and Technical Education in CTE*        3
CTE 344 Teaching Methods in CTE                           3
CTE 348 Student Assessment and Management                3
CTE 510 Special Populations in CTE                        3
CTE 512 Principles of CTE                                 3

* Students in the Secondary Education in Business major will satisfy the Baccalaureate Writing Requirement by successfully completing CTE 342.
TECHNOLOGY AND DESIGN (TAD)

Bachelor of Science

The Technology and Design group major is designed to prepare technology education teachers for middle, junior, and senior high schools. The student must complete the major in Technology and Design and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum hours required for this curriculum 126 hrs.
2. General Education Requirements 37 hrs.
3. MATH 110 and 111 (or equivalents) are required 6 hrs.
4. Teaching major from the following courses 37 hrs.
   AVS 280 Transportation Technology: Policy, Perils, and Promise 3
   CMD 143 Industrial Design Fundamentals 3
   ECE 100 Fundamentals of Circuits and Electronics 3
   ENVS 110 Introduction to Environmental Studies 3
   ENVS 210 Environmental Ecological 3
   FCS 165 Culinary Skills 3
   FCS 266 Food and Society 3
   HHS 110 Introduction to Health and Human Services 3
   IME 102 Technical Communication 3
   IME 122 Automobile in Society 3
   IME 205 Work Design 4
   PAPR 100 Introduction to Environmental Technology 3
5. Approved Minor for Secondary Education Curriculum 20 hours
6. Professional Education Courses 24 hrs.
   FCS 410 Child Development 3
   ED 250 Human Development 3
   ED 305 K-12 Content Literacy 3
   CTE 410 Seminar in Education 2
   CTE 475 Teaching Internship: Secondary Education 10
   "Students in the Industrial Technology major will satisfy the Baccalaureate Writing requirement by successfully completing CTE 432.
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, child/youth services, consumer services, or educational services.

Vocational Majors

The requirements for each of the three vocational majors are described below. The vocational majors are Family and Consumer Sciences Teacher Education, Secondary Education in Business, and Secondary Education in Marketing.

FAMILY AND CONSUMER SCIENCES TEACHER EDUCATION (FSE) Bachelor of Science

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 hrs.
2. General Education Requirements 37 hrs.
3. Teaching Major from the following courses 36 hrs.
   FCS 209 Consumer Education 3
   FCS 225 Computer Applications 3
   COM 170 Interpersonal Communication I 3
   BIS 260 Microcomputer Applications 3
   BIS 380 Business Web Design 3
   BIS 483 Business Publications and Presentations 3
   ACTY 210 Principles of Accounting I 3
   ACTY 211 Principles of Accounting II 3
   FCL 380 Legal Environment 3
   Select 6 hours from the following: BIS 386 Advanced Office Systems 3
   BIS 388 Records Management 3
   BIS 456 Office Management 3
* Prequisite for program: Keyboarding (or BIS 182 Keyboarding Content)
   FCS 214 Child Development 3
   FCS 210 Human Sexuality 3
   FCS 215 Adolescent Development 3
   FCS 266 Food and Society 3
   Select one of the following:
   FCS 318 Intimate Relationships 3
   FCS 315 Teaching in the School 3
   FCS 415 Effective Parenting 3
   FCS 124 Apparel Construction 3
   FCS 524 Socio-Psych Aspects of Clothing 3
   CTE 344 Teaching Methods in CTE 3
5. Professional Education courses 24 hrs.
   FCS 299 Consumer Education 3
   FCS 210 Human Sexuality 3
   FCS 215 Adolescent Development 3
   FCS 266 Food and Society 3
   CTE 342 Curriculum Development in CTE 3
   CTE 344 Teaching Methods in CTE 3
   CTE 348 Student Assessment and Management 3
6. Required Education courses 18 hrs.
   CTE 214 Child Development 3
   CTE 510 Special Populations in CTE 3
   CTE 512 Principles of CTE 3

SECONDARY EDUCATION IN BUSINESS (SEB)

Bachelor of Science

The Secondary Education in Business group major is designed to prepare teachers for vocational business education subjects in area technical centers and comprehensive high schools. The student must complete the major in Secondary Education in Business and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum hours required for this curriculum 126 hrs.
2. General Education Requirements 37 hrs.
3. Teaching Major from the following courses 36 hrs.
   FCS 209 Consumer Education 3
   FCS 225 Computer Applications 3
   COM 170 Interpersonal Communication I 3
   BIS 260 Microcomputer Applications 3
   BIS 380 Business Web Design 3
   BIS 483 Business Publications and Presentations 3
   ACTY 210 Principles of Accounting I 3
   ACTY 211 Principles of Accounting II 3
   FCL 380 Legal Environment 3
   Select 6 hours from the following: BIS 386 Advanced Office Systems 3
   BIS 388 Records Management 3
   BIS 456 Office Management 3
* Prerequisite for program: Keyboarding (or BIS 182 Keyboarding Content)
   FCS 214 Child Development 3
   FCS 210 Human Sexuality 3
   FCS 215 Adolescent Development 3
   FCS 266 Food and Society 3
   Select one of the following:
   FCS 318 Intimate Relationships 3
   FCS 315 Teaching in the School 3
   FCS 415 Effective Parenting 3
   FCS 124 Apparel Construction 3
   FCS 524 Socio-Psych Aspects of Clothing 3
   CTE 342 Curriculum Development in CTE 3
   CTE 344 Teaching Methods in CTE 3
   CTE 348 Student Assessment and Management 3
6. Required Education courses 18 hrs.
   CTE 214 Child Development 3
   CTE 510 Special Populations in CTE 3
   CTE 512 Principles of CTE 3

For more information about the Bachelor of Science degree or to meet with an advisor, contact the College of Education and Technology and Design: 240 Sudderth 205-269-1030 or 205-269-1030
SECONDARY EDUCATION IN MARKETING (SEM)

Bachelor of Science

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 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ..
WOODWORKING
1. Required Courses — 21 hours
CMD 131 Introduction to Building Practices ........................................................................ 3
CMD 222 Wood Furniture Design .................................................................................... 3
CMD 322 Advanced Woodworking Design ...................................................................... 3
CMD 332 Wood Finishing .................................................................................................. 3
CMD 432 Production Woodworking ............................................................................... 3
CMD 434 Physics and Mechanics of Wood ........................................................................ 3
IME 142 Engineering Graphics ............................................................................................ 3

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 202 or 622.

Family and Consumer Sciences Courses (FCS)
A list of approved General Education courses can be found earlier in this catalog. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-laboratory hours).
FCS 100 Career Seminar 1-2 hrs.
Orientation to special career opportunities in various majors, featuring guest speakers. Specific sections per area of interest.
FCS 124 Apparel Construction (2-3) 3 hrs. Fall, Winter
Basic construction techniques, pattern alteration, fitting and design as related to the individual construction of garment. Test available for those desiring placement in upper level courses.
FCS 126 The Fashion Industry (3-0) 3 hrs. Fall
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.
FCS 150 Introduction to Interior Design (2-3) 3 hrs. Fall, Winter
Basic study of the elements and principles of designing and furnishing interiors.
FCS 155 Design Principles 3 hrs. Fall, Winter
Introduction to basic principles and elements of design and color fundamentals, with application particularly in the fields of fashion and textiles.
FCS 156 Design Fundamentals (2-4) 3 hrs. Fall, Winter
A focused introductory study of the basic elements and principles of design for the interior design major. Emphasis will be placed on concept development, color theory and presentation skills.
FCS 157 Sketching for Interior Designers (1-6) 3 hrs. Fall
Development of freehand drawing skills pertinent to interior designers by emphasizing non-mechanical perspective, controlled line quality and presentation. Prerequisites: FCS 156 and CMD 149.
FCS 165 Culinary Skills 3 hrs.
 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.
FCS 202 Field Experience 1-3 hrs.
On-the-job experience under supervision of the department with cooperating organizations. Written materials and performance appraisal required. This course is graded on a credit/no credit basis. Department majors only.
FCS 205 Topics in Family and Consumer Sciences 1-3 hrs. Fall, Winter, Spring
Individual topics in five/ten/fifteen week formats, ranging in 1-3 hours of credit. Student may elect up to 6 hours of credit if topics vary. Topics to be announced.
FCS 209 Consumer Education 3 hrs.
A study of the information available to consumers with emphasis on personal decision making in money management and product and services choices. Includes overview of consumer protection and public policy as it affects the family.
FCS 210 Human Sexuality 3 hrs.
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.
FCS 214 Child Development 3 hrs.
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 (20-26 hours arranged) with children in a structured environment is required.
FCS 215 Adolescent Development 3 hrs.
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.
FCS 220 Textiles (3-0) 3 hrs. Fall, Winter
Consumer-oriented textiles emphasizing fibers, yarns, fabric constructions and finishes as related to use, serviceability, and care.
FCS 222 Flat Pattern Design I (2-3) 3 hrs. Winter
A study of the drafting techniques employed in the flat pattern method for designing clothing. Prerequisite: FCS 124, Completion of Computer Literacy requirement.
FCS 224 Experimental Clothing Techniques (2-3) 3 hrs. Fall
Experiences in clothing construction with emphasis on special problems relative to varied fabrics and design. May be repeated once. Prerequisite: FCS 124.
FCS 225 Computer Applications 3 hrs.
An introduction to the essentials of microcomputer usage. The student will gain application 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 is extended for both FCS 225 and either BIS 102 or 110, SOC 182, PEPR 149, or CS 105.
FCS 226 Fashion/Retail Buying (3-0) 3 hrs. Winter
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. Prerequisite: Completion of University computer usage requirement.
FCS 228 Non-Textile Products (3-0) 3 hrs. Fall
Craftsmanship and design as related to non-textile merchandise, raw material sources, manufacturing processes, uses and selections.
Introduction to the use of CAD software as applied to preproduction phases of garment and apparel manufacturing of textile and apparel products. Prerequisites: FCS 225 or CS 105.
FCS 249 Residential Architectural Design (2-3) 3 hrs.
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: CMD 149.
FCS 250 Interiors CADD Applications (2-2) 3 hrs. Fall
Introduction to computer-aided design and drafting for interior design majors. Prerequisites: FCS 150, FCS 225.
FCS 251 Period Interiors I (3-0) 3 hrs. Fall
Influences and characteristics in period decoration and furniture of historical interiors and exteriors from antiquity up to English Victorian.
FCS 252 Period Interiors II (3-0) 3 hrs. Winter
Influences and characteristics in period decoration and furniture of historical interiors and exteriors from Early American through contemporary.
FCS 254 Interior Design Materials (2-3) 3 hrs. Fall
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. Prerequisites: FCS 150, CMD 149.
FCS 255 Lighting for Interiors (2-3) 3 hrs. Winter
Consider lighting as an element of design and investigates its role in designing interiors. Material covered will emphasize the practicability of appropriate fixture location and specification, blueprint reading and budgets. Prerequisites: FCS 157 and FCS 249; and FCS 254.
FCS 256 Studio I (1-6) 3 hrs.
Creation of artistic interiors with appropriate materials, space planning, preparation of graphic documentation, renderings and purchasing data for completing the design process. Prerequisites: FCS 249, FCS 254.
and homes (property and casualty insurance); methods of teaching insurance education in diverse curricula, review and analysis of insurance policies; and careers in insurance and the insurance industry. Variable credit: research in insurance education.

FCS 522 Topics in Family and Consumer Sciences
1-3 hrs.
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.

FCS 524 The Socio-Psychological Aspects of Clothing (3-0)
3 hrs.
Study of dress and adornment as related to human behaviors. An interdisciplinary approach to clothing-related research and non-verbal communication, person perception, and group conformity.

FCS 525 The Adolescent in Development
3 hrs.
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.

FCS 565 Problems in Nutrition (3–0)
3 hrs.
Study of current problems in nutrition. Not open to dietetics majors. Prerequisite: FCS 260 or equivalent.

FCS 568 Gender, Culture, and Families
3 hrs.
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.

FCS 575 Administration of Child Development Centers
3 hrs.
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 575.)

FCS 590 Project/Problems in Family and Consumer Sciences
Variable 1-4 hrs. Fall, Winter, Spring, Summer
Directed independent project in specialized curricula within Family and Consumer Sciences. Prerequisite: Department approval.

FCS 598 Independent Study in Family and Consumer Sciences
1-6 hrs. Fall, Winter, Spring, Summer
Directed independent advanced study in subject matter area not otherwise treated in departmental courses. Prerequisite: Department approval required prior to enrollment.

Career and Technical Education Courses (CTE)

CTE 305 Career and Employability Skills
3 hrs.
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.

CTE 342 Curriculum Development in Career and Technical Education
3 hrs. Fall
Principles of analyzing, selecting, and arranging curriculum for instructional purposes in career and technical education. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.

CTE 344 Teaching Methods for Career and Technical Education
3 hrs. Winter
Analysis of the teaching-learning process in career and technical education. Included are the teacher's roles, lesson planning, teaching methods, evaluation techniques, and classroom management.

CTE 346 Education Skills for Non-school Practitioners
3 hrs.
Analysis of the teaching/learning process for professionals employed in non-school settings. Included are communication and education skills, interviewing and counseling techniques, teaching methods and evaluation strategies.

CTE 348 Student Assessment and Management
3 hrs.
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. May be taken concurrently with ED 305. Prerequisites: CTE 342 and 344.

CTE 410 Seminar in Education
2 hrs.
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 CTE 475.

CTE 475 Intern Teaching in CTE
10 hrs.
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 CTE 410.

CTE 510 Special Populations in Career and Technical Education
3 hrs.
Special populations enrolled in career and technical education programs and the identification of appropriate teaching strategies, materials, and support services for effective teaching and learning.

CTE 512 Principles of Career and Technical Education
3 hrs.
Explanation, identification, investigation of the history, philosophy, principles, programs, and services in career and technical education.

CTE 513 Technical Education Methods
3 hrs.
Analysis and methods of organizing instruction in career and technical education. Advanced teaching plans and methodologies.

CTE 514 Workshop in Career and Technical Education
1-3 hrs.
Investigation, research, and development of a particular topic or area of interest for career and technical education. Students may enroll for more than one topic, but in each topic only once, to a maximum of three credit hours. Prerequisite: Vocational Certification or consent.

CTE 515 Grant Writing for Career and Technical Educators
2-3 hrs.
Analysis of the grant writing process, including the identification of a sponsor, development of an idea and plan, and completion of a proposal.

CTE 542 Advanced Curriculum Development
2 hrs.
Social, political, and economic factors which influence curriculum change, curriculum innovations, trends, implementation, and evaluation.

CTE 543 Work-site Based Education Programs
3 hrs.
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 is placed on establishing working relationships between school, business, and the community, including cooperative education, work experience, apprenticeship, work-study, and work exploration programs for career and technical education.
**HEALTH, PHYSICAL EDUCATION, AND RECREATION**

Debra Berkey, Chair  
Robert Bensley  
Jody Brylinsky  
Ray Cool  
Mary Dawson  
Lee delisle  
Marianne Frauenknecht  
William Gross  
James Lewis  
Yuanlong Liu  
Allison McFarland  
Timothy Michael  
Linda Powell  
Donna Ritenour  
Patrick Rya  
Carol Weideman  
Ronald Winter  
Roger Zabik  
Jiabei Zhang

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 skills throughout the professional coursework 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. School Health Education (Teacher—K-12)  
2. Community Health Education  
3. Physical Education (Teacher—K-12 Certification)  
4. Exercise Science  
5. Recreation

### MINORS
1. Teaching Certification/Endorsements  
   A. Health Education (7-12)  
   B. Physical Education  
   1. Elementary (K-6)  
   2. Secondary (7-12)  
   3. Special Physical Education (K-12)  
2. Non-Teaching  
   A. Athletic Training  
   B. Coaching  
   C. Recreation  
   D. Community Health Education

The professional student is expected to work closely with the College of Education Advising Office. A copy of the "Departmental Handbook" is distributed during enrollment in PEPR 150, 152, 155, and 170. Transfer students should secure a copy from the department office promptly after choosing a major or minor.

### TRANSFER STUDENTS
Transfer courses from four year schools and appropriate lower division courses from 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. The following PEPR teaching methods course(s) must be included in the hours at WMU: PEPR 447, 448, 312, and 412. Transfer students must participate in HPER entry skill and fitness assessments administered during PEPR 150 (Phys. Ed.), PEPR 152 (Ex. Sci.) PEPR 155 (Health), or PEPR 170 (Rec.). Transfer students should contact one instructor at the beginning of the first semester of work at WMU.

### UNIVERSITY GENERAL EDUCATION REQUIREMENT
Each student must complete 57 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.

### Undergraduate Program Admission Policy
All students who intend to complete a major or minor offered by the Department of Health, Physical Education, and Recreation must apply to the department for admission to the program. An application for admission may be obtained in the HPER Department Office. Complex located on the fourth floor of the Student Recreation Center. Students must complete the following requirements prior to application:

1. Completion of 35 credit hours (transfer hours included).
2. Completion of PEPR 150 or PEPR 152 or PEPR 155 (with a grade of "C" or better) and BIOS 112 for Health, Physical Education Teacher/Coach and Exercise Science majors and associated minors; completion of PEPR 170 (with a grade of "C" or better) for Recreation majors/minors.
3. Completion of all cognate courses required. Physical Education Teacher-Coach majors/minors and Exercise Science majors must complete BIOS 112, BIOS 211, BIOS 240, and PEPR 111. Health Education (Community or School Emphasis) majors/minors must complete BIOS 112, BIOS 211, BIOS 240, PSY 100 or PSY 150, and SOC 200.
4. Acceptance into the program will proceed throughout the year. Students meeting the qualifications stated above will be admitted immediately into HPER 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 HPER Department Admission Requirements.

### Restricted Course List

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>PEPR 220</td>
<td>Basic Health Concepts I</td>
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<td>PEPR 221</td>
<td>Basic Health Concepts II</td>
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<tr>
<td>PEPR 222</td>
<td>Basic Health Concepts III</td>
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<td>PEPR 233</td>
<td>Technical Concepts and Practices of Recreation Activity Leadership</td>
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<td>PEPR 240</td>
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<tr>
<td>PEPR 243</td>
<td>Physical Education Methods: Early Elementary Movement/Physical Activities</td>
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<td>PEPR 271</td>
<td>Recreational Programming and Leadership Theory</td>
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<tr>
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<td>Inclusive and Special Recreation</td>
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<td>PEPR 295</td>
<td>Biomechanics</td>
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<td>PEPR 296</td>
<td>Stress Management and Flexibility</td>
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<td>PEPR 298</td>
<td>Exercise Physiology</td>
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<td>PEPR 312</td>
<td>Planning School Health Programs</td>
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<tr>
<td>PEPR 315</td>
<td>Measurement and Evaluation for Exercise Science, Health, and Physical Education</td>
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<td>PEPR 316</td>
<td>Issues in Health Education</td>
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<td>PEPR 330</td>
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<td>PEPR 331</td>
<td>Community Health Education Planning</td>
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<td>PEPR 332</td>
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<tr>
<td>PEPR 346</td>
<td>Physical Education Methods: Special Populations</td>
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<tr>
<td>PEPR 350</td>
<td>Modification of Health Behavior</td>
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### MAJORS

#### Health Education
Bachelor of Science

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 student eligible for K-12 certification for the teaching of health education in Michigan. Students must complete the education sequence required by the Department of Education and Professional Development 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.

The community 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 are not eligible for teaching certification.

Community and School Health majors must serve as a teaching assistant for one semester in a content specific course (i.e., PEPR 111, 181, 220, 221, 222, 316, 317, 361). Students must complete PEPR 155, 220, 221, and 222 prior to application for teaching assistantship. Students should obtain teaching assistant applications from the HPER Department office to register for this experience.

All health education majors are expected to have a valid first aid certificate at the time of graduation.
BACCALAUREATE WRITING REQUIREMENT

Students who choose the Health Education major—School Emphasis or Community Emphasis—will satisfy the Baccalaureate Writing Requirement by successfully completing PEPR 450.

GENERAL EDUCATION

School emphasis .......................... 39 hours
Community emphasis ........................ 37 hours

HEALTH EDUCATION—SCHOOL EMPHASIS (HET)

Required Cognates .......................... 17 hours
PSY 100 General Psychology .......................... OR
PSY 150 Introduction to Human Behavior .......................... 3
SOC 200 Principles of Sociology .......................... 3
BIOC 112 Introduction to Biomedical Sciences .......................... 3
BIOC 211 Human Anatomy .......................... 4
BIOC 240 Human Physiology .......................... 4

Professional Education Sequence .......................... 21 hours
ED 250 Human Development and Learning .......................... 3
ED 305 K-12 Content Literacy .......................... 3
ED 395 School and Society .......................... 3
ED 410 Intern Teaching Seminar in HPER .......................... 2
ED 475 Intern Teaching in HPER .......................... 10

Professional Preparation .......................... 39 hours
PEPR 155 Foundations of Health Education .......................... 3
FCS 210 Human Sexuality .......................... 3
FCS 266 Food and Society .......................... 3

Physical Education Major

130 hours
Bachelor of Science

Successful completion of the Physical Education—Teacher-Coach major makes a student eligible for K-12 certification for teaching 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 HPER 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.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Physical Education—Teacher/Coach major will satisfy the Baccalaureate Writing Requirement by successfully completing PEPR 450 Cultural Dynamics of HPER.

GENERAL EDUCATION

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog. Physical Education—Teacher/Coach major Evaluation .......................... 40

PHYSICAL EDUCATION—TEACHER-COACH (PYE)

K-12 State Provisional Certificate

Required Cognates .......................... 14
BIOC 112/110 Principles of Biology .......................... 4
BIOC 211 Human Anatomy .......................... 4
BIOC 240 Human Physiology .......................... 4
PEPR 111 Healthy Living .......................... 3

PEPR 330 Grant Writing in Health Education .......................... 3
PEPR 331 Community Health Ed. Planning .......................... 2
PEPR 350 Modification of Health Behavior .......................... 2
PEPR 381 Instructor First Aid .......................... 2
PEPR 415 Community Health Ed. .......................... 2
PEPR 438 CHE Interventions: Community Strategies .......................... 3
PEPR 439 CHE Interventions: Individual Strategies .......................... 3
PEPR 450 Cultural Dynamics of HPER .......................... 2
PEPR 496 Community Health Education internship .......................... 4

Electives .......................... 4

Physical Education Electives recommended for community health education majors will be fulfilled by selecting appropriate 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.

PEPR 300 Seminar Series: Health Competencies .......................... 1-4
PEPR 316 (Any 316 offered) .......................... 2
PEPR 516 Issues in Health Science .......................... 1-4
FCS 210 Human Sexuality .......................... 3
FCS 260 Nutrition .......................... 3
FCS 266 Food and Society .......................... 3

Required Teaching Assistant .......................... 4

Required Teaching Assistant

126 hours
Bachelor of Science

The Exercise Science major prepares students to assume careers in non-school settings such as corporate, wellness, and commercial adult fitness programs. Students complete two extensive practica in supervised settings on campus prior to an internship. Students completing the Exercise Science major are not eligible for teaching certification.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Exercise Science major will satisfy the Baccalaureate Writing Requirement by successfully completing PEPR 450 Cultural Dynamics of HPER.

GENERAL EDUCATION

A list of approved General Education courses can be found in "Graduation Requirements and..."
Academic Advising earlier in this catalog. Exercise Science major ... 37

EXERCISE SCIENCE (PEX)

Required Cognates ... 14

Bios 112/110 Principles of Biology ... 4
Bios 211 Human Anatomy ... 4
Bios 240 Human Physiology ... 4
PEPR 111 Healthy Living ... 2

Required Courses ... 45

PEPR 152 Foundations of Exercise Science ... 3
PEPR 296 Kinesiology ... 3
PEPR 299 Stress Management and Flexibility ... 2
PEPR 298 Exercise Physiology ... 3
PEPR 315 Measurement and Eval. in Exercise Science ... 3
PEPR 317 Cardiac Rehabilitation ... 2
PEPR 350 Modification of Health Behavior ... 3
PEPR 380 Foundations of Sports ... 2
PEPR 395 Cardiovascular Endurance: Aerobic Conditioning ... 2
PEPR 396 Muscular Strength and Endurance ... 2
PEPR 397 Body Composition and Weight Control ... 2
PEPR 444 Leadership and Programming in Exercise Science ... 3
PEPR 445 Adult Fitness/Exercise Prescription ... 3
PEPR 450 Cultural Dynamics of HPER ... 2
PEPR 469 Fitness Management ... 2
PEPR 480 Basic Electrocardiography ... 2
PEPR 491 Exercise for Special Populations ... 3
PEPR 498 Exercise Science Internship ... 4

Recreation Major

122 hours
Bachelor of Arts or Bachelor of Science

The Recreation major is designed to prepare students to assume leadership and/or administrative roles in public or private recreation agencies and organizations. The hours of electives within this course of study allow the student flexibility in preparing for a specific emphasis area in recreation. Students will also complete a supervised internship of at least three consecutive months duration.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Recreation major will satisfy the Baccalaureate Writing Requirement by successfully completing PEPR 332 Research and Writing in Recreation.

GENERAL EDUCATION (37 hours)

REQUIRED EDUCATION (37 hours)

REQUIRED CORE COURSES (35 hours)

(please note in the course description section of this catalog when courses are offered and the prerequisite requirements for each course.)

PEPR 170 Introduction to Leisure and Recreational Services ... 3
PEPR 233 Technical Concepts and Practices of Recreation Activity Leadership ... 2
PEPR 271 Recreational Programming and Leadership Theory ... 3
PEPR 290 Inclusive and Special Populations ... 2
PEPR 332 Research and Writing in Recreation ... 3
PEPR 371 Practical Recreational Programming and Leadership ... 3
PEPR 376 Management of Recreational Services ... 3
PEPR 399 Recreation Practicum ... 3

* Required American Humansics course
Recreation majors and minors may choose to participate in the American Humansics certificate program. This program is designed to prepare students for leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major and minor that meet the American Humansics competency requirements, by taking the required AmericanHumansics courses, and by meeting the American Humansics curricular requirements. For details, please see the American Humansics description the College of Arts and Sciences Interdisciplinary Programs section of this catalog. Details are also available from the Recreation program coordinator and from the American Humansics director.

MINORS

Health Education

A minor in health education is offered. Students have the option of choosing either a school emphasis or a community emphasis within the minor. 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 biology, physical education, psychology, and sociology. Students completing requirements are eligible for certification to teach health education in grades 7-12 in Michigan. The community emphasis prepares students to provide health instruction in community and private agencies.

COGNATES (17 hours)

Bios 112 Principles of Biology ... 3
Bios 211 Human Anatomy ... 4
Bios 240 Human Physiology ... 4
Psy 100 General Psychology ... 3
Psy 150 Introduction to Human Behavior ... 3
Soc 200 Principles of Sociology ... 3

Hours Required for this minor ... 27

HEALTH EDUCATION—SCHOOL EMPHASIS (27 hours)

PEPR 155 Foundations of Health Education ... 3
PEPR 381 Instructor First Aid ... 2
FCS 210 Human Sexuality ... 3
PEPR 220 Basic Health Concepts I ... 3
PEPR 221 Basic Health Concepts II ... 3
PEPR 222 Basic Health Concepts III ... 3
PEPR 312 Planning School Health Programs ... 3
PEPR 315 Measurement and Eval. in ExSci/Health/Phys Ed ... 3
PEPR 382 Measurement and Evaluation in Health Education ... 1
PEPR 412 Teaching Skills and Strategies ... 3

HEALTH EDUCATION—COMMUNITY EDUCATION EMPHASIS (25 hours)

PEPR 155 Foundations of Health Education ... 3
PEPR 220 Basic Health Concepts I ... 3
PEPR 221 Basic Health Concepts II ... 3
PEPR 222 Basic Health Concepts III ... 3
PEPR 315 Measurement and Eval. in ExSci/Health/Phys Ed ... 3
PEPR 316 Issues in Health Education ... 2
PEPR 331 Community Health Education Planning ... 3
PEPR 415 Community Health Education Evaluation ... 2
PEPR 431 CHE Interventions ... 3

* Required Teaching Assistant

Elementary Physical Education Minor

This minor must be taken as part of the Elementary Group Minor.

COGNATES (7 hours)

Bios 112 Principles of Biology ... 3
SCI 170 Life Science for Elementary Educators II ... 3
Bios 211 Human Anatomy ... 4

Hours Required for this minor ... 25

REQUIRED PROFESSIONAL COURSES (17 hours)

PEPR 150 Foundation of Physical Education ... 3
PEPR 181 First Aid ... 2
PEPR 240 Human Motor Development and Learning ... 3
PEPR 243 Physical Education Methods: Early Elementary Movement/Physical Activities ... 3
PEPR 346 Physical Education Methods: Special Populations ... 3
PEPR 447 Physical Education Methods: Instructional Design ... 3
PEPR 448 Physical Education Methods: Teaching Skills ... 3

REQUIRED ACTIVITY COURSES (3 hours)

PEPR 104 Nontraditional Physical Activity ... 1
PEPR 106 Recreational Dance ... 1
PEPR 108 Tumbling ... 1

ELECTIVE COURSES (2 hours)

PEPR 130 Softball ... 1
PEPR 131 Volleyball ... 1
PEPR 132 Soccer ... 1
PEPR 133 Basketball ... 1
PEPR 136 Track and Field ... 1

Required Teaching Assistant
Secondary Physical Education Minor

Cognates (11 hours)
- BIOS 112 Principles of Biology 3
- BIOS 211 Human Anatomy 4
- BIOS 240 Human Physiology 4

Hours Required for this minor 24

Required Professional Courses (17 hours)
- PEPR 150 Foundations of Physical Education 3
- PEPR 181 First Aid 2
- PEPR 240 Human Motor Development and Learning 3
- PEPR 346 Physical Education Methods: Special Populations 3
- PEPR 447 Physical Education Methods: Instructional Design 3
- PEPR 448 Physical Education Methods: Teaching Skills 3

Activity Course Electives (3 hours)
- PEPR 113 Indoor Racquet Sports 1
- PEPR 112 Tennis 1
- PEPR 215 Aerobic Conditioning 1

Activity Course Electives 5 hours
- PEPR 216 Aerobic Dance 1
- PEPR 235 Theory of Coaching 2
- PEPR 290 Inclusive and Special Physical Education Tech Course (Non-Teaching) 2

Coaching Minor (Non-Teaching)

This minor does not certify a student to teach physical education. The coaching minor will provide instruction in the sports which are currently emphasized by the Michigan Interscholastic Sports Programs: basketball, football, track and field, tennis, volleyball, softball, golf, and gymnastics. The coaching minor is not a teachable minor.

Required Cognates (11 hours)
- BIOS 112 Principles of Biology 3
- BIOS 211 Human Anatomy 4
- BIOS 240 Human Physiology 4

Hours Required for this minor 24

Required Courses (18 hours)
- PEPR 235 Theory of Coaching 2
- PEPR 289 Exercise Physiology 3
- PEGR 335 Advanced Theory of Coaching 2
- PEGR 380 Foundations of Sports Injuries (Prereq.—First Aid 181) 2
- PEPR 400 Field Experience (Prereq.—Coaching and Adv. Tech Course) 2

Professional Electives (11 hours)
- PEPR 337 Advanced Techniques and Coaching Series—Prerequisites: Must have had first level course(s) or permission of instructor.

Elect 6 hours from following courses (must be at least one team sport and one individual sport)

Team
- Basketball 2
- Baseball or Softball 2
- Volleyball 2
- Football 2
- Ice Hockey 2

Individual
- Gymnastics 2
- Tennis 2
- Track and Field 2

Recreational Services 3

Coaching Minor (Non-Teaching)

This minor does not certify a student to teach physical education. The coaching minor will provide instruction in the sports which are currently emphasized by the Michigan Interscholastic Sports Programs: basketball, football, track and field, tennis, volleyball, softball, golf, and gymnastics. The coaching minor is not a teachable minor.

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- BIOS 211 Human Anatomy 4
- BIOS 240 Human Physiology 4

Hours Required for this minor 24

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- PEPR 289 Exercise Physiology 3
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Elect 6 hours from following courses (must be at least one team sport and one individual sport)

Team
- Basketball 2
- Baseball or Softball 2
- Volleyball 2
- Football 2
- Ice Hockey 2

Individual
- Gymnastics 2
- Tennis 2
- Track and Field 2

Recreational Services 3
Courses By Topic

PROFESSIONAL ACTIVITY COURSES (PEPR)

104 Non-traditional Activities
107 Weight Training
108 Tumbling
112 Tumbling Series
113 Indoor Racquet Sports
120 Golf
121 Bowling
123 Racquetball
124 Wading
125 Football
126 Track and Field
215 Aerobic Conditioning

HEALTH EDUCATION ACADEMIC COURSES (PEPR)

155 Foundations of Health Education
161 First Aid
220 Basic Health Concepts I
221 Basic Health Concepts II
312 Planning School Health Programs
316 Issues in Health Education
412 Teaching Skills and Strategies in Health Education
430 CHE Interventions: Community Strategies
431 CHE Interventions: Individual Strategies
496 Community Health Education Internship
510 Modern Health for Teachers and Health Professionals
512 Principles, Practices, and Methods in Health Education
514 Methods and Materials in Health Education
516 Issues in Health Education

PHYSICAL EDUCATION ACADEMIC COURSES (PEPR)

150 Foundations of Physical Education
152 Foundations of Exercise Science
181 First Aid
235 Theory of Coaching
236 Technique of Coaching
240 Human Motor Development and Learning
242 Aerobic Dance Instruction
243 Physical Education Methods: Early Childhood
248 Elementary Movement/Physical Activities
244 Early Elementary Movement and Activities
256 Biomechanics
256 Stress Management and Flexibility
288 Exercise Physiology
300 Seminar Series
315 Measurement and Evaluation in Exercise Science
317 Cardiovascular Health
320 Physical Education for Individuals with Disabilities
321 Therapeutic Programs for Individuals with Disabilities
324 Sports for Individuals with Disabilities
325 Swimming for the Exceptional Child
335 Advanced Theory of Coaching
337 Coaching and Advanced Techniques
346 Physical Education Methods: Special Populations
350 Modification of Health Behavior
380 Foundations of Sports Injuries
395 Cardiovascular Endurance: Aerobic Conditioning
396 Muscular Strength and Endurance
397 Body Composition and Weight Control
400 Field Experience/Internship in HPER
420 Developmental Programs for Children with Disabilities
431 CHE Interventions: Individual Strategies
444 Leadership and Programming in Exercise Science
445 Adult Fitness/Exercise Prescription
447 Physical Education Methods: Instructional Design
448 Physical Education Methods: Teaching Skills
450 Cultural Dynamics of HPER
450 Basic EKG
498 Exercise Science Internship

PROFESSIONAL RECREATION COURSES (PEPR)

170 Introduction to Recreation
172 Camp Leadership
233 Technical Concepts and Practices of Recreation Activity Leadership
271 Recreation Programming and Leadership Theory
290 Inclusive and Special Recreation
276 Outdoor Education
332 Research and Writing in Recreation
371 Practical Recreational Programming and Leadership
376 Management of Recreational Services
399 Recreation Practicum
400 Field Experience/Internship in HPER
470 Recreational Facilities and Areas
472 Recreation for the Aging
476 Advanced Applications of Recreational Management
497 Senior Seminar in Recreational Services
499 Recreation Internship

OPEN TO UPPERCCLASS AND GRADUATE STUDENTS (PEGR)

500 Studies in Health, Physical Education and Recreation
510 Modern Health for Teachers and Health Professionals
512 Principles, Practices, and Methods in Health Education
514 Methods and Materials in Health Education
516 Issues in Health Education
520 Physical Activities for Exceptional Children
521 Therapeutic Trends for Exceptional Children
530 Practicum in Teaching and Coaching
535 Principles and Problems of Coaching
540 Movement Education
560 Administration of Physical Education
562 Administration of Athletics
580 Studies in Athletic Training
582 Athletic Training for Coaches
590 Exercise Physiology
591 Evaluation of Health, Physical Education, and Recreation
595 Analysis of Movement in Sport
596 Readings in Health, Physical Education, and Recreation

Professional Health, Physical Education and/or Recreation (PEPR/PEGR)

A list of approved General Education courses can be found earlier in this catalog. Course descriptions preceded by a 1 are open to all students.

PEPR 100 Health for Better Living
4 hrs.
The focus of this introductory health course is to assist students in achieving an awareness of optimal physical, mental, and social health in a changing environment. Guest lectures from the community will present some of the topics considered important to the health of modern people. Preference is given to freshmen and sophomores.

PEPR 104 Skills and Instruction of Non-Traditional Physical Activities
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present non-traditional physical activities in a K-12 physical education setting. Activities such as team handball, orienteering, Bunca Ball, Pickleball, Ultimate Frisbee, and Speedball will be included.

PEPR 106 Recreational Dance
1 hr.
Investigation of folk, square, and social forms of dance with a concentration on overlapping dance skills.

PEPR 107 Skills and Instruction of Weight Training
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present weight training in a 7-12 physical education setting.

PEPR 108 Skills and Instruction of Tumbling
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present tumbling in a K-12 physical education setting.

PEPR 111 Healthy Living
2 hrs.
This course is designed to provide students with the information and skills that are necessary for positive health decision making. Students will be introduced to concepts associated with healthy decision making, negative health consequences of poor decisions (e.g., substance abuse, HIV/AIDS, sexually transmitted diseases, depression, lifestyle related diseases, stress, eating disorders, etc.), and skill building strategies.

PEPR 112 Skills and Instruction of Tennis
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present tennis in a K-12 physical education setting.

PEPR 113 Skills and Instruction of Indoor Racquet Sports
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present badminton and racquetball in a K-12 physical education setting.

PEPR 120 Skills and Instruction of Golf
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present golf in a K-12 physical education setting.

PEPR 121 Skills and Instruction of Bowling
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments
that will allow the student to develop the skills and knowledge necessary to plan and present bowling in a K-12 physical education setting.

PEPR 130 Skills and Instruction of Softball
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present bowling in a K-12 physical education setting.

PEPR 131 Skills and Instruction of Volleyball
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present volleyball in a K-12 physical education setting.

PEPR 132 Skills and Instruction of Soccer
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present soccer in a K-12 physical education setting.

PEPR 133 Skills and Instruction of Basketball
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present basketball in a K-12 physical education setting.

PEPR 134 Skills and Instruction of Wrestling
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present wrestling in a K-12 physical education setting.

PEPR 135 Skills and Instruction of Football
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present football in a K-12 physical education setting.

PEPR 136 Skills and Instruction of Track and Field
1 hr.
The purpose of this course is to provide opportunities, experiences, and assignments that will allow the student to develop the skills and knowledge necessary to plan and present track and field in a K-12 physical education setting.

PEPR 149 Computer Applications in HPER
3 hrs.
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. The course will fulfill the Western Michigan University computer literacy requirement. Credit cannot be earned for both PEPR 149 and either BIS 102 or 110, FCS 225, SOC 182, or CS 105.

PEPR 150 Foundations of Physical Education
3 hrs.
An introduction to contemporary physical education teacher education. Course content includes the examination of the value of physical education in the 21st century, roles of instruction, the assessment of personal motor and fitness skills, and the initial development of a personal professional philosophy and portfolio.

PEPR 152 Foundations of Exercise Science
3 hrs.
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.

PEPR 155 Foundations of Health Education
3 hrs.
This course will provide students with the philosophical background in the development of health education. Topics include: history and philosophy of health education/health promotion, professional competencies, ethics, organizations and future issues.

PEPR 170 Introduction to Leisure and Recreational Services
3 hrs.
1. The course will provide an introduction to the field of recreational services and the role of leisure in society. Current trends, job opportunities in various settings, programming, and leadership will be discussed.

PEPR 181 First Aid
2 hrs.
The standard course in first aid techniques leading to Red Cross certification. Open to all students.

PEPR 215 Aerobic Conditioning
1 hr.

PEPR 220 Basic Health Concepts I
3 hrs.
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).

PEPR 221 Basic Health Concepts II
3 hrs.
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; and intentional and unintentional injuries.

PEPR 222 Basic Health Concepts III
3 hrs.
This course is designed to provide students with basic health education content in the areas of chronic and communicable diseases and environmental health issues.

PEPR 233 Technical Concepts and Practices of Recreation Activity Leadership
2 hrs.
This course is designed to provide the recreation student with the basic technical and physical leadership skills necessary to be a successful leader, facilitator of leisure and a valuable resource to any organization providing recreational activities. Prerequisite: PEPR 170 or taken concurrently with PEPR 170.

PEPR 235 Theory of Coaching
2 hrs.
Introduction to coaching includes basic principles, covers State Athletic Handbook, budgets, scheduling, facilities, liability, public relations, relationships with staff, faculty, students, parents, press, etc.

PEPR 236 Officiating Series
2 hr.
† The discussion and application of rules and officiating techniques. The student is required to officiate in out-of-class athletic programs. Prerequisites: Must have had the first level activity or permission of instructor. Open to all students.

Fall Semester: Basketball
Football
Winter Semester: Basketball
Volleyball
Softball/Baseball
Track and Field

PEPR 240 Human Motor Development and Learning
3 hrs.
Materials include content 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: BIOG 211.

PEPR 241 Physical Education and Recreation for Teachers
2 hrs.
This course is open only to teachers. Topics included in the course are: Program planning, making of games and equipment, accident prevention, basic motor skills. Practice in games, stunts, rhythms and recreational activities will be included. Offered by extension only.

PEPR 242 Aerobic Exercise Instruction
1 hr.
Designed to provide information and experiences leading to successful selection of activities, planning and presentation skills necessary to provide aerobic activity instruction.

PEPR 243 Physical Education Methods: Early Elementary Movement/Physical Activities
3 hrs.
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: PEPR 150.

PEPR 271 Recreational Programming and Leadership Theory
3 hrs.
This course is a study of the principles and theories behind recreation programming and leadership. The purpose of this course is to familiarize the student with the recreation programming theory and how that theory is important to the recreation programmer. Further, the course will teach the different theories of leadership including group and individual decision making processes. It is the purpose of this course to familiarize the student with the theory that can put into practice during the practical semester of programming and leadership. Prerequisite: PEPR 233 or taken concurrently with PEPR 233.

PEPR 276 Outdoor Education
2 hrs.
† A course in the philosophy, methods, and materials of outdoor education emphasizing outdoor education activities for children and youth.

PEPR 290 Inclusive and Special Recreation
2 hrs.
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. Prerequisite: PEPR 271 or taken concurrently with PEPR 271.

PEPR 295 Biomechanics 3 hrs.
The purpose of this course is to provide the student with an understanding of the mechanics of the musculoskeletal structures and a procedure for observing and evaluating motor skills. This course will cover kinematics and kinetics as they relate to the musculoskeletal system and to functional motion and sport related motion. The course will emphasize the use of mechanics in assessing and evaluating human motion. Evaluation procedures will include: a qualitative or naked eye/field evaluation procedure and a computer or quantitative procedure. Prerequisite: BIOS 211.

PEPR 296 Stress Management and Flexibility 2 hrs.
This is one of four specific content courses designed to provide Exercise Science majors with knowledge and skills concerning the four major factors contributing to the development of health related physical fitness. Topics for the first half of the course include: anatomy, mechanics, and physiology of flexibility; techniques of stretching; controversial stretching; stretching and special populations; and relaxation and stretching. Topics for the second half of the course include: definition and types of stress; physiology of the stress response; relating and managing stress; lifestyle buffers, exercise, nutrition, and sleep; relaxation and stress management techniques; and Type A and B behavior. Prerequisite: PEPR 295.

PEPR 298 Exercise Physiology 3 hrs.
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. Practical applications concerning the teaching of health related fitness concepts are emphasized. Prerequisites: BIOS 211, 240.

PEPR 300 Seminar Series 1-4 hrs.
Designed to provide an opportunity for qualified students to examine and discuss a subject area in field of common interest. Enrollment by written permission of the instructor.

PEPR 312 Planning School Health Programs 3 hrs.
Designed to provide information and experiences which will enable students to develop planning skills for a variety of health promotion programming in the school setting. Prerequisites: PEPR 155, 220, 221, 222; FCS 210.

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 research tests and their applications in Exercise Science, Health, and Physical Education and techniques for developing assessment tools. Prerequisites: PEPR 150 (PVE), 152 (PEX), 155 (CHE and HET), 310 (HE majors and minors).

PEPR 316 Issues in Health Education 2 hrs.
The course will focus on current health issues. May be designed to deal with one issue or several. Prerequisite: PEPR 155, 220, 221, and 222.

PEPR 317 Cardiovascular Health 2 hrs.
This course will focus on the current issue of cardiovascular health, heart and vascular disease, and implications for lifestyle behavior change and health education programs. Prerequisites: BIOS 211, BIOS 240, PEPR 150, PEPR 152, or PEPR 155.

PEPR 320 Physical Education for Individuals with Disabilities 3 hrs.
This course will include activities and games used in adaptive, developmental, and corrective programs for individuals with disabilities. An emphasis will be placed on designing activities for individuals with disabilities who are included in the regular physical education program.

PEPR 321 Therapeutic Programs for Individuals with Disabilities 3 hrs.
The evaluation, interpretation and planning of therapeutic and rehabilitation programs for individuals with disabilities. Emphasis will be placed on programs for individuals who have difficulty with primitive reflexes, righting, automatic movement and equilibrium reactions as well as a study of neurodevelopmental therapy. Prerequisite: BIOS 211.

PEPR 324 Sports for Individuals with Disabilities 3 hrs.
Designed to provide students with coaching teaching, and skill development techniques for the variety of sports and activities in which individuals with disabilities participate. Emphasis will also be placed on participation in field experiences during organized sports competitions for individuals with disabilities.

PEPR 325 Swimming for the Exceptional Child 3 hrs.
The study of physical and learning disabilities, values of swimming, and teaching techniques for these disabilities. Includes experience teaching exceptional children. Prerequisite: PEGN 350 WSI.

PEPR 330 Grant Writing in Health Education 3 hrs.
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: PEPR 155, 220, 221, and 222.

PEPR 331 Community Health Education Planning 3 hrs.
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: PEPR 155, 220, 221, 222, and 315.

PEPR 332 Research and Writing in Recreation 3 hrs.
This course is designed to instruct the student on research in the fields of recreation, leisure, and sport. It will introduce students to the different types of research and research methodologies commonly used in the recreation profession. This course will also emphasize professional writing as it is used in the field of parks and recreation. The course will emphasize hands-on 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.

PEPR 335 Advanced Theory of Coaching 2 hrs.
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 the significance of coaching, human growth and development, conditioning for sport performance and psychological and social skills necessary to coach high school sports. Prerequisite: PEPR 235.

PEPR 337 Coaching and Advanced Techniques 2 hrs.
Coaching and advanced skills, selection of a team, preparation, officiating and conducting competitive events. Prerequisites: Must have had first level course(s).

PEPR 340 Physical Education for the Elementary Classroom Teacher 2 hrs.
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, sports skills and tumbling, simple games and sports, rhythms and classroom correlated activities. This course is not open to physical education majors or minors.

PEPR 346 Physical Education Methods: Special Populations 3 hrs.
This course is an orientation to the instruction of physical activity to special populations. It focuses on the scope of adapted physical education, key techniques required for effective instruction, general needs of handicapped populations, the accommodation of activities, equipment, and instructional materials for special populations attending grades K-12. Prerequisite: PEPR 243.

PEPR 350 Modification of Health Behavior 2 hrs.
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. Prerequisites: PEPR 111 and 152 for PEX majors; PEPR 155, 220, 221, and 222 for OHE and HET majors.

PEPR 352 Teaching Health in the Elementary School 2 hrs.
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. Prerequisites: PEPR 111, 155, 220, 221, and 222 (for health education majors); PEPR 111 or PEGN 170 (elementary education students).
PEPR 368 Administration and Organization of Intramural Sports
2 hrs. Fall only
The problems, policies, finances, eligibility, awards, officiating, publicity, and procedures related to the intramural program.

PEPR 371 Practical Recreational Programming and Leadership
3 hrs.
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 (OEPR 271). 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. Prerequisite: PEPR 271.

PEPR 376 Management of Recreational Services
3 hrs.
This course is designed to provide students with the opportunity to understand the organizational and administrative principles, objectives, procedures, and practices involved in the operation and use service organizations. Prerequisite: PEPR 371 or taken concurrently with PEPR 371.

PEPR 380 Foundations of Sports Injuries 2 hrs.
Basic first aid and emergency concepts, prevention, recognition, initial and follow-up care are studied. Principles, techniques are presented in a lecture and laboratory instructional format. Prerequisite: BIOS 211, First Aid Certification or PEPR 181.

PEPR 381 Instructor First Aid 2 hrs.
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.

PEPR 382 Measurement and Evaluation in Health Education 1 hr.
Designed to develop entry-level evaluation competencies in health education majors and minors. Attention is focused on identifying evaluation formats, strategies, and models, developing instruments: collecting data, and interpreting results. Prerequisites: PEPR 312, PEPR 315 or co-requisite.

PEPR 395 Cardiovascular Endurance: Aerobic Conditioning 2 hrs.
The purpose of this course is to understand the physiological mechanisms underlying cardiorespiratory conditioning, learn the techniques associated with aerobic conditioning and experience cardiovascular evaluation and aerobic conditioning. Prerequisites: PEPR 295, 298.

PEPR 396 Muscular Strength and Endurance 2 hrs.
This course is one of four specific content courses designed to provide Exercise Science majors with knowledge and skills concerning the four major factors contributing to the development of health-related physical fitness. Topics ranging from the physiology of strength training, muscles recruited for variable strength and endurance exercises, basic principles of strength and endurance development, strength and endurance training variables, proper lifting technique, and safety procedures will be discussed. Prerequisites: PEPR 295, 298.

PEPR 397 Body Composition and Weight Control 2 hrs.
This course is designed to provide the student with information concerning the difference between body composition and body fat. The student will be introduced to the different methods of determining body composition. In addition, the student will be provided with information concerning basic nutrition and nutritional plans for normal and special populations. Prerequisite: PEPR 298.

PEPR 399 Recreation Practicum 3 hrs.
The practical field experiences in recreation. Enrollment by permission of instructor and acceptance of practicum proposal. Prerequisite: PEPR 372.

PEPR 400 Field Experience/Internship in HPER 1–8 hrs.
This course will provide in-depth field experience or internships for undergraduate majors or minors in 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 permission of curriculum advisors for major or minor. Prerequisite varies with area of emphasis and requires departmental approval.

PEPR 410 Intern Teaching Seminar in HPER 1 or 2 hrs.
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 PEPR 475. 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.

PEPR 412 Teaching Skills and Strategies 3 hrs.
Designed to provide information and experiences that enable students to design and implement effective health education strategies in a school setting. Prerequisite: PEPR 312.

PEPR 415 Community Health Education Evaluation 2 hrs.
Designed to prepare students with skills necessary to effectively evaluate community health education programs. Emphasis is placed on designing evaluation procedures, understanding different evaluation approaches, reporting results, and utilizing results to redesign existing programs. Prerequisite: PEPR 331.

PEPR 416 Topics in Recreation 2 hrs.
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.

PEPR 420 Developmental Programs for Children with Disabilities 3 hrs.
Students will study sensory regulatory disorders and developmental programs of leaders in the field and the adaptation of these theories to practical situations in a laboratory setting. Various methods of working with children with disabilities will be discussed and practiced, and programs will be established and tested. Prerequisite: BIOS 211.

PEPR 430 Community Health Education Interventions: Community Strategies 3 hrs.
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 community level, including community organization, coalition building, community empowerment, and legislative advocacy. Prerequisite: PEPR 331.

PEPR 431 Community Health Education Interventions: Individual Strategies 3 hrs.
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: PEPR 331.

PEPR 444 Leadership and Programming in Exercise Science 3 hrs.
This course is designed to provide exercise science majors with information and experiences that will enable them to plan, design, promote, and implement adult exercise programs. Special emphasis is placed on the following: developing qualities of successful leadership, public speaking, planning procedures, programming procedures, use of technology, program promotion, facilities and equipment, teaching techniques for adult learners, and career planning and development. Prerequisites: PEPR 296, 298, 317, 396, 397, 435.

PEPR 445 Adult Fitness/Exercise Prescription 3 hrs.
This course prepares students to plan and implement exercise programs for adults who have a variety of needs. Students are taught how to screen clients, determine risks, establish a safe exercise environment, assess health related fitness, interpret test data and establish an exercise plan. Prerequisites: PEPR 296, 298, 317, 396, 397, 435.

PEPR 447 Physical Education Methods: Instructional Design 3 hrs.
This course is designed to provide experiences which will enable the student to: (1) identify instructional constraints; (2) select motor appropriate experiences for children K-12; (3) develop effective instructional materials; and (4) develop management and administrative skills required to plan and implement a contemporary physical education program in school settings. Prerequisites: PEPR 150, 295, 345, 346, 390, and 392.

PEPR 448 Physical Education Methods: Teaching Skills 3 hrs.
This course provides information and experiences which allow the student to: (1) plan and implement effective physical education curricula based on a developmental model; (2) self-assess teaching performance using reflective systematic skills, and (3) develop a professional teaching portfolio. Prerequisite: PEPR 447.

PEPR 450 Cultural Dynamics of Health, Physical Education, and Recreation 2 hrs.
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...
and contraindicated exercises. Students will develop and apply knowledge of specific effects of exercise response, training, and rehabilitation of children with special needs.

This course serves as an introduction to 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: PEPR 296, 298, 317, 395, 400, and 495.

PEPR 472 Recreation for the Aging 2 hrs. Fall
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.

PEPR 475 Intern Teaching in HPER 5 or 10 hrs.
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.

PEPR 476 Advanced Applications of Recreational Management 3 hrs.
The purpose of this course is to provide students with advanced skills that are required in the administration of modern recreation and leisure service agencies. This course will allow students not only to gain knowledge of advanced administrative skills, but to apply them in practical situations. This course will also present a final overview for recreation students and will cover in-depth issues such as ethics, communications, time management, legal issues, and professional development. Prerequisite: 376.

PEPR 480 Basic Electrocadiography 2 hrs.
The purpose of this course is to examine the anatomy, physiology and electrophysiology of the heart; identify and describe a normal EKG; identify and describe abnormal EKG's; identify arrhythmias and abnormalities of the heart from an EKG; become familiar with common cardiac medication; observe a maximal graded exercise test. Prerequisites: PEPR 296, 317.

PEPR 488 Research/Evaluation in Recreation 2 hrs.
An introduction to the methodology and scientific student of the phenomena of leisure and recreation. The course includes basic research and evaluation design, research and evaluation reporting, the analysis of current recreation and leisure research, and the use of computer in research recreation, and the use of computers in recreation research and evaluation.

PEPR 491 Exercise for Special Populations 3 hrs. Fall, Winter
This course serves as an introduction to exercise management for individuals who experience chronic disease and disabilities. Students will develop the ability to test procedures and program development for special populations, including the pathophysiology of various diagnoses and specific effects of exercise response, training, and contraindicated exercises. Prerequisites: PEPR 296, 298, 317, 395, 397, 444, and 445.

PEPR 496 Community Health Education Internship 4-6 hrs.
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 CHE major courses.

PEPR 497 Senior Seminar in Recreational Services 2 hrs.
The course is designed to present to the undergraduate student a final overview of the field of recreation 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. Prerequisite: PEPR 376.

PEPR 498 Exercise Science Internship 2-8 hrs.
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 HPER 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.

PEPR 499 Recreation Internship 6 hrs.
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 major must commit to a 15-week full time experience with an agency/organization in recreation or leisure service delivery or an appropriately related field.

Professional Courses Open To Underclass and Graduate Students (PEGR).

PEGR 500 Studies in Health, Physical Education and Recreation 1-3 hrs.
In-depth study of selected topics in HPER. 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. Hours may be designed to deal with one issue or several.

PEGR 516 Issues in Health Education 1-3 hrs.
The focus will be placed on current health issues. May be designed to deal with one issue or several.

PEGR 520 Physical Activities for Exceptional Children 3 hrs.
Physical and recreational activities and games used in corrective, adaptive and general physical education programs for special education children.

PEGR 521 Therapeutic Trends for Exceptional Children 3 hrs.
A study of past, present and future trends in habilitation and rehabilitation programs for handicapped people.

PEGR 530 Practicum in Teaching and Coaching 1-2 hrs.
Demonstrations, participation and evaluation on teaching and coaching fundamentals in selected sports. A graduate student may apply a maximum of four credits from 530 courses toward the Master's Degree Program. Sports include: Archery, Badminton, Basketball, Football, Golf, Field Hockey, Gymnastics, Ice Hockey, Judo, Karate, Soccer, Swimming, Track and Field, Volleyball, Wrestling, Yoga.

PEGR 533 Principles and Problems of Coaching 2 hrs.
Various dimensions and forces affecting coaching are identified and explored including educational implications of sport and coaching, characteristics of coaches and athletes, relationships, motivation, emotions, behavior, discipline, selecting and evaluating personnel, scientific principles and systems of training, the organization and planning of practices and total programs.

PEGR 540 Movement Education 2 hrs.
A concept in physical education which deals with the way children learn the basic principles of how their bodies move.

PEGR 560 Administration of Physical Education 2 hrs.
For administrative officers, as well as for teachers and directors of physical education. Includes a study of representative programs.
for physical education and discussion of standards for evaluating such programs.

P E G R 5 6 2 A d m i n i s t r a t i o n of A th l e t i c s
2 hrs.
Discusses administrative procedures and problems connected with athletic programs, including scheduling, facilities, personnel problems, school law and liability, eligibility, finance, safety, and the conduct of athletic events.

P E G R 5 8 0 S t u d i e s i n A t h l e t i c T r a i n i n g
1–2 hrs. Fall (Undergrad Athletic Trainer), Winter (Graduate Non-Athletic Trainer)
Listed with various topics. A lecture/demonstration course concerned with the prevention, diagnosis, and treatment of sports type injuries. Prerequisites: BIOS 211, 240, PEPR 380.

P E G R 5 8 2 A t h l e t i c T r a i n i n g for C o a c h e s
2 hrs.
Basic procedures in injury prevention, assessment, treatment, and rehabilitation will be covered. Principles and techniques are presented in a lecture and laboratory format. Prevention will be emphasized. Prerequisite: Permission of instructor.

P E G R 5 9 0 E x e r c i s e P h y s i o l o g y
2 hrs.
The mechanics of muscular contraction, nerve impulse conduction, oxygen exchange, and circulatory efficiency are discussed. Basic principles concerning the adaptation of the human body to stress in the form of strenuous physical exercise are applied to the training and conditioning of competitive athletics. Prerequisite: BIOS 211, 240.
Open to graduate students only.

P E G R 5 9 1 E v a l u a t i o n i n H e a l t h , P h y s i c a l E d u c a t i o n , and R e c r u t e n t i o n
2 hrs.
Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests. Open to graduate students only.

P E G R 5 9 5 A n a l y s i s of M o v e m e n t i n S p o r t
2 hrs.
The study of movement of muscles and the application of kinesiology to physical activity. Prerequisite: BIOS 211.
Open to graduate students only.

P E G R 5 9 8 R e a d i n g s i n H e a l t h , P h y s i c a l E d u c a t i o n and R e c r u t e n t i o n
1–2 hrs. All Semesters
Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approval of the Chairperson of the Department of Physical Education. Open to graduate students only.

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 general physical education office.

• P E G N 1 0 0 l e v e l c o u r s e s — a r e o p e n t o a l l
students and emphasize the beginning skills in the activity given. The student with some experience in activities marked—"Beginners Only" should enroll in 200/300 level courses.

• P E G N 1 7 0 – 1 8 0 — H e a l t h a n d W e l l n e s s
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 170–183 courses offered in one semester is prohibited. Courses are not repeatable for credit.

• P E G N 2 0 0 – l e v e l c o u r s e s — a r e o p e n t o a l
students who have completed a 100-level course in the activity or the equivalent. (** Prerequisite 240 or Red Cross Intermediate Card)

• P E G N 3 0 0 – l e v e l c o u r s e s — a r e o p e n t o a l
students desiring additional experience in an activity and who have completed the 200-level course or permission of instructor to enroll.

• P E G N 4 0 0 — A v a r i s t h e t y m a y r e c e i v e
P E G N credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

General Physical Education ( P E G N )
A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

P E G N 1 0 0 A d a p t e d P . E . M e d . R e c
1 hr.

P E G N 1 0 2 B a d m i n t o n
1 hr.

P E G N 1 0 3 A e r o b i c E x e r c i s e
1 hr.
Course consists of a broad spectrum of fitness exercises to music.

P E G N 1 0 4 B a s k e t b a l l
1 hr.

P E G N 1 0 5 B o w l i n g
1 hr.

P E G N 1 0 6 C a n c e C a m p i n g
1 hr.
The course combines the fundamentals of camping with canoeing. Culminates with a weekend camping trip by canoe.

P E G N 1 0 7 C a m p i n g
1 hr.

P E G N 1 0 8 B a c k p a c k i n g
1 hr.

P E G N 1 0 9 C y c l i n g
1 hr.

P E G N * 1 2 2 G o f f l
1 hr.

P E G N 1 2 8 J o g g i n g
1 hr.

P E G N * 1 3 1 B e g i n n i n g K a r a t e
1 hr.

P E G N 1 3 2 M i l i t a r y F i t n e s s
1 hr.

P E G N 1 3 5 O u t d o o r C h a l l e n g e
1 hr.
This course, taught in cooperation with Pretty Lake Camp, teaches teamwork, trust of others, and responsibility. This is a challenging outdoor program. Students work together to solve problems of survival in the outdoors.

P E G N 1 3 6 P h y s i c a l F i t n e s s
1 hr.

P E G N * 1 3 7 R a c q u e t b a l l
1 hr.

P E G N 1 3 8 R o c k C l i m b i n g
1 hr.
This course gives the student fundamentals of rock climbing and includes a weekend trip to cap off the experience.

P E G N 1 3 9 R e l a x a t i o n
1 hr.

P E G N * 1 4 4 S k i i n g — A l p i n e
1 hr.

P E G N 1 4 6 S o c c e r
1 hr.

P E G N 1 4 7 S o f t b a l l
1 hr.

P E G N * 1 4 9 S w i m m i n g — U n a b l e t o s w i m i n
d e e p w a t e r
1 hr.

P E G N 1 5 0 A d v a n c e d B e g i n n i n g S w i m m i n g
1 hr.
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 149 or equal skills.

P E G N * 1 6 0 T e n n i s I
1 hr.

P E G N 1 6 3 V o l l e y b a l l
1 hr.

P E G N 1 6 8 W e i g h t T r a i n i n g
1 hr.
Course consists of individualized weight training programs.

P E G N 1 7 0 — 1 8 2 — H e a l t h a n d W e l l n e s s 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 170–182 courses offered in one semester is prohibited. Courses are not repeatable for credit.

P E G N 1 7 0 H e a l t h a n d W e l l n e s s - A e r o b i c s
2 hrs.
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.

P E G N 1 7 1 H e a l t h a n d W e l l n e s s - W a t e r
A e r o b i c s
2 hrs.
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.

P E G N 1 7 2 H e a l t h a n d W e l l n e s s — C i r c u i t
F i t n e s s
2 hrs.
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.

P E G N 1 7 3 H e a l t h a n d W e l l n e s s — J o g g i n g
2 hrs.
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.

P E G N 1 7 4 H e a l t h a n d W e l l n e s s — W a l k i n g
2 hrs.
Students are provided information and experience allowing them to (1) acquire a knowledge base about human wellness from
facilitates a healthy lifestyle.

PEGN 175 Special Activities, e.g., Scuba, Snowboarding, Wall Climbing
1 hr.

PEGN 176 Health and Wellness — Racquet Sports
2 hrs.
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.

PEGN 177 Health and Wellness — Climbing Techniques
2 hrs.
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.

PEGN 178 Health and Wellness — Self-Defense
2 hrs.
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.

PEGN 179 Health and Wellness — Figure Skating
2 hrs.
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.

PEGN 180 Health and Wellness — Beginning Swimming
2 hrs.
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.

PEGN 181 Health and Wellness — Intermediate Swimming
2 hrs.
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.

PEGN 182 Health and Wellness — Swim Conditioning
2 hrs.
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.

PEGN 200 Physical Education Learning Lab Activities
1 hr.
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 200 number, with different course titles. Prerequisite: GPA of 3.0 overall.

PEGN 208 Intermediate Backpacking
1 hr.

PEGN 244 Intermediate Alpine Skiing
1 hr.

PEGN 249 Swimming—Intermediate
1 hr.

PEGN 250 Swimmer
1 hr.
Students will build on skills learned in Intermediate Swimming and learn to develop these skills in order to enter the Lifeguard Training course. Prerequisite: PEGN 249.

PEGN **251 Advanced Swimming and Emergency Water Safety
1 hr.

PEGN 252 Swim Conditioning
1 hr.
Students will build on skills learned in PEGN 250, and learn how to respond in an aquatic emergency. This course will serve as a sound foundation for further training in lifeguarding and aquatics. Prerequisite: PEGN 250 or equal skills.

PEGN 263 Volleyball Intermediate
1 hr.

PEGN 349 Lifeguard Training
2 hrs.
To provide the necessary minimum skills training for a person to serve as a non-surf lifeguard. Prerequisite: PEGN 251 or equal skills.

PEGN 350 Water Safety Instructor
2 hrs.
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 251 or equal skills. Current Life Saving Certificate required.

PEGN 351 Lifeguard Training Instructor (LGI)
2 hrs.
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 349.

VARSITY ATHLETICS

PEGN 400 Baseball
1 hr.

PEGN 401 Basketball
1 hr.

PEGN 403 Cross Country
1 hr.

PEGN 405 Football
1 hr.

PEGN 406 Golf
1 hr.
ED 106 Effective College Reading for International Students 2 hrs.
This course focuses on vocabulary development and comprehension, including an emphasis on correct pronunciation, word analysis, factual and inferential thinking, and synthesis of ideas. Course is graded on a credit/no credit basis. Prerequisite: Results of TOEFL or MTEL.

ED 200 Introduction to American Education 3 hrs.
This course is designed to explore some of the major educational issues that have provoked public debate and institutional reform in America. The purpose of the course is to achieve an understanding of these issues and the functions of education through the use of historical, sociological and philosophical concepts. The course provides an opportunity for pre-education students to explore their interest in education and teaching.

ED 230 The Nature of Creativity 3 hrs.
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. Open to all students.

ED 250 Human Development 3 hrs.
This course traces the psychological and social development of human beings from conception through adolescence. Consideration is given to those factors which facilitate or inhibit normal progress in the areas of physical, emotional, social, 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.

This course focuses on the physical, social, emotional, and cognitive development of the child, birth through 12 years. Special attention is given to cognitive development viewed in a Piagetian framework. Applications to the teaching of language arts are emphasized.

ED 300 The Adolescent and School Learning 3 hrs.
This course will develop an understanding of how children learn, from birth through adolescence. Emphasis will be placed on the learning styles of young children, aged 0 through 9. Emphasis will be placed on major learning theories, on the growth of positive self-concepts, and on the cognitive styles of these age levels. Students will examine the effects of cultural and gender differences and of discrimination on learning. Taken in conjunction with ED 312. Prerequisite: Admission to the Early Childhood Emphasis or minor.

ED 301 Secondary Content Literacy 3 hrs.
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 cognitive styles of these age levels. Students will examine the effects of cultural and gender differences and of discrimination on learning. Taken in conjunction with ED 312. Prerequisite: Admission to professional program in education.
ED 312 The Foundations of Reading Instruction 3 hrs.
This course will provide students with the foundations of reading instruction in the United States. Summaries of the results of current research on reading will be presented and the underlying theories will be examined. Also, current methods of teaching reading—especially the teaching approaches exemplified in basal programs—will be critically analyzed. The implications of current research affecting teaching will be discussed. Prerequisite: Admission to professional program in education. Taken in conjunction with ED 309 or ED 310.

ED 347 Technology for Elementary Education 2 hrs.
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 elementary education and will enable students to acquire basic skills in producing and using computers, video, and other instructional technologies in educational applications.

ED 350 Young Children, Their Families, and Their Society 3 hrs.
A study of 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 contexts, 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. Prerequisite: ED 250; admission to the Early Childhood Emphasis or minor.

ED 351 Literacy Development 3 hrs.
Course topics include the study of language development, emergent literacy, oralacy, and literacy development in classrooms. Emphasis will be placed on the implications of current research which affects reading/language arts instruction; experiences in selecting books; storytelling; and supporting children's first sentences. The nature of the elementary school as a system for transmitting ideas, information, and feelings will be introduced. Additionally, specific topics of importance to a foundational study, such as classroom management, will be presented. Prerequisite: Admission to professional program in education. Taken in conjunction with ED 309 or ED 310.

ED 352 Literacy and Language Arts in the Content Areas 3 hrs.
Course topics include a study of the factors involved in learning from content area texts, and of methods for providing instruction for a student population which is diverse in language, in culture, and in learning strengths and needs. Emphasis will be placed on the implications of current research affecting reading and language arts instruction, and on the development of materials to aid comprehension and vocabulary development, strategies for improving study processes, and methods of analyzing and evaluating students' progress. Integration across content areas, and integration of literature and language arts within content areas, are stressed. Designed for students seeking K-8 certification. Participation will be required in school settings. Prerequisite: ED 312. Elementary Education Minors must complete ED 351 prior to registering for ED 352.

ED 369 Early Childhood Classroom Organization and Management 3 hrs.
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. Emphasis will be placed on organization and management in early childhood classrooms and on appropriate learning experiences for young children. Requires a minimum of one (1) day per week participation in a classroom. Prerequisites: ED 309; admission to the Early Childhood Emphasis or minor.

ED 371 Elementary Classroom Organization and Management 3 hrs.
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. Prerequisite: ED 309 or ED 310.

ED 395 School and Society 3 hrs.
This course is concerned with the nature and direction of American education in its changing social context. The course focuses on major issues affecting the advancement of 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. The role of individuals in the change process in education is examined. 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. Prerequisite: Minimum of 70 earned semester credit hours.

ED 398 Special Studies in Education 1-6 hrs.
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 study 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 398, 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 398 may be applied toward meeting professional program requirements.

ED 401 Teaching Elementary School Science 3 hrs.
Designed to introduce students to a sampling of the elementary school science program. Emphasis will be given to the adaptation of science programs, techniques, philosophies, and teaching strategies that are currently being used in the elementary school science classroom. May be taken concurrently with ED 402. Prerequisite: ED 309 or ED 310 and all science courses.

ED 402 Practicum in Science and Mathematics Teaching 2 hrs.
This capstone course required of all students in the Science and Mathematics Teaching Minor will afford the student classroom teaching and observation experiences on a regular basis. In addition to the required classroom participation of two half-days per week, the student will meet periodically in a seminar with the supervising faculty from science, mathematics, and education. Prerequisites: MATH 352 and ED 401. ED 401 may be taken concurrently. Credit/no credit only.

ED 407 Teaching Elementary Social Studies 3 hrs.
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. Prerequisite: ED 309 or ED 310; ED 312; GEOG 102 or HIST 211 or PSCI 200; minimum of 75 earned credit hours.

ED 409 Seminar in Early Childhood Education 1 hr.
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 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 470.

ED 410 Seminar in Education 1-2 hrs.
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. Must be taken concurrently with ED 470 or ED 471 or ED 475, depending on program.

ED 430 Creativity in the Elementary School 4 hrs.
A synthesis of the principles developed in the Integrated Creative Arts Minor as applied to teaching and learning at the elementary school level. Emphasis is placed on the integration of creative processes in elementary school curriculum and instruction, on the
teacher as problem-solver, and on the creation of structures which accommodate individualization of instruction and creative problem solving in children. Prerequisite: Completion of all other courses in minor.

ED 460 Integrated Language Arts Seminar 4 hrs.
This course will focus on synthesizing theories, concepts, and classroom approaches from previous work in the Integrated Language Arts Minor. Students will practice restructuring curriculum objectives, classroom organization, and teaching strategies in order to achieve the maximum integration of the language arts processes in the elementary school. Students will pursue individualized programs culminating in a guided field experience through which students will demonstrate identified program competencies. Student- and faculty-led seminars will be scheduled periodically throughout the course.

ED 470 Intern Teaching: Early Childhood 5 hrs.
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 spring 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 school program where they are assigned. To be undertaken concurrently with ED 409. Graded on a Credit/No Credit basis. Prerequisites: Program requirements must be completed prior to Intern Teaching.

ED 471 Intern Teaching: Elementary/Middle School 5 or 10 hrs.
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. To be undertaken concurrently with ED 409. Graded on a Credit/No Credit basis. Prerequisites: All other courses and program requirements must be completed prior to Intern Teaching. Credit/no credit only.

ED 475 Intern Teaching: Middle School/Secondary 5 or 10 hrs.
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 extra-curricular programs of the school in which they teach. Prerequisite: All other courses and program requirements must be completed prior to Intern Teaching. To be undertaken concurrently with ED 410. Credit/No Credit only.

ED 500 In-Service Professional Development I 1 hr.
This course develops specific professional skills related to current school responsibilities of teachers and other school personnel. Final course outcomes need to have 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 programs will be provided in advance of registration by the program advisor.

ED 502 Curriculum Workshop 1–6 hrs.
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 curriculum 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 section will be given an appropriate subtitle, which will be listed on the student’s official transcript. Students may earn up to three hours credit for each subtitle. No more than six hours of 502 may be applied toward a Master’s degree.

ED 503 Educational Technology Academy 1–3 hrs.
This course is designed to permit students to update knowledge and skills in current educational technology and apply this learning for use in educational programs for students in pre-kindergarten through college programs. Such applications include methods of using computers, video and audiovisual technologies in literacy development, content area programs, instructional management, and the arts, as well as others appropriate to preservice and inservice professionals.

ED 504 Adult Development 3 hrs.
This course provides an in-depth look at each age and stage in the life cycle. It will explore such problems as the changing role of parents and singles, the changing societal pressures on teachers, new adult life-styles, mid-life career changes, the changing roles of males and females, and unique health stresses.

ED 505 The Adult Learner 3 hrs.
This course will provide an in-depth look at the learning adult from 22 to death with emphasis on human variability, unique learning style, and characteristics of the adult learner. Theories of adult learning, studies of intelligence and memory, and learning capabilities and motivation as prerequisite for high-level well-being and problem solving will be studied.

ED 506 Teaching in Adult Education 3 hrs.
This course is designed to provide teachers with a knowledge of special situations which occur in the teaching of adults. Included are techniques of interpersonal communication with adults, as well as a practical exercise in the designing of learning experiences for adults. The course will be of audiovisual media, experts in the field, and field observation in adult learning activities. The course should be helpful to administrators in planning inservice programs for their own staff.

ED 508 Seminar in Parent Education 2 hrs.
Emphasis will be placed on cooperative problem-solving between parents and teachers of school-age children and youth. Problems considered will include such topics as grief and loss through death, divorce, or separation; special needs and contributions of multicultural pupils; and the roles of persons and paraprofessionals in the schools, and problems identified by members of the seminar. Members of the seminar will report on the current literature available through libraries and community resources and work toward potential solutions of problems.

ED 516 Professional Symposium in Reading 3 hrs.
This course is designed to be the initial course in the graduate program in reading. It is designed to bring students with specific needs, instructors and highly-focused learning experiences. May be repeated.

ED 550 Photography Workshop 1–3 hrs.
Intended to sharpen visual perception while improving technical skills, this laboratory course emphasizes photography as a creative and expressive medium of visual communication. Each student is expected to produce new photographs each week and to submit one or more mounted enlargements for group critique at each class meeting. Each student must have the use of appropriate equipment and should expect to spend $80 or more for supplies. Although no prerequisite is required, it is helpful to have had some experience with basic darkroom procedures. May be repeated up to a total of six credits.

ED 575 Administration of Child Development Centers 3 hrs.
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 facilities. (Cross-listed with FCS 575.)

ED 597 Reading and Related Language Experiences 3 hrs.
This course involves a study of the current research on aspects of language which are involved in the process of effective reading. It is intended to provide students with a thorough understanding of the research in language and its application to the teaching of reading. It is also intended to help students understand more fully the place of reading in a total language arts program and to give students an opportunity to make application to practical classroom situations.
ED 598 Selected Reading in Education
1-4 hrs.
Designed for highly qualified students who wish to study in-depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental advisor and instructor.
COLLEGE OF
ENGINEERING AND APPLIED SCIENCES

Daniel M. Litynski
Dean

Molly W. Williams
Associate Dean for Research and Graduate Programs

Edmund Tsang
Associate Dean for Undergraduate Programs and Assessment

Sandra F. Blanchard
Director of Undergraduate Advising and Admissions

Lawrence A. Williams
Director of Cooperative Education

Academic Units:
Computer Science
Construction Engineering, Materials Engineering, and Industrial Design
Electrical and Computer Engineering
Industrial and Manufacturing Engineering
Manufacturing Engineering
Mechanical and Aeronautical Engineering
Paper and Printing Science and Engineering

GENERAL INFORMATION

College Vision
A scholarly community dedicated to excellence through student-centered education and research emphasizing professional engineering practice.

College Mission
The mission of the College of Engineering and Applied Sciences is to educate our learning community for life-long excellence in responsible professional leadership; to increase knowledge through collaborative discovery, integration, application, and teaching, to serve as a resource and partner to our constituents; and to prepare job-ready graduates for the global market.

Our primary mission is education for the entire learning community, which includes students, faculty, staff, and the other constituencies we embrace. Our second mission of knowledge generation can be expressed through the fourfold scholarship model of discovery, integration, application, and teaching. Our service mission calls us to be source and sustenance as we support our constituents both on and off campus in win-win partnerships. In our mission to prepare job-ready graduates for the global market, we have consistently scored high in the ability of our graduates to adjust to the workplace and quickly contribute at a high level to their profession. We want to ensure they are prepared to meet the challenges of a global economy.

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 Computer Engineering, Construction Management, Electrical Engineering, Engineering Management, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, Operations Research, and Paper and Imaging Science and Engineering, and Ph.D. degrees in Computer Science, Industrial Engineering, Mechanical Engineering, and Paper and Imaging Science and Engineering. Students interested in a graduate program should see the WMU Graduate Catalog for more information.

Computer Aided Engineering Center
Sal Ravichandran, 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
Sandra F. Blanchard, Director
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.
A majority of engineering 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.

Engineering Graduates

Undergraduate engineering 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 engineering alumni held positions of president, vice president, owner, plant manager, chief engineer, senior design engineer, sales manager, and lawyer.

Students interested in advanced studies in engineering may pursue a Master of Science degree in Computer Engineering, Electrical Engineering, Mechanical Engineering, Engineering Management, or Engineering Management at WMU.

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 may complete one of two programs and receive either a B.S. in Computer Science or a B.S. in Computer Science, Theory and Analysis. Both programs require a minor in mathematics and 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 accredited engineering programs are eligible to be licensed in Michigan. Students interested in professional registration should consult with their department advisor.

ADMISSION TO ENGINEERING PROGRAMS

ADMISSION TO PRE-ENGINEERING

All students admitted to the University and planning to pursue one of the following curricula will be enrolled in the pre-engineering (PE) curriculum:

Aeronautical Engineering (AER)
Chemical Engineering (CHEG)
Computer Engineering (CPE)
Construction Engineering (CEN)
Electrical Engineering (EE)
Industrial Engineering (IEN)
Manufacturing Engineering (MFE)
Materials Engineering (MME)
Mechanical Engineering (ME)
Paper Engineering (PAE)

University admission standards are used for enrollment in the PE curriculum. Students admitted to the PE curriculum should have appropriate academic preparation.

ACADEMIC ADVISING

All students enrolled in the PE curriculum will receive academic advising by the College of Engineering and Applied Sciences.

ENROLLMENT RESTRICTIONS

Pre-engineering (PE) students will not be permitted to enroll in any course offered by the College of Engineering and Applied Sciences above the 300-level unless it 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 CORE COURSES REQUIRED FOR ALL CURRICULA

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 122, 123, and 272</td>
<td>12 hrs.</td>
</tr>
<tr>
<td>CHEM 110 and 111</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>General Education AREA I, II, III, IV, or V</td>
<td>6-8 hrs.</td>
</tr>
</tbody>
</table>

ADDITIONAL COURSES REQUIRED BY CURRICULA

Aeronautical Engineering CS 106; ECE 210; IME 102, ME 256; PHYS 205 and 206; PHYS 207 and 208; and PHYS 309 or CHEM 112. See the Department of Mechanical and Aeronautical Engineering for course requirements.

Chemical Engineering CHEM 112 and CHEM 113; CHEG 101, CHEG 281; CS 106; PHYS 205 and PHYS 206; and PHYS 207 and PHYS 208. See the Department of Paper and Printing Science and Engineering for course requirements.

Computer Engineering CS 111; ECE 210; ECE 250; IME 102, PHYS 205 and PHYS 206, and PHYS 207 and PHYS 208. See the Department of Electrical and Computer Engineering for course requirements.

Construction Engineering CS 106; GECL 130; IME 102; IME 261; ME 232; ME 256; PHYS 205 and 206; PHYS 207 and 208. See the Department of Construction Engineering, Materials Engineering, and Industrial Design for course requirements.

Electrical Engineering CS 306; ECE 210; IME 102; ME 256; PHYS 205 and PHYS 206; PHYS 207 and PHYS 208, and PHYS 309 and 310. See the Department of Electrical and Computer Engineering for course requirements.

Industrial Engineering ECE 210; IME 102; IME 206; IME 261; ME 253, and PHYS 205 and
PHYS 206, PHYS 207 and PHYS 208. See the Department of Industrial and Manufacturing Engineering for complete Industrial Engineering curriculum requirements.

Manufacturing Engineering CS 200; IME 102; MATH 120; PHYS 205 and PHYS 206; and PHYS 207 and PHYS 208. See the Department of Manufacturing Engineering for complete Manufacturing Engineering curriculum requirements.

Materials Engineering CHEM 112 and CHEM 113; CS 306; ECE 210; IME 102; IME 261; ME 253; PHYS 205 and 206; PHYS 207 and 208. See the Department of Construction Engineering, Materials Engineering, and Industrial Design for complete Materials Engineering curriculum requirements.

Mechanical Engineering CS 106; IME 102, ECE 210; ME 232; ME 256; PHYS 205 and PHYS 206; PHYS 207 and PHYS 208; and PHYS 309 and PHYS 310 OR CHEM 112 and CHEM 113. See the Department of Mechanical and Aeronautical Engineering for complete Mechanical Engineering curriculum requirements.

Paper Engineering CHEG 261; CHEM 112 and CHEM 113; CS 106; IME 102; PHYS 205; PHYS 207; and PAPR 204. See the Department of Paper and Printing Science and Engineering for complete Paper Engineering curriculum requirements.

ADMISSION TO AN ENGINEERING CURRICULUM

The student seeking a baccalaureate degree in Aeronautical Engineering (AER), Chemical Engineering (CHEG), Computer Engineering (CPE), Construction Engineering (CEN), Electrical Engineering (ECE), Industrial Engineering (EI), Manufacturing Engineering (MFE), Materials Engineering (ME), Mechanical Engineering (ME), or Paper Engineering (PAE) may apply for formal admission to one of these engineering curricula after successfully completing the pre-engineering curriculum requirements. Only students who have demonstrated 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 PE 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. Students in an engineering curriculum will be advised by a faculty advisor from that curriculum.

4. There are currently no established enrollment limits for admission to engineering curricula.

OFF-CAMPUS DEGREE PROGRAMS

The College of Engineering and Applied Sciences offers complete undergraduate (described below) and graduate (described in The Graduate College Catalog) degree programs off-campus.

MANUFACTURING ENGINEERING

The Bachelor of Science in Manufacturing Engineering is offered only at the Muskegon Regional Center and the Battle Creek Regional Center. This program is not available on campus. Additional information can be obtained by contacting the Director of Manufacturing Engineering and Technical Programs at the WMU Muskegon Regional Center at (231) 777-0500 or the WMU Battle Creek Regional Center at (616) 965-5380. You may also refer to the Department of Manufacturing Engineering section of this catalog.

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.

GENERAL COLLEGE CURRICULUM (GCA)

Non-engineering students who have not decided on a particular program in the College of Engineering and Applied Sciences may initially enroll in the General College Curriculum (GCA). Written permission of the academic advisor is required to enroll in this curriculum beyond the second year.

INTERDISCIPLINARY PROGRAMS

Integrated Supply Matrix Management Major

37 hours

This program prepares students to integrate business and technological concepts for a successful career in supply management. The program is offered by the Haworth College of Business and the College of Engineering and Applied Sciences. Graduates receive a Bachelor of Business Administration degree. See the Haworth College of Business section of this catalog for program requirements.

Integrated Supply Matrix Management Minor

15 hours

Core Classes—9 hours
IME 326 Operations Planning and Control OR
IME 416 Operations Control in Industry 3
MKTG 372 Purchasing Management 3
MKTG 484 Business Logistics 3

Capstone class—3 hours (take one of the following)
MKTG 485 Material Systems Analysis 3
MKTG 480 Materials Management Strategy 3
MKTG 481 Integrated Materials Systems 3

Elective—3 hours (one of the following)
IME 328 Quality Assurance and Control 3
IME 318 Statistical Quality Control 3
FCL 486 Marketing and Sales Law 3
MKTG 485 Material Systems Analysis 3
MKTG 480 Materials Management Strategy 3
MKTG 481 Integrated Materials Systems 3

RELATED ACADEMIC PROGRAMS

COOPERATIVE EDUCATION PROGRAM

Lawrence A. Williams, Director

Students enrolled in engineering and related degree curricula may gain experience and knowledge about a professional field of interest by enrolling in the cooperative education program. Additional information may be obtained from the Director in Room 2038 Kohrman Hall.

Students on the alternating plan will alternate by semester between campus and industry. While on the job, the student can enroll in the course IME 300, Co-operative Education. During their employment periods, Co-op students are paid an appropriate salary by their employer. Single semester internships and parallel co-op work experiences are also available.

Cooperative education 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 cooperative 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 special interest courses while earning a degree in any standard curriculum. Students following the Foundry Program are eligible to be considered for scholarship awards made available each semester by the Foundry Educational Foundation.

Engineering and Applied Sciences College Courses (ENGR)

ENGR 101 Introduction to Engineering and Technology

1 hour

Exploration of the career opportunities and demands of the engineering and engineering technology professions. Includes activities to strengthen student communication, problem-solving, leadership, and study skills, while surveying the various engineering disciplines.

ENGR 497 General University Studies (Variable Credit)

Evaluation of work experience and/or course work relevant to the area of specialty in the Technical-Scientific area studies. Prerequisite: Permission of the Technical-Scientific Studies advisor, Room 2038, Kohrman Hall.
COMPUTER SCIENCE

Ajay Gupta, Chair
Elise de Doncker
Donna Kaminski
John Kapenga
Karlis Kaugars
Mark Kerstetter, Director of Undergraduate Programs
Dionysos Koutantas
Mukesh Mohania
Donald Nelson
Thomas Paikowski, Director of Graduate Programs
Ben Pincus
Robert Trenary
Li Yang

The Department of Computer Science offers two bachelor of science programs and two minors 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.

Computer Science is the study of digital computers and their uses for the effective processing of information. Degree programs offered emphasize 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 as well as complete programs which provide much more focus in computer science.

The undergraduate programs described here provide 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.

Computer Science areas of specialization can include: artificial intelligence, databases, distributed computing, graphics, human-computer interfaces, networking, operating systems, pattern recognition, programming languages, software engineering, theory of computing, and web analysis and design.

In computer science programs, you will study mathematics, general education subjects, and some electrical and computer engineering courses. Mathematics is necessary for the analysis and comparison of computer languages, machines, algorithms, and data structures. The theory and analysis major also requires courses in the basic sciences, engineering ethics, and communications. Communicating ideas orally and in writing is important for computer scientists.

Academic Advising

Students should contact 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 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. Academic advising is available through Room 2038 Kohman Hall, (618) 387-4033.

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.

Enrollment will not be honored if it is found that the proper prerequisites have not been met. Students whose enrollments are denied for this reason are responsible for processing drop slips with the Registration Office.

CURRICULA

COMPUTER SCIENCE—THEORY AND ANALYSIS CURRICULUM

Bachelor of Science in Computer Science—Theory and Analysis

The Theory and Analysis program has been accredited by the Computing Sciences Accreditation Board, Inc. (CSAB). It provides a greater depth and breadth in computer science than the general option (see below). The Theory and Analysis option includes additional emphasis in physics, science, and engineering, as well as the minor in mathematics. Students planning computer science as a profession or contemplating graduate study in computer science are urged to enroll in this major.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Theory and Analysis option of the Computer Science program will satisfy the Baccalaureate Writing Requirement by successfully completing CS 460 Software Systems Development.

REQUIREMENTS

Candidates for the Bachelor of Science in Computer Science—Theory and Analysis must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy the accreditation requirements, all students must complete laboratory science requirements consisting of a two-course, calculus-based physics sequence PHYS 205–206 and PHYS 207–208 (PHY 206 and 208 are laboratories accompanying the regular classes) and two additional laboratory science courses for science majors. Currently these courses include: CHEM 110 with lab CHEM 111, CHEM 112 with lab CHEM 113, BIOL 112 with lab BIOL 110, GEOL 130 or GEOG 131. The geology courses contain their own laboratory elements.

2. CSAB accreditation also requires 30 hours of general education courses excluding any science, mathematics, and computer science. Two courses, COM 104 and PHIL 410 are required. The remaining hours can be selected from the University General Education requirements.

3. A grade point average of 2.0 or better must be earned in courses presented for graduation with CS, ECE, MATH, and STAT prefixes.

4. Complete the following program of 122 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning with the fall semester.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>CS 111 Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 122 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 250 Digital Logic</td>
<td>3</td>
</tr>
<tr>
<td>Science Elective with Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>AREA V Social and Behavioral Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Second Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>CS 112 Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 123 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>ECE 250 Digital Logic</td>
<td>3</td>
</tr>
<tr>
<td>Science Elective with Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>Third Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>CS 223 Computer Organization &amp; Assembly Language</td>
<td>3</td>
</tr>
<tr>
<td>MATH 123 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 205 Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206 Mechanics and Heat Lab</td>
<td>1</td>
</tr>
<tr>
<td>AREA II Humanities</td>
<td>3</td>
</tr>
<tr>
<td>Fourth Semester</td>
<td>14 hours</td>
</tr>
<tr>
<td>CS 331 Data and File Structures</td>
<td>3</td>
</tr>
<tr>
<td>MATH 145 Discrete Mathematical Structures</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 207 Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208 Electricity and Light Lab</td>
<td>1</td>
</tr>
<tr>
<td>AREA III The United States: Cultures and Issues</td>
<td>3</td>
</tr>
<tr>
<td>Fifth Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>CS 224 System Programming Concepts</td>
<td>3</td>
</tr>
<tr>
<td>CS 485 Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>MATH 230 Elementary Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>COM 104 Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>AREA VIII Health and Well-being</td>
<td>2</td>
</tr>
<tr>
<td>Sixth Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>CS 531 Design and Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 580 Theory of Computation</td>
<td>3</td>
</tr>
<tr>
<td>STAT 364 Statistical Methods</td>
<td>4</td>
</tr>
<tr>
<td>ECE 357 Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>AREA IV Other Cultures and Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>Seventh Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>CS 554 Operating Systems Development</td>
<td>3</td>
</tr>
<tr>
<td>Elective Approved CS Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective Approved CS Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective Approved CS Elective</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 410 Professional Ethics</td>
<td>3</td>
</tr>
<tr>
<td>AREA I Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>Eighth Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>CS 460 Software Systems Development</td>
<td>3</td>
</tr>
<tr>
<td>CS 498 The Computer Science Profession</td>
<td>1</td>
</tr>
<tr>
<td>Elective Approved CS Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective Approved CS Elective</td>
<td>3</td>
</tr>
<tr>
<td>AREA VII Natural Science and Technology: Applications and Implications</td>
<td>3</td>
</tr>
<tr>
<td>Elective Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective Free Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

*A least two courses in General Education must be at the 300–400 level. Item "1" above must also be satisfied.

**See the Computer Science Advisor. Such electives may be described in the Undergraduate Catalog or in departmental materials published traditionally or on its web site. Not all computer science courses may be used to satisfy this requirement.

***Some science course electives (e.g., BIOS 110 & 112, CHEM 110 & 111, and GEOL 130) can also be counted towards General Education requirements.
Students who have chosen the Computer Writing Requirement by successfully completing CS 460 Software Systems Development.

REQUIREMENTS
Candidates for the Bachelor of Science in Computer Science must satisfy the following requirements in addition to those required by Western Michigan University:
1. Students must satisfy the University General Education requirements.
2. A grade point average of 2.0 or better must be earned in courses presented for graduation with CS, ECE, MATH, and STAT prefixes.
3. Complete the following program of 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** — 15 hours
- CS 111 Computer Science I
- IME 101 Technical Communications
- ECE 250 Digital Logic
- AREA VIII Health and Well-being
- Free General Education Elective

**Second Semester** — 16 hours
- CS 112 Computer Science II
- CS 223 Computer Organization & Assembly Language
- MATH 122 Calculus II
- AREA II Humanities
- Elective

**Third Semester** — 15 hours
- CS 331 Data and File Structures
- Free General Education Elective
- Elective

**Fourth Semester** — 15 hours
- CS 2 — CS Language or Technology Elective
- CS 224 System Programming Concepts
- MATH 145 Discrete Mathematical Structures
- AREA I Fine Arts
- AREA VI Natural Science with Laboratory

**Fifth Semester** — 15 hours
- CS 2 — CS Language or Technology Elective
- CS Elective
- MATH 230 Elementary Linear Algebra
- AREA III United States. Cultures and Issues
- Elective

**Sixth Semester** — 16 hours
- CS 485 Programming Languages
- CS Elective
- STAT 364 Statistical Methods
- AREA IV Other Cultures and Civilizations
- Elective

**Seventh Semester** — 16 hours
- CS 554 Operating Systems
- AREA V Social and Behavioral Sciences
- Free General Education Elective
- Elective
- Elective

**Eighth Semester** — 15 hours
- CS 460 Software Systems Development
- AREA VII Natural Science and Technology Applications
- Free General Education Elective
- Elective
- Elective

*At least two courses in General Education must be at the 300-400 level. Item "1" above must also be satisfied.
**See the Computer Science Advisor. Such electives may be described in the Undergraduate Catalog or in departmental material published traditionally or on its web site. Not all computer science courses may be used to satisfy this requirement.

**COMPUTER SCIENCE—GENERAL OPTION MINOR**

The department offers a general minor in computer science. This minor allows a student to complete a secondary concentration in computer science. The concentration can be used to support a wide variety of disciplines.

**REQUdED MATHEMATICS COURSE**

- **GENERAL OPTION MINOR**
- MATH 22 Calculus I
- or
- MATH 220 Analysis & Applications

**COMPUTER SCIENCE COURSES**

**- 21 hours**
- CS 111 Computer Science I
- CS 112 Computer Science II
- CS 223 Computer Organization & Assembly Language
- CS 331 Data and File Structures
- Programming Language/Technology Elective

**REQUIRED MATHEMATICS COURSE**

- **- 4 hours**
- MATH 122 Calculus I
- or
- MATH 220 Analysis & Applications

**COMPUTER SCIENCE COURSES**

**- 21 hours**
- CS 111 Computer Science I
- CS 112 Computer Science II
- CS 201 Programming in FORTRAN
- CS 20X Programming Language Experience
- CS 223 Computer Organization & Assembly Language
- CS 331 Data and File Structures

**COMPUTER SCIENCE—SCIENCES OPTION MINOR**

The department offers a minor in computer science that is suitable to support scientists and engineers. The minor allows a student to complete a secondary concentration in computer science.

**REQUdED MATHEMATICS COURSE**

- **- 12 hours**
- MATH 122 Calculus I
- or
- MATH 220 Analysis & Applications

**CONSTRUCTION SCIENCE—SCIENCES OPTION MINOR**

The department offers a minor in computer science that is suitable to support scientists and engineers. The minor allows a student to complete a secondary concentration in computer science.

**REQUdED MATHEMATICS COURSE**

- **- 12 hours**
- MATH 122 Calculus I
- or
- MATH 220 Analysis & Applications

**REQUIRED MATHEMATICS COURSES**

- **- 12 hours**
- MATH 122 Calculus I
- or
- MATH 220 Analysis & Applications

**Computer Science Courses (CS)**

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog.

CS 104 Introductory C/C++

This course provides an introduction to programming using a subset of the C/C++ language. Topics covered will include: programming practices and structures, C++ syntax including variable declaration types, arrays, assignment statements, looping, functions, scope of variables, pointers and basic input-output. Although classes are introduced, concepts of object oriented programming will not be covered. **Prerequisite:** 1 year of high school algebra or MATH 111.

CS 105 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 102 and CS 105. This course may not be used in computer science major or minor programs.

CS 106 Introductory Visual BASIC

This course provides an introduction to programming in the BASIC language using Visual BASIC. It is designed primarily to give students enough background so they can use BASIC in further course work. **Prerequisite:** 1 year of high school algebra or MATH 111. This course does not fulfill the computer literacy requirement.

CS 107 Introductory Programming: FORTRAN

This introduction to computer programming using the FORTRAN language (FORmula TRANslating). **Prerequisite:** 1 year of high school algebra or MATH 111. Credit will not be given for both CS 201 and CS 107. This course will not be used towards a major or minor in Computer Science.
CS 111 Computer Science I 4 hrs.
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. Co-requisite: MATH 118.

CS 112 Computer Science II 4 hrs.
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. Prerequisite: CS 111; co-requisite: MATH 122 or MATH 200.

CS 200 Programming Language Experience 2 hrs.
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 111 and 1½ years of high school algebra or MATH 111.

CS 201 Programming in FORTRAN 2 hrs.
Details of the FORTRAN computer programming language are presented. 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. Prerequisite: CS 111.

CS 202 Programming in COBOL 2 hrs.
Details of the COBOL computer programming language are presented. 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. Prerequisite: CS 111 and 1½ years of high school algebra or MATH 111.

CS 203 Programming in C 2 hrs.
Details of the C computer programming language are presented. Students obtain practice by writing programs in C. The course assumes knowledge of a computer system, editors, and programming concepts. Prerequisite: Substantial programming in a structured high-level language.

CS 204 Programming in C++ 2 hrs.
Details of the C++ computer programming language are presented. Students obtain practice by writing programs in C++. The course assumes knowledge of a computer system, editors, and programming concepts. Prerequisite: Substantial programming in a structured high-level language.

CS 205 Programming in Java 2 hrs.
Details of the Java computer programming language are presented. Students obtain practice by writing programs in Java. This course assumes knowledge of and experience using a computer system, editors, and programming concepts. Prerequisite: Programming experience in a structured high-level language.

CS 206 Programming in Visual BASIC 2 hrs.
Details of the Visual BASIC computer programming language are presented. Students obtain practice by writing programs in Visual BASIC. This course assumes knowledge of and experience using a computer system, editors, and a programming language. Prerequisite: Programming experience in a structured high-level language and use of a MS-Windows-based computer system.

CS 210 Introductory Topics in Computing Technology 1-2 hrs.
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.

CS 223 Computer Organization and Assembly Language 3 hrs.
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 piping, register window, 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 111.

CS 224 System Programming Concepts 3 hrs.
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 locks. All topics are viewed from a UNIX system programming perspective. Prerequisite: CS 112 and CS 223.

CS 302 Teaching of Computer Science 3 hrs.
This course deals with the problems and current trends of teaching high school computer science. The main emphasis is on effective methods of instruction. Practical methods of selection, organization, and maintenance of hardware and software are also considered. Topics such as computer literacy, the computer as a problem-solving tool, issues in computing, and related computer applications will be considered and discussed. This course does not carry credit towards a Computer Science Major or Minor; however, it is required for course those in Secondary Education. Prerequisites: CS 105, CS 112, and junior status.

CS 331 Data and File Structures 3 hrs.
This course focuses on the study of internal and external data structures and algorithms with an ongoing practice by writing programs 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 hask 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 112 or equivalent.

CS 340 Graphical User Interface Development 3 hrs.
An introduction to the design and development of graphical user interfaces. The emphasis in this course is on event-driven, event-oriented programming using GUI toolkits, with special emphasis on the design of interactive programs, web-based interaction, and the role of usability testing. Prerequisite: CS 112.

CS 402 Introductory Microcomputer Concepts for Teachers 3 hrs.
This course is designed to provide teachers with a minimum foundation in computer concepts and programming. Emphasis is on the use of the BASIC language to perform a variety of educational applications on microcomputers. Concepts and software architecture and capabilities are explored as well as the significance of computers in contemporary society. Students will write a number of programs and will receive an introduction to the use of standard system software. Flowcharting is introduced. Examples of Computer Assisted Instruction will be given. Not for Computer Science majors and minors (except teaching). Prerequisite: MATH 160 or equivalent.

CS 412 Professional Field Experience 1–3 hrs.
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. Prerequisite: CS 331 or equivalent, and approval in advance by the Department.

CS 443 Data Base Management Systems (DBMS) 3 hrs.
This course presents the fundamental concepts and practices of data base management systems. The data base environment and administration are defined along with the roles of the data base administrator and the data dictionary. Conceptual and logical models are discussed. The three approaches—relational, hierarchical and network—are briefly described. 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 data base system. Students may do project work and write application programs which use the data base system. Not for Computer Science Majors (except Teaching major). Prerequisite: CS 202 or BIS 362. A student may not receive credit for both CS 443 and CS 543.

CS 460 Software Systems Development 3 hrs.
This is a projects course in software engineering that leads teams of students through the software development cycle: requirements analysis and specification,
design, implementation, and testing of software systems. Life cycle models, planning, software quality assurance and maintenance are also discussed. Each student team works on a real project throughout the course. Teams produce a variety of documents and participate in formal product demonstrations open to clients and the public at the end of the course. The course is approved as a writing-intensive course which may fulfill the student's curriculum. Prerequisite: CS 331.

CS 485 Programming Languages 3 hrs.
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. Prerequisites: CS 331.

CS 495 Topics in Computer and Information Science 3 hrs.
The content of this course varies. It is intended to introduce the student to significant topics which would be studied as separate courses. This course may be taken more than once with the approval of the student's advisor. Prerequisite: Approval of Department.

CS 498 The Computer Science Profession 1 hr.
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.

CS 499 Undergraduate Research in Computer Science 1–3 hrs.
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 499 should consult their department advisor or the department chair for details. May be repeated for credit to a maximum of three hours. Graded Credit/No Credit basis. Prerequisite: Department approval.

CS 500 Introductory Statistics 3 hrs.
A course in statistics for students in the sciences. Emphasis is on descriptive statistics and probability. Applications to computer science. Prerequisite: instructor's permission.

CS 501 Introduction to Data Structures 3 hrs.
elements and simulations, as well as implementation oriented problems. Genetic algorithms, evolutionary programs, and evolution strategies. This course is cross-listed with ECE 532. Prerequisite: CS 331.

CS 540 Designing of User Interfaces 3 hrs.
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. Prerequisites: CS 340 or permission of instructor for undergraduate students. No prerequisite for graduate students in Computer Science.

CS 543 Principles of Database Management Systems 3 hrs.
The fundamental concepts of database design and efficient usage are presented. Topics include: an overview of databases; the three data models—relational, hierarchical, and network; conceptual, logical, and physical database design and evaluation. The design theory of relational data models will be emphasized. Query languages, query optimization, security, integrity, and concurrency protocols will also be covered. A student may not receive credit for both CS 443 and CS 543. Prerequisite: CS 331.

CS 554 Operating Systems 3 hrs.
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, file management, and protection are discussed. Applications to real systems are investigated to motivate the ideas presented. Students build or run simulations to simulate the internals of a working operating system. Prerequisites: CS 224 and CS 331.

CS 555 Computer Networks and Distributed Systems 3 hrs.
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. Prerequisite: CS 224 and CS 331.

CS 580 Theory of Computation 3 hrs.
Provides an introduction to the theory of computation in the framework of programming languages. Basic definitions and concepts dealing with algorithms, sets, relations, functions, induction operations on functions and cardinality are covered. Primitive and partial recursive functions are defined and their properties treated with applications to coding techniques. The Chomsky hierarchy of languages, including recursive and recursively enumerable sets and their acceptors, is introduced. Students are assumed theoretical as well as implementation oriented problems. Prerequisites: CS 331 and MATH 145.

CS 581 Compiler Design and Implementation 3 hrs.
Students are introduced to major aspects of compiler design. These include lexical
analysis, parsing, and translation. Each student will implement a small compiler using modern compiler writing tools. **Prerequisite:** CS 485 or CS 580.

**CS 582 Artificial Intelligence** 3 hrs.
This course provides an overview of artificial intelligence including basic A.I. techniques and concepts, e.g., production systems, heuristic searching techniques, knowledge representation, predicate calculus, and pattern recognition. It introduces A.I. application areas such as game playing, expert systems, vision, natural language processing, and learning. **Prerequisite:** CS 331.

**CS 595 Advanced Topics in Computer and Information Science** 1–3 hrs.
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. **Prerequisite:** Approval of Department.

**CS 599 Independent Study in Computer Science** 1–3 hrs.
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. **Prerequisite:** Written approval of instructor.

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**CONSTRUCTION ENGINEERING, MATERIALS ENGINEERING, AND INDUSTRIAL DESIGN**

**CONSTRUCTION ENGINEERING, MATERIALS ENGINEERING, AND INDUSTRIAL DESIGN**

Roman J. Rabiej, Chair
Osama Abudayyeh
Pnina Ari-Gur
Valery Bliznyuk
Alvaro Correa
A. H. Jayatissa
David Middleton
Jawahar Nesan

The Department of Construction Engineering, Materials Engineering, and Industrial Design offers the following curricula:

**Construction Engineering—B.S.E. degree**

**Industrial Design—B.S. degree**

**Materials Engineering—B.S.E. degree**

**Construction Management—M.S. degree**

**Materials Science and Engineering—M.S. degree**

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.

**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 2038, Kohrman Hall, phone (616) 387-4033. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

**Additional Costs**

Class-related charges are assigned for laboratory, studio, and some lecture courses to help cover cost of materials and services.

**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.

**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.


**CURRICULA**

**CONSTRUCTION ENGINEERING**

Bachelor of Science in Engineering (Construction)

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.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Construction Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing CMD 483 Project Design and Control and CMD 485 Senior Project.

**REQUIREMENTS**

Candidates for the Bachelor of Science in Engineering (Construction) must complete the following program of 132 semester credit hours as well as University requirements stated elsewhere in this catalog:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences, and/or behavioral sciences). The sequence must begin with a 100-200 level course and conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV, and/or V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social science, and/or behavioral sciences.

2. A "C" average or better must be earned in required courses with an CMD, ECE, or ME prefix.

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 132 semester hours. The schedule below is an example of one leading to graduation in eight semesters. Pre-engineering requirements are in darker italic print.

<table>
<thead>
<tr>
<th>First Semester</th>
<th>17 hours</th>
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</thead>
<tbody>
<tr>
<td>CMD 131 Introduction to the Construction Environment (AREA VII)</td>
<td>3</td>
</tr>
<tr>
<td>CMD 149 Introduction to Architectural Drawing</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110 General Chemistry I (AREA VI)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111 General Chemistry Laboratory I (AREA VI)</td>
<td>1</td>
</tr>
<tr>
<td>IME 102 Technical Communication (Prof. 1)</td>
<td>3</td>
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<tr>
<td>MATH 122 Calculus I (Prof. 3)</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>17 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 130 Physical Geology (AREA VI)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 123 Calculus II (Prof. 4)</td>
<td>4</td>
</tr>
<tr>
<td>ME 250 Material Science I</td>
<td>3</td>
</tr>
<tr>
<td>AREA I* Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>AREA II* Humanities</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Semester</th>
<th>18 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 261 Engineering Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

| ME 256 Statics | 3 |
| MATH 272 Vector and Multivariate Calculus | 4 |
| PHYS 205 Mechanics and Heat (AREA IV) | 4 |
| PHYS 206 Mechanics and Heat Lab (AREA VI) | 1 |
| AREA III U.S. Culture and Issues | 4 |

**Fourth Semester** — 16 hours

- ME 257 Mechanics of Materials | 4 |
- ME 258 Dynamics | 3 |
- CS 106 BASIC for Engineers | 1 |
- ME 232 Thermodynamics | 3 |
- PHYS 207 Electricity and Light | 4 |
- PHYS 208 Electricity and Light Lab | 1 |

**Fifth Semester** — 17 hours

- CMD 236 Construction Measurements and Layout | 3 |
- CMD 336 Soil Mechanics and Foundations | 3 |
- ECE 210 Circuit Analysis | 4 |
- ACTY 210 Principles of Accounting | 3 |
- MATH 374 Intro to Linear Algebra and Differential Equations | 4 |

**Sixth Semester** — 15 hours

- CMD 233 Construction Codes and Specifications | 3 |
- CMD 386 Structural Analysis and Design | 3 |
- MGMT 250 Organizational Behavior | 3 |
- ME 356 Fluid Mechanics | 3 |
- CMD 238 Construction Materials and Methods | 3 |

**Seventh Semester** — 16 hours

- CMD 431 Construction Planning and Scheduling | 3 |
- CMD 436 Construction Estimating, Bidding and Cost Control | 4 |
- CMD 483 Project Design and Control (Prof. 2) | 1 |
- IME 310 Engineering Economy | 3 |
- ECON 201 Principles of Economics | 3 |
- AREA VII* Health and Well-Being | 2 |

**Eighth Semester** — 16 hours

- CMD 438 Construction Project Management | 3 |
- CMD 440 Reinforced Concrete Design | 3 |
- CMD 485 Senior Project (Prof. 2) | 3 |
- FCL 320 Business Finance | 3 |
- AREA IV* Other Cultures/Civilizations | 4 |

* At least two of these courses must be at the 300-400 level. NOTE: Pre Engineering courses appear in bold, italic print.

**INDUSTRIAL DESIGN**

Bachelor of Science

This program prepares designers with the aesthetic and technical potential to set new directions in product development and design, based on knowledge of human needs, materials, processes quality, and production standards. The curriculum in Industrial Design is a blend of art, technology, business, and general studies with courses in design methodology, philosophy and history, engineering, fine arts, graphics, drafting, and professional practices.

**PORTFOLIO REVIEW PROCEDURE**

Any interested student may register for the freshman (100-level) Industrial Design studio classes. There will be two portfolio reviews to advance to higher level studio classes. The first review is to advance from the freshman (100-level) studio classes to the sophomore (200-level) studios. The second review is to advance from the sophomore to junior (300-level) studios. Reviews are normally held in the winter semester for admission into the following fall semester. Decisions about the portfolio review are made by final week of the semester in which the review occurs.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Industrial Design curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing CMD 443 ID Thesis and Project I and CMD 447 ID Thesis and Project II.

**REQUIREMENTS**

Candidates for this Bachelor of Science program in industrial design must satisfy the following requirements in addition to University requirements stated elsewhere in this catalog:

1. A minimum grade of "C" (2.00) is required in all industrial design courses, 100-, 200-, 300-, and 400-level.

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 127 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

   4. Courses listed in darker italic print must be completed with at least a "C" prior to enrolling in upper level Construction Engineering, Materials Engineering, and Industrial Design courses.

   5. The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level CMD courses: CHEM 110 and 111, CMD 143, IME 102, IME 142, MATH 200.

<table>
<thead>
<tr>
<th>First Semester</th>
<th>16 hours</th>
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<tbody>
<tr>
<td>CMD 143 Industrial Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 104 Object Drawing</td>
<td>3</td>
</tr>
<tr>
<td>IME 102 Technical Communication (Prof. 1)</td>
<td>3</td>
</tr>
<tr>
<td>IME 142 Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 118 Precalculus Mathematics (Prof. 3)</td>
<td>4</td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD 147 Principles of Industrial Form</td>
<td>3</td>
</tr>
<tr>
<td>CMD 206 Model Construction Studio I</td>
<td>3</td>
</tr>
<tr>
<td>ART 105 Drawing Studio</td>
<td>3</td>
</tr>
<tr>
<td>IME 246 Introduction/Computer-Aided Design</td>
<td>3</td>
</tr>
<tr>
<td>MATH 200 Calculus with Applications (Prof. 4)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Semester</th>
<th>16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD 132 Wood Furniture Design</td>
<td>3</td>
</tr>
<tr>
<td>CMD 243 Product Design</td>
<td>3</td>
</tr>
<tr>
<td>MATH 301 Computer Aided ID Studio I</td>
<td>3</td>
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</tbody>
</table>
Students who have chosen the Materials Engineering, Materials and Industrial Design Engineering curriculum must satisfy the following requirements in addition to University Pre-engineering requirements.

### Requirements

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences, and/or behavioral sciences). The sequence must begin with a 100-200 level course and conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV, and/or V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social science, and/or behavioral sciences.

2. A "C" average or better must be earned in courses presented for graduation with an ECE, IME, CMD, or ME prefix.

3. No more than two courses of "D" or "DC" in courses presented for graduation may be counted for graduation.

4. 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 in darker italic print.

#### First Semester — 17 hours

- **CHEM 110 General Chemistry I (AREA VI)** ..... 3
- **CHEM 111 General Chemistry Laboratory I (AREA VI)** ..... 1
- **ME 102 Technical Communication (Prof. 1)** ..... 3
- **MATH 122 Calculus I (Prof. 3)** ..... 4
- **AREA I* Fine Arts** ..... 3

#### Second Semester — 17 hours

- **CHEM 112 General Chemistry II** ..... 3
- **CHEM 113 General Chemistry Laboratory II** ..... 1
- **CS 107 Introductory Programming: FORTRAN** ..... 2
- **MATH 123 Calculus II (Prof. 4)** ..... 4
- **ME 220 Processes and Materials in Manufacturing** ..... 4
- **ME 250 Material Science** ..... 3

#### Third Semester — 17 hours

- **MATH 227 Vector and Multivariate Calculus** ..... 3
- **ME 253 Statics and Mechanics of Materials** ..... 4
- **CMD 258 Materials Science Lab** ..... 1
- **PHYS 205 Mechanics and Heat (AREA VI)** ..... 4
- **PHYS 206 Mechanics and Heat Lab (AREA VI)** ..... 1

#### Fourth Semester — 17 hours

- **ECE 210 Circuit Analysis** ..... 4
- **ME 250 Statics and Mechanics of Materials** ..... 3
- **PHYS 207 Electricity and Light** ..... 4
- **PHYS 208 Electricity and Light Lab** ..... 1
- **AREA II* Other Cultures/Civilizations** ..... 4
- **AREA VIII Health and Well-Being** ..... 2

#### Fifth Semester — 15 hours

- **CHEM 430 Physical Chemistry I** ..... 3
- **CMD 352 Physical Metallurgy** ..... 4
- **GEO 335 Meteorology (Crystallography)** ..... 4
- **MATH 374 Intro/Linear Algebra and Differential Equations** ..... 4

#### Sixth Semester — 17 hours

- **CHEM 370 Introduction to Organic Chemistry** ..... 3
- **CMD 457 Mechanical Behavior of Materials** ..... 4
- **CMD 474 Polymers and Polymer Composites** ..... 3

#### Seventh Semester — 17 hours

- **CMD 473 Ceramics and Ceramic Composites** ..... 3
- **CMD 476 Failure Analysis and Corrosion** ..... 3
- **CMD 485 Senior Project (Prof. 2)** ..... 3

* At least two of these courses must be at the 300-400 level.

Note: Pre-engineering courses appear in bold, italic print.

### Construction Engineering, Materials Engineering, and Industrial Design Courses (CMD)

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours). The first digit of a course number indicates level of work while the second digit indicates areas of study as follows:

- 0 and 4. Industrial Design
- 3. Construction and Woods
- 5 and 7. Materials
- 6. General
- 9. Special

**CMD 131 Introduction to the Construction Environment (3-0)**

3 hrs.

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 technology.

**CMD 132 Wood Furniture Design (2-3)**

3 hrs.

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.
CMD 143 Industrial Design Fundamentals
Studio (1–4)
3 hrs.
An introduction to the professional practice of Industrial 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.

CMD 147 Principles of Industrial Form Studio
(0–4)
3 hrs.
Industrial form's dependence on materials, tools and machine processes. Industrial and natural form generation. Experiments on static structures. Creative projects involving simple objects. Prerequisites: ART 101, CMD 143, Portfolio Review, or permission of the instructor.

CMD 149 Introduction to Architectural Drawing
(2–3)
3 hrs.
Introduction to the tools and techniques to enable the student to read, compose, and create architectural drawings related to interior design and construction.

CMD 201 History of Design (3–0)
3 hrs.
 Begins with an overview of the history of design, craft, and technology before the 20th century. Renaissance and Industrial Revolution periods are highlighted. Design history of the 20th century showing important social and technical developments which have influenced industrial priorities, markets, and practices. Important people, movements, schools, and philosophies that have influenced the evolution of industrial design around the world.

CMD 203 Color in Industrial Design (2–2)
3 hrs.
Developing through experience an understanding of color, color action and color relationships. Interaction of color, form, materials, proportion, function and composition. Color and information, color and signage. Application of this knowledge to Industrial Design problem solutions. Prerequisite: CMD 147.

CMD 206 Model Construction Studio I (0–6)
3 hrs.
Development of fast, simple mock-ups and form studies using clay, paper, plastic foam, wire, plaster and other materials. Creation of realistic looking models which reflect a high degree of craftsmanship. Use of hand tools, power tools and machines. Use of plastic foam, plastics, wood and metal.

CMD 230 Advanced Woodworking Design
(2–3)
3 hrs.
Creation of new wood products based on functional, ergonomic, aesthetic and strength needs. Environmental aspects of the processes applied in the design will be analyzed. Basic cutting theories, woodworking machine construction, and advanced manufacturing lines including the 32mm construction system and flat-line processing application will be taught. Industrial Design documentation will be required. Prerequisite: CMD 132.

CMD 233 Construction Codes and Specifications
(3–0)
3 hrs.
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, and code administration. Prerequisites: CMD 131 and ME 257.

CMD 236 Construction Measurements and Layout
(2–3)
3 hrs.
Construction surveying, building layout and structural alignment. Includes route alignment, topographic surveys, earthwork volume surveys, and preparation of reports. Prerequisites: CMD 149, MATH 122.

CMD 237 Concrete Construction and Masonry
(2–3)
3 hrs.
Design and control of concrete mixtures. Form design, control tests for quality concrete. Reinforced concrete problems are practiced. Pre-stressed and post-tensioned concrete construction is included. Masonry skills involving block, brick, and stone and concrete construction practices are performed on a job site. Prerequisites: CMD 131, CMD 235.

CMD 238 Construction Materials and Methods
(2–3)
3 hrs.
The course will focus on the study of different construction materials. 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. Introduction to practical construction methods for residential, commercial, and heavy construction will be provided. Prerequisites: CMD 131, CMD 149, ME 257.

CMD 243 Product Design Methodology Studio I
(0–4)
3 hrs.
Introduction to product design methodology for mass-produced products. Human factors criteria in analysis and design. Application of user behavior research, anthropometric data and basic manufacturing processes to product concept creation. Two- and three-dimensional communication techniques for design presentation. Prerequisites: CMD 147, Portfolio Review.

CMD 247 Product Design Methodology Studio II
(2–3)
3 hrs.
Design of product systems based on societal needs, human factors analysis and advanced manufacturing processes. Written and visual communication techniques for presentation. Prerequisites: CMD 243, CMD 201 and CMD 203.

CMD 251 The Evolution of Materials (3–0)
3 hrs.
The evolution of materials from the stone age, through the bronze and iron age, will be described. Understanding of eras in history through the progression of materials. Advanced materials from the current period ("The Materials Age") with applications for miniaturized computers ("lap-top"), space shuttle, bio-compatible materials for implants in the human body, and construction of buildings, roads and bridges. Prospects for the future will be discussed.

CMD 254 Properties of Materials (3–0)
3 hrs.
Internal structure of materials in relation to microscopic and macroscopic properties. Mechanical, physical, chemical and thermal properties of wood, metals, ceramics, polymers, semiconductors, and composites. Environmental degradation of materials. Prerequisites: MATH 200 or 122, CHEM 110 and 111. Not for Engineering credit.

CMD 255 Materials Science Laboratory (0–3)
1 hr.
Basic nature of materials in relation to microscopic and macroscopic properties, mechanical testing techniques, different techniques in strengthening metals, impact strength of plastics, corrosion. Prerequisite: CMD 254 which may be taken concurrently. Not for Engineering credit.

CMD 258 Materials Science Laboratory
1 hr.
Laboratory investigations of topics covered in the basic materials course. Mechanical testing techniques to determine the strength of materials, structure-properties relationships, different techniques in strengthening metals, corrosion. Prerequisite: ME 250 or concurrent.

CMD 301 Computer-Aided Industrial Design Studio I
(0–6)
3 hrs.
Introduction to the advanced professional computer-aided Industrial Design hardware and software. Students will start with a CAD wire-frame to create a photo realistic computer model and rendering. Application of these processes in computer-aided manufacturing and interactive software design. Introduction to a variety of software programs will be made. Prerequisite: ME 246.

CMD 302 Computer-Aided Industrial Design Studio II
(0–6)
3 hrs.
Continuation of study with the hardware and software used in Industrial Design. Animation and presentation software. Product development using only the computer. Prerequisites: CMD 301.

CMD 305 Model Construction Studio II (0–6)
3 hrs.
Building working prototypes of simple devices and systems. Creation of advanced models with real finish. Use of advanced processes and machines. Prerequisite: CMD 206.

CMD 330 Wood and Related Materials for the Interior Designer (2–3)
3 hrs.
A study of the physical and mechanical properties of wood and wood-based materials, design judgement, adhesives and fasteners, and selection and application of finishes. The effect of human factors in the design of furniture and interiors is emphasized.

CMD 331 Upholstering and Wood Turning
(2–3)
3 hrs.
Determination of ergonomic, structural, and material requirements of upholstered furniture. Multiple upholstery methods will be applied. Evaluation of cutting, sanding, finishing, and tool selection for turning. Prerequisite: CMD 202.

CMD 332 Wood Finishing (2–3)
3 hrs.
Function of various finishing materials, surface preparation, principles of color, methods of application and final finishing. Environmental regulations pertaining to furniture finishing. Scheduling, repair, and refinishing applications will be studied. Prerequisite: CMD 132 and CHEM 110 and 111.

CMD 335 Soil Mechanics and Foundations
(2–3)
3 hrs.
Properties of soil and earth materials, soil identification, use of soils as a building and foundation material, compaction of soils, and an introduction to bearing capacities and spread footings. Foundation analysis will include piles, drilled piers, caissons, lateral earth pressures, and soil pressure distribution. Prerequisites: CMD 237, MME 281, GEOL 130.

CMD 336 Soil Mechanics and Foundation Design
(2–2)
3 hrs.
CONSTRUCTION ENGINEERING, MATERIALS ENGINEERING, AND INDUSTRIAL DESIGN

retaining structures in all types of soils. Prerequisite: ME 257.

CMD 338 Mechanical/Electrical Systems (2–3)
3 hrs.
Selection of plumbing, electrical, heating, ventilation and air conditioning systems for commercial, industrial, and institutional buildings. Includes estimating costs of these systems. Prerequisites: CMD 247, CMD 149, CS 105, PHYS 115 and 116.

CMD 343 Advanced Product Design Studio (0–6)
3 hrs.
Design of product systems based on societal needs, human factors analysis and advanced manufacturing processes. Study of basic types of business organizations: sole proprietorships, partnerships and corporations. Study of legal considerations related to patents, copyrights, trademarks and trade secrets. Introduction to professional ethics. Prerequisites: CMD 247, CMD 202, CMD 206, Portfolio Review.

CMD 347 Product Design Practicum Studio (0–6)
3 hrs.
Developing company-oriented products and systems for commercial and industrial markets balancing between corporate and user needs. Prerequisites: CMD 343, CMD 305.

CMD 353 Physical Metallurgy (4–0)
4 hrs.
Introduction to electron theory of metals. Introduction to crystallography and x-ray diffraction, defect structure of metals and their application to solid state diffusion. Prerequisites: MATH 123, PHYS 205, ME 250, and department approval.

CMD 354 Transport Phenomena in Materials (3–0)
3 hrs.
Principles of heat, charge, mass, and momentum transport. A comprehensive treatment of bulk and surface diffusion in solids, including mathematical formalism. Application to lattice defects, conductivity, semiconductor, superconductors, heat treatment, coating, and corrosion and oxidation of metals. Prerequisites: MATH 274, CMD 353, and CHEM 430.

CMD 385 Theory of Structural Design (3–0)
3 hrs.

CMD 386 Structural Analysis and Design (3–0)
3 hrs.
Introduction to the field of structural engineering. Analysis and design of basic structural elements (beams, column, and trusses). Develop an understanding of how structural systems behave under loads. Prerequisites: CMD 238, ME 257.

CMD 431 Construction Planning and Scheduling (3–0)
3 hrs.
Construction Planning and control of construction projects are discussed. Scheduling techniques such as the critical path method (CPM) and the program evaluation and review technique (PERT) are covered. A scheduling software will be used. Prerequisite: CMD 238.

CMD 432 Production Woodworking (2–3)
3 hrs.
Mass production techniques utilizing computer-aided design and manufacturing, material yield, production planning, sequence of operation, dimensional control, and interchangeability. Production methods as they affect quality of wood products. Prerequisite: CMD 230.

CMD 433 Specifications and Estimating (3–0)
3 hrs.
Reading and interpretation of the contract documents for construction. Plans and specifications for a variety of structures will be utilized. Principles and theories of estimating, classifications of work and quantity survey techniques applied to different types of structures and projects will be covered. Estimating quantities and listing of work items in a standard quantity survey will be practiced. Computer application in construction estimating will be emphasized. Prerequisites: CMD 335, CMD 338.

CMD 434 Physics and Mechanics of Wood (3 hrs.
Physical and mechanical properties of wood and orthotropic wood structure will be studied and incorporated in the ASTM testing methods. Analysis of stress distribution, mode failure, and fracture characteristics will be studied. The relationship among orthotropic wood structure, joint design, and fastening methods on structural integrity will be analyzed. Computer systems will be used in statistical analysis and graphing of experimental data. Prerequisite: CMD 132 or department approval.

CMD 435 Commercial Construction Methods (3–0)
3 hrs.
An introduction to the principles and practices that are peculiar to heavy construction. Covers excavating equipment, cranes, dewatering, drainage, and paving. Erection methods of commercial buildings will be studied. Structural steel frame practices, vertical transportation, curtainwalls, and membrane type roofs are included. Prerequisite: CMD 335, CMD 385.

CMD 436 Construction Estimating, Bidding, and Cost Control (4–0)
4 hrs.
Discussion of the procedures of preparing construction specifications and contracts. Material quantity takeoffs. Labor, material, equipment, and overhead costs will be discussed. Estimating software will be used. Elements of cost controls will also be discussed. Prerequisites: CMD 236, CMD 238, CMD 336.

CMD 437 Advanced Estimating and Bidding (3–0)
3 hrs.
An analysis and determination of construction operations including applicable indirect and overhead costs and the preparation of bid proposals for construction costs. Costs for equipment, labor, materials, and subcontractors, and general conditions will be discussed. Preparation of complete bid packages using plans and specifications will be performed. Prerequisite: CMD 433.

CMD 438 Construction Project Management (3–0)
3 hrs.
Study characteristics of construction industry, project organizations, labor, material, and equipment utilization. Construction productivity, value engineering. TQM, constructability, construction safety, contract types, and contract bonds. Prerequisites: CMD 431, CMD 436.

CMD 439 Scheduling and Project Management (3–0)
3 hrs.
The planning and control of construction projects. Construction scheduling techniques such as critical path methods (CPM) and program evaluation and review (PERT) as well as computerized graphic techniques will be practiced. Management principles as applied to the construction contractor will be emphasized. Prerequisites: CMD 433, MATH 216, MGMT 300.

CMD 440 Reinforced Concrete Design (3–0)
3 hrs.
Principles of design and analysis of reinforced concrete members subjected to moment, shear, and axial forces. Concrete members include rectangular and tee beams, short and slender columns, and one-way slabs. Prerequisite: CMD 386.

CMD 443 Industrial Design Thesis and Project Studio I (0–6)
3 hrs.
A two-semester course using the knowledge and abilities acquired throughout the curricula. The first course focuses on Industrial Design related research based on user needs, environmental and social problems and on industry trends and developments. Advanced investigations in the student's area of professional specialization chosen in consultation with the faculty advisor of Industrial Design. Study and use of research techniques, report writing and design methodology. This course, along with CMD 447, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CMD 347, IME 246.

CMD 444 Industrial Design Thesis and Project Studio II (0–6)
3 hrs.
In the second term of this course the student uses problem-solving principles and Industrial Design communication methodology to organize and present a faculty approved Senior Project. The concept is presented in verbal, graphic and three-dimensional both virtual and real. The Final Presentation involves use of photography, graphics, illustration, exhibit design, computer-aided design, video production and other media. This course, along with CMD 443, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CMD 443, IME 442.

CMD 457 Mechanical Behavior of Materials (3–0)
3 hrs.
Fundamentals of elasticity and plasticity theory. The mechanical and thermo-mechanical forming methods of materials. Prerequisites: ME 250, ME 253 or 256, MATH 272, and department approval.

CMD 458 Instrumental Methods in Materials Analyses (2–3)
3 hrs.
Principles and application of physical experimental techniques in materials analyses and research. Techniques include x-ray diffraction, electron microscopy, optical microscopy, atomic force microscopy, Mössbauer spectroscopy, and thermal analysis. Prerequisite: ME 250, GEOL 335, and consent of instructor.

CMD 471 Thermodynamics of Materials (4–0)
4 hrs.
Introduction to chemical metallurgy, thermodynamic functions associated with compounds, diffusion, phase equilibria and phase diagrams, extractive metallurgy, chemistry of ceramics. Prerequisites: ME 250, CHEM 430.

CMD 473 Ceramics and Ceramic Composites (3–0)
3 hrs.
Crystallography and atomic bonding relationships relative to mechanical, thermal, optical, magnetic, and electrical properties. Phase equilibria and transformation.
Mechanical and physical properties of ceramic composites. Electronic, optical, biological, and structural application of ceramics and ceramic composites. Processing of traditional and technical ceramics. Prerequisites: ME 250 and CHEM 430.

CMD 474 Polymers and Polymer Composites (2–3) 3 hrs.
Polymerization techniques and molecular weight distributions. Polymer chain configuration, conformation, shape, and viscoelastic properties. Microstructure and physical and mechanical properties of bulk polymers, thin films, and solutions. Polymer composite materials. Major polymer classes and their modern applications. Prerequisites: CHEM 370, IME 250, and ME 250.

CMD 476 Failure Analysis and Corrosion (2–3) 3 hrs.
Theory, design implications and case studies in the following areas: elastic deformation, plastic deformation, creep, fatigue, corrosion and oxidation. A technical paper based on a project will be submitted at the end of the course. Prerequisites: CMD 457, CMD 471, IME 261, and MATH 374.

CMD 483 Project Design and Control (1–0) 1 hr.
Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for senior project. This course, along with CMD 485, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Senior status and department approval.

CMD 485 Senior Project (1–6) 3 hrs.
Open-ended team projects involving systems design, analysis, or application. Results in a tangible system, written report and presentation. This course, along with CMD 483, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CMD 483 and approved project.

CMD 495 Topics in Engineering (Var.) 1–6 hrs.
A specialized course dealing with some particular area of technology not usually included in other course offerings. May be repeated for credit with different topics to a maximum of six credit hours. Prerequisite: Consent of department.

CMD 499 Independent Studies (Var.) 1–3 hrs.
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 to exceed six credit hours. Prerequisite: Consent of department.

CMD 530 Construction Project Delivery Systems (3–0) 3 hrs.
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. Prerequisites: CMD 436 or equivalent, and departmental approval.

CMD 531 Advanced Construction Project Management (3–0) 3 hrs.
The course will build on the information that is normally provided to students in the undergraduate construction management courses on planning and control of construction projects. The focus of this course will be to provide the students knowledge of quantitative tools that can be used in planning and controlling construction projects. Topics to be covered will include cash flow forecasting, site planning and administration, risk analysis, contract documents and contracts administration. Advanced planning tools such as line of balance, velocity diagrams, time-cost trade-off, resource planning with applications to construction projects will also be discussed. Prerequisites: CMD 431, CMD 436 and CMD 438 or equivalent, and department approval.

CMD 532 Wood Science and Engineering (2–2) 3 hrs.
Scientific study of dendrology and forest products industry. A study of the relationship between the macro and microscopic structure in wood and wood-based composites as they relate to Engineering Design. Laboratory activities will involve machining theory, wood fluid relationships and wood stabilization. Prerequisites: MATH 374, PHYS 207, ME 250, and consent of instructor.

CMD 559 Physical and Mechanical Properties of Polymers (3–0) 3 hrs.

CMD 566 Ceramics: Structure and Properties (2–2) 3 hrs.
Ceramic crystalline structure. Structure imperfections, deformation and failure of ceramic materials. Processing, properties, and toughening mechanisms. Design with and applications of ceramic materials. Prerequisites: MATH 374, PHYS 207, ME 250, and consent of instructor.

ELECTRICAL AND COMPUTER ENGINEERING

Hossein Mousavinezhad, Chair
Ikhlas Abdel-Qader
Bradley Bazun
Raghvendra Seji
John Gesink
Janos Grannter
Dean Johnson
Joseph Kelemen
Daniel Lyhnski
John Mason
Damon Miller
Frank Severance
Ralph Tanner

The Department of Electrical and Computer Engineering offers a four-year undergraduate program and two M.S.E. programs in electrical or computer engineering.

The undergraduate programs described here provide engineering education in the field of electrical/computer engineering to prepare graduates for careers in many kinds of work, including construction, consulting, design, development, manufacturing, production, research, sales, service, and teaching.

Electrical engineering areas of specialization can include: electronics (design of integrated circuits or their applications in medicine, science, or industry), control systems (such as those used in aircraft, missiles, spacecraft, or robots); instrumentation (remote measurement from satellites or spacecraft), power systems (generation and distribution of electrical energy), and communication systems (telephone, radio, and television).

Computer engineers or electrical engineers may specialize in: automation (computer control of machining, assembly, or other manufacturing processes), computer-aided design systems (where part of the design process is carried out by computer), speech/pattern recognition and digital signal processing, data communication (e.g., between computers), computer peripherals (sensors, terminals, displays, readers, and other input/output devices), and microcomputers with their applications.

In the computer engineering program, you will study math, general education subjects, the basic sciences, engineering sciences, and design, and you will practice communicating your ideas orally and in writing. In the electrical engineering program, you will also learn about circuits, digital logic, digital signal processing, electric power, electromagnetics, electronics, energy conversion, computers and programs, and microcomputers, communications, instrumentation, and automatic control systems.

In the computer engineering program, you will also become familiar with analysis, design, and application of electronic digital computers and systems, including the architecture and physical construction (hardware) of digital computers, and programming (software) aspects of computers and digital systems. The computer engineering curriculum also includes courses in circuits, electronics, linear systems, and digital signal processing.

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 2038, Kohrman Hall, (616) 387-4033.

CURRICULA

COMPUTER ENGINEERING

Bachelor of Science in Engineering (Computer)

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

BACHELOR'S WRITING REQUIREMENT

Candidates who have chosen the Computer Engineering program will satisfy the Baccalaureate Writing Requirement by successfully completing both ECE 481 Electrical/Computer Engineering Design I and ECE 482 Electrical/Computer Engineering Design II.

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. To satisfy professional engineering accreditation requirements, all students must successfully complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must begin with a course at the 100-200 level and conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV, or V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IME, and ME prefixes.

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 130 semester credit hours must be completed. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in darker italic print.

ELECTRICAL AND COMPUTER ENGINEERING

PHYS 206 Mechanics and Heat Lab 1
CS 111 Computer Science I 4
AREA I Fine Arts* 3

Third Semester — 16 hours

MATH 272 Vector and Multivariate Calculus 4
PHYS 207 Electricity and Light 4
PHYS 208 Electricity and Light Lab 1
CS 112 Computer Science II 4
AREA II Humanities* 3

Fourth Semester — 18 hours

MATH 145 Discrete Mathematical Structures 3
MATH 374 Introduction to Linear Alg. and Diff. Equations 4
ECE 210 Circuit Analysis 4
ECE 251 Introduction to Microprocessors 4
IME 310 Engineering Economy 3

Fifth Semester — 16 hours

ECE 221 Electronics I 4
ECE 310 Network Analysis 3
ECE 351 Engineering of Real Time Systems 3
ECE 355 Digital Design 3
IME 316 Report Preparation 1

Sixth Semester — 16 hours

ECE 350 Digital Electronics 4
ECE 357 Computer Architecture 3
ECE 451 Microcontroller Applications 3
ECE 380 Probability/Statistics in Signal/Systems Analysis 3
CS 331 Data and File Structures 3

Seventh Semester — 17 hours

ECE 481 Electrical/Computer Engineering Design I 2
ECE 371 Linear Systems 3
CS 485 Programming Languages 3
ME 320 Engineering Science Elective 3
AREA III The United States: Cultures and Issues* 3
AREA IV Other Cultures and Civilizations* 3

Eighth Semester — 15 hours

ECE 455 Digital Signal Processing 3
CS 554 Operating Systems 3
ECE 482 Electrical/Computer Engineering Design II 3
AREA V Social and Behavioral Sciences* 3

Departmental Approved Electives** 2

*At least two courses in General Education must be at the 300-400 level. Item "1" above must also be satisfied.

**See the Electrical and Computer Engineering Advisor.

ELECTRICAL ENGINEERING

Bachelor of Science in Engineering (Electrical)

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

BACHELOR'S WRITING REQUIREMENT

Students who have chosen the Electrical Engineering program will satisfy the Baccalaureate Writing Requirement by successfully completing both ECE 481 Electrical/Computer Engineering Design I and ECE 482 Electrical/Computer Engineering Design II.

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. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must begin with a course at the 100-200 level and conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV, or V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IME, and ME prefixes.

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 130 semester credit hours must be completed. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in darker italic print.

First Semester — 16 hours

MATH 122 Calculus I 4
CHM 110 General Chemistry I 3
CHM 111 General Chemistry Laboratory I 1
IME 102 Technical Communications 3
ECE 250 Digital Logic 3
AREA VIII Health and Well-being 2

Second Semester — 16 hours

MATH 123 Calculus II 4
PHYS 205 Mechanics and Heat 4

Third Semester — 16 hours

ECE 222 Calculus II 4
ECE 310 Network Analysis 3
ECE 351 Engineering of Real Time Systems 3
ECE 355 Digital Design 3
IME 316 Report Preparation 1

Fourth Semester — 16 hours

ECE 350 Digital Electronics 4
ECE 357 Computer Architecture 3
ECE 451 Microcontroller Applications 3
ECE 380 Probability/Statistics in Signal/Systems Analysis 3
CS 331 Data and File Structures 3

Fifth Semester — 17 hours

ECE 481 Electrical/Computer Engineering Design I 2
ECE 371 Linear Systems 3
CS 485 Programming Languages 3
ME 320 Engineering Science Elective 3
AREA III The United States: Cultures and Issues* 3
AREA IV Other Cultures and Civilizations* 3

Sixth Semester — 16 hours

ECE 455 Digital Signal Processing 3
CS 554 Operating Systems 3
ECE 482 Electrical/Computer Engineering Design II 3
AREA V Social and Behavioral Sciences* 3

Departmental Approved Electives** 2

*At least two courses in General Education must be at the 300-400 level. Item "1" above must also be satisfied.

**See the Electrical and Computer Engineering Advisor.

Fourth Semester — 15 hours

MATH 374 Introduction to Linear Algebra and Diff. Equations 4
ECE 210 Circuit Analysis 4
Mathematics or Science Elective*** 4

AREA II Humanities* 3

Fifth Semester — 17 hours

ECE 222 Calculus II 4
ECE 310 Network Analysis 3
ECE 361 Electromagnetic Fields 4
ME 256 Statics 3
AREA III The United States: Cultures and Issues* 3

Sixth Semester — 17 hours

ECE 320 Electronics II 4
ECE 330 Electrical Machinery of two courses (minimum of six credit hours) 3
ECE 371 Linear Systems 3
ECE 380 Probability/Statistics in Signal/Systems Analysis 3
IME 316 Report Writing 3

EIGHTH SEMESTER — 17 hours

ECE 481 Electrical/Computer Engineering Design I 2
ECE 371 Linear Systems 3
CS 485 Operating Systems 3
ECE 482 Electrical/Computer Engineering Design II 3
AREA V Social and Behavioral Sciences* 3

Departmental Approved Electives** 2

*At least two courses in General Education must be at the 300-400 level. Item "1" above must also be satisfied.

**See the Electrical and Computer Engineering Advisor.
Seventh Semester — 17 hours

**ECE Electrical Engineering**

**Elective Group** 6

- ECE 481 Electrical/Computer Engineering Design I 2
- IME 310 Engineering Economy 3
- ME 258 Dynamics 3
- AREA IV Other Cultures and Civilizations* 3

**Eighth Semester — 16 hours**

**ECE Electrical Engineering**

**Elective Group** 3

- ECE 482 Electrical/Computer Engineering Design II 3
- ME Engineering Science 3
- AREA V Social and Behavioral Sciences* 4

**Departmental Approved Electives** 3

****At least two of these courses must be at the 300–400 level. Item "1" above must also be satisfied.

**See Electrical and Computer Engineering Advisor for a list of approved electives.**

**Electrical and Computer Engineering Elective Group**

- ECE 420 Power Electronics 3
- ECE 430 Electrical Power Systems 3
- ECE 451 Microcontroller Applications 3
- ECE 455 Digital Signal Processing 3
- ECE 460 Communication Systems 3
- ECE 470 Feedback Systems 3

**Other 400 or 500 level Electrical Engineering courses may be used in place of the above courses if PRIOR approval is obtained from the Electrical and Computer Engineering Advisor, and Department Chair.**

**MATH 309 and PHYS 310, or CHEM 112 and CHEM 113, or MATH 364**

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### Electrical and Computer Engineering Courses (ECE)

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-laboratory hours).

**ECE 100 Fundamentals of Circuits and Electronics (2–3)** 3 hrs.
Basic principles of electricity, magnetic devices, and electronics. May not be used as prerequisite for other ECE courses except 101. Cannot be used as credit in engineering curricula. **Prerequisites:** MATH 111 or equivalent and high school physics.

**ECE 101 Fundamentals of Electronics and Machines (2–3)** 3 hrs.
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 100.

**ECE 210 Circuit Analysis (3–3)** 4 hrs.
Analysis of linear electric circuits using methods based on Kirchhoff's laws and network theorems. RL, RC, and RLC transients. Sinusoidal steady state analysis. **Prerequisite:** MATH 123.

**ECE 211 Machines and Electronic Circuits (2–3)** 3 hrs.
Introduction to machines and electronics for non-electrical engineering students. Principles of operation, characteristics, ratings, and applications of transformers, alternators, motors, diodes, and transistors. ECE and CPE students may not use credit in ECE 211 toward graduation. **Prerequisite:** ECE 210.

**ECE 212 Electronic Circuits and Systems (3–0)** 3 hrs.
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 207 or taken concurrently; MATH 374.

**ECE 221 Electrons I (3–3)** 4 hrs.
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 210, PHYS 207.

**ECE 250 Digital Logic (2–3)** 3 hrs.
Analysis and design of combinational and sequential logic systems. **Prerequisite:** MATH 111 or equivalent.

**ECE 251 Introduction to Microprocessors I (3–3)** 4 hrs.
Machine and assembly language programming of small computers. Introduction to microcomputer architecture and interfacing.

**Prerequisites:** ECE 250, CS 111.

**ECE 310 Network Analysis (3–0)** 3 hrs.
Classical and transform methods of network analysis, signals and waveforms. Fourier series and Fourier transforms. Frequency response. **Prerequisites:** ECE 210, MATH 374.

**ECE 312 Fundamentals of Electronics and Machines (2–3)** 3 hrs.
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 212.

**ECE 320 Electronics II (3–3)** 4 hrs.
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-mode description and synthesis is introduced. **Prerequisites:** ECE 221, ECE 310.

**ECE 330 Electrical Machinery (3–3)** 4 hrs.
Three-phase analysis. Analysis and design of transformers, electromechanical devices, and machines. **Prerequisites:** ECE 310, ECE 361.

**ECE 350 Digital Electronics (3–3)** 4 hrs.
The electrical and logic aspects of digital integrated circuits and their applications. **Prerequisites:** ECE 221, ECE 250.

**ECE 351 Engineering of Real Time Systems (3 hrs.)**
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 using C/C++. **Prerequisites:** ECE 251, CS 112.

**ECE 355 Digital Design (3–0)** 3 hrs.
Systems level design of digital logic circuits using hardwired and programmable system controllers. Introduction to asynchronous sequential logic circuits. **Prerequisite:** ECE 250.

**ECE 357 Computer Architecture (3–0)** 3 hrs.
Structural organization and hardware design of digital computers. Processing and control units, arithmetic algorithms, input-output systems, and memory systems. **Prerequisites:** CS 223 or ECE 251.

**ECE 361 Electromagnetic Fields (4–0)** 4 hrs.
Static and time-varying electric and magnetic fields, plane waves, guided waves, transmission lines, radiation and antennas. **Prerequisites:** ECE 210; MATH 272 and 374; PHYS 207.

**ECE 371 Linear Systems (3–0)** 3 hrs.

**ECE 380 Probabilistic Methods of Signal and System Analysis (3–0)** 3 hrs.
Introduction to probability, random variables, random processes, correlation functions, spectral density, response of linear systems to random inputs, optimum linear systems. **Prerequisite:** ECE 310.

**ECE 420 Power Electronics (3–0)** 3 hrs.
Analysis and design of industrial electronic systems, power sources, motor controls, timing and sequencing circuits. **Prerequisites:** ECE 250, ECE 320, ECE 330.

**ECE 430 Electrical Power Systems (3–0)** 3 hrs.
Transmission lines, network analysis, load flow, system faults, fault calculation, transients, and system stability. **Prerequisite:** ECE 330 or taken concurrently.

**ECE 451 Microcontroller Applications (2–3)** 3 hrs.
Analysis and design of microcomputer-based digital systems. **Prerequisites:** ECE 221, ECE 251.

**ECE 455 Digital Signal Processing (3–0)** 3 hrs.

**ECE 460 Communication Systems (3–0)** 3 hrs.
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. **Prerequisites:** ECE 380.

**ECE 470 Feedback Systems (3–0)** 3 hrs.
Design principles of linear and non-linear feedback systems in both the frequency and time domain. **Prerequisite:** ECE 371.
ECE 481 Electrical/Computer Engineering Design I (1–3) 2 hrs.  
First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design is expected by the conclusion of this course. The course, along with ECE 482, are approved as writing-intensive courses which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ECE 319; consent of department chair.

ECE 482 Electrical/Computer Engineering Design II (0–6) 3 hrs.  
Senior electrical/computer engineering design practicum. A continuation of ECE 481. A formal written report and a formal presentation is required at the end of the semester. This course, along with ECE 481, are approved as writing-intensive courses which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ECE 481.

ECE 490 Independent Research and Development 1–4 hrs.  
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.

ECE 495 Topics in Electrical/Computer Engineering 1–4 hrs.  
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.

ECE 498 Readings in Electrical/Computer Engineering 1–4 hrs.  
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.

ECE 515 Real-Time Computing 3 hrs.  
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. Prerequisite: CS 112 or equivalent.

ECE 532 Introduction to Evolutionary Computation 3 hrs.  
Introduction to optimization algorithms which operate using the principles of Darwinian evolution. Both underlying theory and applications. Genetic algorithms, evolutionary programs, and evolution strategies. This course is cross-listed with CS 532. Prerequisite: CS 331.

ECE 551 Application Specific Integrated Circuit Design 4 hrs.  
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. Prerequisites: ECE 350 and ECE 355, or permission of the instructor.

ECE 552 Switching and Finite Automata Theory 4 hrs.  

ECE 553 Advanced Microcontroller Applications 3 hrs.  
This course is intended to give graduate students the ability to specify, design, and test microcontroller based digital systems. Prerequisite: ECE 451 or equivalent.

ECE 555 Advanced Digital Signal Processing (3–0) 3 hrs.  
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. Prerequisite: ECE 455.

ECE 557 Design of Reconfigurable Digital Machines 3 hrs.  
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. Prerequisites: Computer engineering or electrical engineering major; ECE 357; ECE 451; or equivalent courses.

ECE 560 Time-varying Fields (3–0) 3 hrs.  
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. Prerequisite: ECE 361.

ECE 562 Communications in Real-time Embedded Systems 4 hrs.  
Introduction to the hardware and software architecture and protocols of communication systems important to real-time embedded system applications. Communication protocol behavior, implementation examples, performance issues and design trade-offs, including bandwidth, response time, memory requirements, errors, reliability, and cost. Prerequisites: ECE 250 and CS 554, or permission of the instructor.

ECE 565 Computer System Performance Modeling for Performance and Reliability Analysis 4 hrs.  
Concepts and notation for modeling computer systems, especially as networks of queues and servers. Quantification of model performance with state or output feedback, maximum principle, optimal linear regulator—deterministic, and stochastic state observers. Prerequisite: ECE 455.

ECE 570 Digital Control Systems (3–0) 3 hrs.  
State variable technique, controllability and observability, digital control system design with state or output feedback, maximum principle, optimal linear regulator—deterministic, and stochastic state observers. Prerequisite: ECE 455.

ECE 580 System Modeling and Simulation 3 hrs.  
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 580. Prerequisites: ECE 371, ECE 380 or equivalent.

ECE 591 Real-time Embedded System Seminar I 1 hr.  
First of a three semester seminar sequence that provides students opportunities to 1) meet with engineering and scientific experts and discuss the theory and practice of RTES design and implementation, and 2) present technical RTES material to a peer group of students and faculty. Prerequisite: Senior standing in computer engineering.

ECE 592 Real-time Embedded System Seminar II 1 hr.  
Second of a three semester seminar sequence that provides students opportunities to 1) meet with engineering and scientific experts and discuss the theory and practice of RTES design and implementation and 2) present technical RTES material to a peer group of students and faculty.
INDUSTRIAL AND MANUFACTURING ENGINEERING
Michael B. Atkins, Chair
Kailash M. Bafna
Steven E. Butt
Alamgr Choudhury
Paul V. Engelmann
Jerrie L. Fiack
Tycho K. Fredericks
Tarun Gupta
Abdolazim Houshyar
Mitchell J. Kel
Lorna K. Kierepka
Leonard R. Lambersen
David M. Lyth
Larry A. Mallak
Joseph W. Petro, Jr.
Colleen L. Phillips
Sam N. Ramrattan
Jorge Rodriguez
Frederick Z. Sitkins
Thomas E. Swartz
James VanDePolder
Bob E. White
Lawrence A. Williams
Robert M. Wygant
The Department of Industrial and Manufacturing Engineering offers the following curricula:
Bachelor of Science in Engineering (Industrial)
Bachelor of Science—Engineering Graphics and 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. A minor in manufacturing is available to those students majoring in the Haworth College of Business.

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 Industrial and Manufacturing Engineering 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 203 B. Kohrman Hall (616.597.4033). Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

CURRICULA

ENGINEERING GRAPHICS AND DESIGN TECHNOLOGY
Bachelor of Science
Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

The Engineering Graphics and Design Technology curriculum deals with symbolic communication related to product and tooling activities of industry including documentation methods, graphic science, computer-aided design, industrial processes, and materials. Selection of approved electives allows tailoring the thrust of the program toward metals processing, plastics processing, or production planning/design.

The program prepares students to assume 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.

BACALAUREATE WRITING REQUIREMENT
Students who have chosen the Engineering Graphics and Design Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 491 Multidisciplinary Senior Proposal and IME 492 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, CND, and IME 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 127 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
4. The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level courses: CHEM 110 and 111, ECE 100, IME 102, PHYS 115, MATH 123. These courses also appear in darker italics in the list below.

First Semester — 17 hours
IME 102 Technical Communication 3  
IME 142 Engineering Graphics 3  
IME 150 Introduction to Manufacturing 3  
CHEM 110 General Chemistry I 3  
CHEM 111 General Chemistry Lab I 1  
MATH 122 Calculus I 4

Second Semester — 17 hours
IME 144 Descriptive Geometry 3  
MATH 123 Calculus II 4  
PHYS 113 General Physics I 4  
PHYS 114 General Physics I Lab 1  
COM 104 Public Speaking 3  
AREA VIII Health and Well-being* 2

Third Semester — 17 hours
IME 246 Introduction to Computer Aided-Design 3  
IME 281 Statics and Strength of Materials 4  
IME 283 Thermodynamics 2  
ECE 100 Fundamentals of Circuits and Electronics 3  
PHYS 115 General Physics II 4  
PHYS 116 General Physics II Lab 1

Fourth Semester — 16 hours
IME 254 Machining Processes 3  
IME 284 Fluid Mechanics and Hydraulics 2  
CMD 254 Properties of Materials 3  
CMD 255 Material Science Lab 1

ECE 101 Fundamentals of Electronics and Machines 3  
MATH 260 Elementary Statistics 4

Fifth Semester — 16 hours
IME 250 Plastics Properties and Processing 3  
IME 320 Engineering Cost Analysis 3  
IME 348 Design for Production 3  
IME 452 Engineering Teams: Theory and Practice 3  
CS 111 Computer Science I 4

Sixth Semester — 15 hours
IME 346 Programming for Computers 3  
IME 358 Computer-Aided Manufacturing 3  
IME 448 Computer-Aided Analysis 3  
IME 481 Metrology 3  
Approved Elective 3

Seventh Semester — 14 hours
IME 492 Multidisciplinary Senior Project 2  
IME 493 Multidisciplinary Senior Project Consultation 1  
Approved Elective 3  
AREA II Humanities* 3  
AREA III United States: Cultures and Issues* 3  
AREA IV Other Cultures and Civilizations* 3  
* At least one of these courses must be at the 300-400 level.

Nine (9) credits of electives must be selected from the following areas of concentration. To earn an option, four (4) courses in a single area of concentration must be completed. This raises the total hours in the curriculum to 130.

Automotive
IME 122 Automobile in Society 3  
IME 324 Automotive Power Systems 3  
IME 325 Automotive Electronic Systems 3  
IME 425 Automotive Drive Systems 3  
IME 426 Automotive Structure, Ride, and Safety 3

Cast Metals
IME 300 Coated Parts Technology 3  
IME 352 Metal Casting 3  
IME 452 Die Casting 3  
IME 455 Advanced Metal Casting 3  
IME 456 Process Testing and Measurement 3

Plastics
IME 350 Production Thermoforming 3  
IME 456 Process Testing and Measurement 3  
IME 459 Mold Design and Construction 3  
IME 550 Advanced Plastics Processing 3  
IME 300 Cooperative Education 3

Ergonomics
IME 205 Work Design 4  
IME 300 Cooperative Education 3  
IME 442 Ergonomics and Design 3  
IME 542 Human Factors Engineering 3
### ENGINEERING MANAGEMENT TECHNOLOGY

**Bachelor of Science**

The Engineering Management Technology curriculum provides academic background in humanities, social sciences, communication, and technical subjects relating to manufacturing systems. Human relations 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.

### 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 IME, ECE, and CMD 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 129 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, plus one spring session.
4. The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400 level courses: CHEM 110 and 111, ECE 100, IME 102, PHYS 115 and 116, and MATH 122 or MATH 200.

### BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Engineering Management Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 491 Multidisciplinary Senior Proposal and IME 492 Multidisciplinary Senior Project.

#### First Semester — 14 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 102</td>
<td>Technical Communication (Prof. 1)</td>
<td>3</td>
</tr>
<tr>
<td>IME 150</td>
<td>Introduction to Manufacturing (Area VII)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>General Chemistry I (Area VI)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>General Chemistry Lab I (Area VI)</td>
<td>1</td>
</tr>
<tr>
<td>MATH 118</td>
<td>Pre-Calculus I (Prof. 3)</td>
<td>4</td>
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</tbody>
</table>

#### Second Semester — 15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>IME 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 122</td>
<td>Calculus I (or MATH 200) (Prof. 4)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 113</td>
<td>General Physics I (Area VI)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 114</td>
<td>General Physics I Lab (Area VI)</td>
<td>1</td>
</tr>
<tr>
<td>ECE 100</td>
<td>Fundamentals of Circuits and Electronics</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Third Semester — 15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 104</td>
<td>Introduction to C/C++</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 115</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 116</td>
<td>General Physics II Lab</td>
<td>1</td>
</tr>
<tr>
<td>ECE 101</td>
<td>Fundamentals of Electronics and Machines</td>
<td>3</td>
</tr>
<tr>
<td>IME 122</td>
<td>Automobile in Society</td>
<td>3</td>
</tr>
<tr>
<td>AREA 8</td>
<td>Health and Well Being</td>
<td>2</td>
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</table>

#### Fourth Semester — 17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 246</td>
<td>Introduction to CAD</td>
<td>3</td>
</tr>
<tr>
<td>CMD 254</td>
<td>Properties of Materials</td>
<td>3</td>
</tr>
<tr>
<td>CMD 255</td>
<td>Material Science Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Fifth Semester — 17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 291</td>
<td>Statics and Strengths of Materials</td>
<td>3</td>
</tr>
<tr>
<td>IME 305</td>
<td>Work Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IME 315</td>
<td>Work Analysis and Design Lab</td>
<td>1</td>
</tr>
<tr>
<td>IME 316</td>
<td>Report Preparation</td>
<td>3</td>
</tr>
<tr>
<td>IME 320</td>
<td>Engineering Cost Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Microeconomics (Area V)</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Sixth Semester — 16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 312</td>
<td>Systems Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>IME 328</td>
<td>Quality Assurance and Control</td>
<td>3</td>
</tr>
<tr>
<td>IME 404</td>
<td>Plant Layout and Materials Handling</td>
<td>4</td>
</tr>
<tr>
<td>IME 422</td>
<td>Engineering Teams: Theory and Practice (Area V)</td>
<td>3</td>
</tr>
<tr>
<td>IME 326</td>
<td>Operations Planning and Control</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Seventh Semester — 14 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>IME 402</td>
<td>Supervision of Industrial Operations</td>
<td>3</td>
</tr>
<tr>
<td>IME 412</td>
<td>Industrial Systems Management</td>
<td>3</td>
</tr>
<tr>
<td>IME 491</td>
<td>Multidisciplinary Senior Proposal (Prof. 2)</td>
<td>2</td>
</tr>
<tr>
<td>Technical Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Technical Elective</td>
<td></td>
<td>3</td>
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#### Eighth Semester — 15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 352</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>IME 492</td>
<td>Multidisciplinary Senior Project (Prof. 2)</td>
<td>2</td>
</tr>
<tr>
<td>IME 493</td>
<td>Multidisciplinary Senior Project Consultation</td>
<td>1</td>
</tr>
<tr>
<td>AREA II</td>
<td>Humanities</td>
<td>3</td>
</tr>
<tr>
<td>AREA III</td>
<td>United States: Culture and Issues</td>
<td>3</td>
</tr>
<tr>
<td>Technical Elective</td>
<td></td>
<td>3</td>
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</tbody>
</table>

#### Spring Semester of Senior Year — 6 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 420</td>
<td>Modern Industrial Systems</td>
<td>3</td>
</tr>
<tr>
<td>AREA IV</td>
<td>Other Cultures and Civilizations</td>
<td>3</td>
</tr>
</tbody>
</table>

See departmental advisor for a list of approved technical elective courses in each specialized area. Also see Technical Elective Requirements below.

**TECHNICAL ELECTIVE REQUIREMENTS**

Nine (9) credits of electives must be selected from the following areas of concentration. To earn an option, four (4) courses in a single area of concentration must be completed. This raises the total hours in the curriculum to 132. A selection of a group of courses provides the student an opportunity to concentrate in one of the several specialized areas listed below:

- **Automotive**
  - IME 324 Automotive Power Systems
  - IME 325 Automotive Electronic Systems
  - IME 425 Automotive Drive Systems
  - IME 426 Automotive Structure, Ride, and Safety

- **Cast Metals**
  - IME 352 Metal Casting
  - IME 452 Die Casting
  - IME 455 Advanced Metal Casting
  - IME 456 Process Testing and Measurement

- **Computer Aided Design**
  - IME 346 Programming for CAD
  - IME 348 Designing for Production
  - IME 358 Computer Aided Manufacturing
  - IME 446 CAD Applications

- **Computer Aided Manufacturing**
  - IME 254 Machining Processes
  - IME 348 Designing for Production
  - IME 358 Computer Aided Manufacturing
  - IME 458 Manufacturing Systems Integration

- **Plastics Manufacturing**
  - IME 250 Plastics Properties and Processing
  - IME 350 Production Thermoplastic Processing
  - IME 456 Process Testing and Measurement
  - IME 459 Mold Design and Construction

Alternatively, the student may choose to obtain a minor in Integrated Supply Chain Management.

### INDUSTRIAL ENGINEERING

**Bachelor of Science in Engineering (Industrial)**

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The Industrial Engineering curriculum provides the essential foundation, experience, and understanding in science, mathematics, humanities, and engineering so that graduates may find employment in production and service industries. This program is also a basis for graduate study. Industrial engineering involves the design, installation, and improvement of systems integrating people, materials, equipment, and energy. An industrial engineer might work in facilities planning and design, plant automation, quality assurance, plant safety, or employee/employer relations. Jobs are available in manufacturing and in service-related industries such as hotels, banks, food, transportation, and hospitals.

#### 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 in darker print 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 WRITING REQUIREMENT

Students who have chosen the Industrial Engineering curriculum must satisfy the Baccalaureate Writing Requirement by successfully completing IME 491 Multidisciplinary Senior Proposal and IME 492 Multidisciplinary Senior Project.
following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must begin with a course at the 100-200 level and conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, and/or IV as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A grade point average of 2.0 or better must be earned in courses presented for graduation with ECE, IME, and ME prefixes.

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 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are listed below in darker italic print.

<table>
<thead>
<tr>
<th>First Semester — 16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IME 102 Technical Communication</strong></td>
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<tr>
<td><strong>IME 142 Engineering Graphics</strong></td>
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<tr>
<td><strong>MATH 122 Calculus I</strong></td>
</tr>
<tr>
<td><strong>CHEM 110 General Chemistry I</strong></td>
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<tr>
<td><strong>CHEM 111 General Chemistry Lab I</strong></td>
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<tr>
<td><strong>AREA III Health and Well-being</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester — 15 hours</th>
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<tbody>
<tr>
<td><strong>IME 206 Engineering Computations</strong></td>
</tr>
<tr>
<td><strong>ACTY 210 Principles of Accounting</strong></td>
</tr>
<tr>
<td><strong>MATH 123 Calculus II</strong></td>
</tr>
<tr>
<td><strong>PHYS 205 Mechanics and Heat</strong></td>
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<tr>
<td><strong>PHYS 206 Mechanics and Heat Lab</strong></td>
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<table>
<thead>
<tr>
<th>Third Semester — 15 hours</th>
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</thead>
<tbody>
<tr>
<td><strong>IME 261 Engineering Statistics</strong></td>
</tr>
<tr>
<td><strong>MATH 272 Vector and Multivariate Calculus</strong></td>
</tr>
<tr>
<td><strong>ME 253 Statics and Mechanics of Materials</strong></td>
</tr>
<tr>
<td><strong>PHYS 207 Electricity and Light</strong></td>
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<tr>
<td><strong>PHYS 208 Electricity and Light Lab</strong></td>
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<thead>
<tr>
<th>Fourth Semester — 17 hours</th>
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</thead>
<tbody>
<tr>
<td><strong>IME 205 Work Design</strong></td>
</tr>
<tr>
<td><strong>IME 262 Probability for Engineers</strong></td>
</tr>
<tr>
<td><strong>ECE 210 Circuit Analysis</strong></td>
</tr>
<tr>
<td><strong>AREAs II Humanities</strong></td>
</tr>
<tr>
<td><strong>ECON 201 Principles of Microeconomics</strong></td>
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<table>
<thead>
<tr>
<th>Fifth Semester — 17 hours</th>
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<tbody>
<tr>
<td><strong>IME 310 Engineering Economy</strong></td>
</tr>
<tr>
<td><strong>IME 316 Report Preparation</strong></td>
</tr>
<tr>
<td><strong>IME 307 Computer Controlled Manufacturing Systems</strong></td>
</tr>
<tr>
<td><strong>ECE 211 Machines and Electronic Circuits</strong></td>
</tr>
<tr>
<td><strong>MATH 374 Introduction to Linear Algebra and Differential Equations</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Sixth Semester — 17 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IME 308 Comp. Controlled Manufacturing Design Lab</strong></td>
</tr>
<tr>
<td><strong>IME 311 Introduction to Operations Research</strong></td>
</tr>
<tr>
<td><strong>IME 318 Statistical Quality Control</strong></td>
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### Manufacturing Engineering Technology

**Bachelor of Science**

Accredited by the Technology Accreditation Commission of the Accreditation Board for 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 options allow students to specialize in cast metals or plastics.

**REQUIREMENTS**

Students who have chosen the Manufacturing Engineering Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 491 Multidisciplinary Senior Proposal and IME 492 Multidisciplinary Senior Project.

**REQUIREMENTS**

1. A grade point average of 2.0 or better must be earned in required courses with ECE, CMD, ME, 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 131 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

<table>
<thead>
<tr>
<th>First Semester — 16 hours</th>
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</thead>
<tbody>
<tr>
<td><strong>IME 102 Technical Communication</strong></td>
</tr>
<tr>
<td><strong>IME 142 Engineering Graphics</strong></td>
</tr>
<tr>
<td><strong>MATH 118 Precalculus Mathematics</strong></td>
</tr>
</tbody>
</table>

**Second Semester — 17 hours**

| **IME 150 Introduction to Manufacturing** | 3 |
| **MATH 118 Precalculus Mathematics** | 4 |

**Third Semester — 16 hours**

| **IME 414 Facilities Design** | 4 |
| **IME 416 Operations Control in Industry** | 4 |
| **IME 491 Multidisciplinary Senior Proposal** | 2 |
| **IME Approved Elective** | 3 |
| **AREA III United States: Culture and Issues** | 3 |

**Fourth Semester — 16 hours**

| **IME 432 Multidisciplinary Senior Project** | 2 |
| **IME 493 Multidisciplinary Senior Project Consultation** | 1 |
| **IME 430 Simulation Modeling and Analysis** | 3 |
| **ME 402 Supervision of Industrial Operations** | 3 |
| **AREA I Fine Arts** | 3 |
| **AREA IV Other Cultures and Civilizations** | 4 |

*At least two of these courses must be at the 300-400 level.*

**Eighth Semester — 16 hours**

| **IME 439 Multidisciplinary Senior Project Consultation** | 1 |
| **IME 430 Simulation Modeling and Analysis** | 3 |
| **ME 402 Supervision of Industrial Operations** | 3 |
| **AREA I Fine Arts** | 3 |

**Approved Electives/Options Requirements**

Nine (9) credits of electives must be selected from the following areas of concentration. To earn an option, four (4) courses in a single
area of concentration must be completed. This raises the total hours in the curriculum to 134.

**Automotive Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 324</td>
<td>Automotive Power Systems</td>
<td>3</td>
</tr>
<tr>
<td>IME 325</td>
<td>Automotive Electronic Systems</td>
<td>3</td>
</tr>
<tr>
<td>IME 425</td>
<td>Automotive Drive Systems</td>
<td>3</td>
</tr>
<tr>
<td>IME 426</td>
<td>Automotive Structure, Ride, and Safety</td>
<td>3</td>
</tr>
</tbody>
</table>

**Cast Metals Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 300</td>
<td>Cooperative Education (in Cast Metals Industry)</td>
<td>3</td>
</tr>
<tr>
<td>IME 452</td>
<td>Die Casting</td>
<td>3</td>
</tr>
<tr>
<td>IME 455</td>
<td>Advanced Metal Casting</td>
<td>3</td>
</tr>
<tr>
<td>IME 456</td>
<td>Process Testing and Measurement</td>
<td>3</td>
</tr>
</tbody>
</table>

**Plastics Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 350</td>
<td>Production Thermoplastic Processing</td>
<td>3</td>
</tr>
<tr>
<td>IME 456</td>
<td>Process Testing and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>IME 459</td>
<td>Mold Design and Construction</td>
<td>3</td>
</tr>
<tr>
<td>IME 550</td>
<td>Advanced Plastics Processing</td>
<td>3</td>
</tr>
<tr>
<td>IME 300</td>
<td>Cooperative Education (in the Plastics Industry)</td>
<td>3</td>
</tr>
</tbody>
</table>

**MANUFACTURING TECHNOLOGY MINOR**

The manufacturing technology minor is available to Haworth College of Business students. It is recommended that students selecting the manufacturing technology minor fulfill their General Education Area VI requirements by taking CHEM 110 and 111 or CHEM 103 and/or PHYS 113 and 114 and Proficiency 2 or 4b by taking MATH 122 or 200. The manufacturing technology minor totals 18–19 semester credit hours including three required courses and three approved elective courses selected in consultation with a student's major advisor.

**REQUIRED COURSES** — 9 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>IME 150</td>
<td>Introduction to Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>IME 328</td>
<td>Quality Assurance and Control</td>
<td>3</td>
</tr>
</tbody>
</table>

**Approved Electives** — 9 hours

Select three (3) courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD 132</td>
<td>Wood Processing</td>
<td>3</td>
</tr>
<tr>
<td>CMD 254</td>
<td>Properties of Materials</td>
<td>3</td>
</tr>
<tr>
<td>CMD 255</td>
<td>Materials Science Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 100</td>
<td>Fundamentals of Circuits and Electronics</td>
<td>3</td>
</tr>
<tr>
<td>ECE 101</td>
<td>Fundamentals of Electronics and Machines</td>
<td>3</td>
</tr>
<tr>
<td>ECE 250</td>
<td>Digital Logic I</td>
<td>3</td>
</tr>
<tr>
<td>IME 121</td>
<td>Automotive Chassis Systems</td>
<td>3</td>
</tr>
<tr>
<td>IME 122</td>
<td>Automobile in Society</td>
<td>3</td>
</tr>
<tr>
<td>IME 254</td>
<td>Machining Processes</td>
<td>3</td>
</tr>
<tr>
<td>IME 246</td>
<td>Introduction to Computer Aided Design</td>
<td>3</td>
</tr>
<tr>
<td>IME 250</td>
<td>Plastics Properties and Processing</td>
<td>3</td>
</tr>
<tr>
<td>IME 326</td>
<td>Operations Planning and Control</td>
<td>3</td>
</tr>
<tr>
<td>IME 350</td>
<td>Production Thermoplastic Processing</td>
<td>3</td>
</tr>
<tr>
<td>IME 352</td>
<td>Metal Casting</td>
<td>3</td>
</tr>
<tr>
<td>IME 358</td>
<td>Computer Aided Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 354</td>
<td>Paper Industry Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

**Industrial and Manufacturing Engineering Courses (IME)**

A list of approved General Education courses can be found in "Graduation Requirements and Academic Advising" earlier in this catalog. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

**IME 102 Technical Communication (3-0)**
3 hrs.
Principles of objective presentation of factual material, logical organization, summarizing, ethical practices, information gathering techniques, oral communication, and listening through practical applications.

**IME 121 Automotive Chassis Systems (2-3)**
3 hrs.
The operation, design, manufacture, and application of basic scientific principles to automotive chassis systems. Includes engine power transmission, braking, steering/suspension, and interior atmospheric control. Investigation includes disassembly, measurement, associated calculations of strength and capacity, reassembly, adjustment, and testing.

**IME 122 Automobile in Society (3-0)**
3 hrs.
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 record of successes and failures.

**IME 124 Automotive Engine Systems (2-3)**
3 hrs.
The performance, dynamics, study of design, manufacturing, and adjustment of automotive spark ignition engines. Thermodynamics will be applied to engine operation. The measurement and study of volumetric, mechanical, and fuel efficiencies. Also included is valve train and piston dynamics, engine balance, vibration control, calculations of engine component loads, induction, and exhaust system dynamics. Prerequisite: MATH 111 or equivalent.

**IME 142 Engineering Graphics (2-3)**
3 hrs.
Essentials of engineering graphics including technical sketching, CAD applications, applied geometry, orthographic projection, section, dimensioning, tolerancing, threads and fasteners, weldments, detail and assembly drawing, drafting and basic elements of descriptive geometry. All work is according to current ANSI drafting standards. Previous technical drawing is recommended.

**IME 144 Descriptive Geometry (2-3)**
3 hrs.
Applications of analytical graphics in solution of engineering and technical design problems. Study of spatial concepts involving points, lines, planes, and solids. Prerequisite: IME 142.

**IME 150 Introduction to Manufacturing (3-0)**
3 hrs.
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.

**IME 205 Work Design (3-3)**
4 hrs.
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: IME 206 or concurrent, IME 102.

**IME 206 Engineering Computations (3-0)**
3 hrs.
A basic course introducing students to software and hardware to be used for engineering computations and decision making. The course includes basics of Internet and Intranet, and use of web browsers for accessing and disseminating information. Instructions also include structured problem solving, basics of flowcharting, logic flow development and basics of a structured programming language. Prerequisite: Proficiency in a structured programming language. This prerequisite may also be met by completion of CS 106 or equivalent. Corequisite: MATH 122.

**IME 221 Automatic Transmission/Transaxle Systems (2-2)**
3 hrs.
The operation, study of design, and manufacture of automatic transmissians and transaxes, including hydraulics, electronics, torque capacities, and gear systems. Measurements and computations for pumps, valve mechanisms, clutches, bands, and gears. Includes a study of bearing application, lubrication and cooling of the transmission/transaxle, and testing. Prerequisite: PHYS 113 and 114.

**IME 222 Fuels and Lubricants (2-2)**
3 hrs.
A study of petroleum products and their application to the fuel and lubricant requirements of automobiles and aircraft. Laboratory tests are conducted to ascertain octane requirements, coefficient of viscosity, volatility, flash and fire point, grease penetration, API degree, and dropping point of grease. Prerequisite: CHEM 110 and 112 or CHEM 103.

**IME 224 Fuel and Electrical/Electronic Systems (3-4)**
4 hrs.
The operation, study of design, testing, manufacture, and application of automotive electrical/electronic and engine control systems. Investigation of fuel, ignition, charging, starting, and auxiliary systems. Special attention is given to strategies for fuel economy, power, emissions, driveability, and safety. Prerequisite: ECE 100.

**IME 246 Introduction to Computer-Aided Design (2-3)**
3 hrs.
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 drawings and 3-dimensional wireframe part design creation. Emphasis placed upon factors affecting performance and capabilities of comparative CAD systems operation. Prerequisite: IME 142.

**IME 250 Plastics Properties and Processing (2-3)**
3 hrs.
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:** IME 150,
CHEM 103.

IME 254 Machining Processes (2-3)
3 hrs. 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.

IME 261 Engineering Statistics (3-0)
3 hrs. Introduction to statistical methodology
emphasizing applications in engineering.
Topics include descriptive and inferential
statistics, regression, analysis of variance, and
design of experiments. This course is
cross-listed with MATH 261. **Prerequisites:** IME 261 and corequisite MATH 272.

IME 281 Statics and Strength of Materials (4-0)
4 hrs. Forces on structures, moments, equilibrium.
Stresses and deformation in axially-loaded
timbers, torsion members and beams.
Elementary design of structural members.
**Prerequisites:** MATH 122 or MATH 200.

IME 283 Thermodynamics (2-0)
2 hrs. Fundamentals of thermodynamics. First and
second law for open and closed systems.
Fluid properties; fluid statics, laminar and
湍流的 flow; flow in pipes. **Prerequisites:** IME 121, PHYS 113/114, MATH 122 or MATH 200.

IME 284 Fluid Mechanics and Hydraulics (2-0)
2 hrs. Fluid properties; fluid statics, laminar and
turbulent flow; flow in pipes. **Prerequisites:** PHYS 113/114.

IME 300 Cooperative Education (Art.)
1–3 hrs. 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.

IME 305 Work Analysis (3-0)
3 hrs. 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.

IME 307 Computer Controlled Manufacturing
Systems (3-3)
4 hrs. Analysis and design of computer controlled
manufacturing systems. Students must enroll in
IME 307 during the semester following IME 307. **Prerequisites:** IME 206, ECE 211 (ECE 211 may be taken concurrently).

IME 308 Computer Controlled Manufacturing
Design Lab (0-6)
2 hrs. A continuation of IME 307 in which students
design and construct a physical computer
controlled model to simulate a manufacturing
process. IME 307 and IME 308 must be taken
during the same academic year. **Prerequisite:** IME 307.

IME 309 Engineering Economy for Mechanical
Engineers (2-0)
2 hrs. 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:** MATH 123. **For Mechanical Engineering Majors only.**

IME 310 Engineering Economy (3-0)
3 hrs. Application of principles of engineering
economy for establishment of equipment and
system feasibility. Interest, equivalence, taxes,
depreciation, uncertainty, risk, incremental and
dunk costs, and replacement models.
**Prerequisites:** CS 106 or CS 306 or IME 206, MATH 123.

IME 311 Introduction to Operations Research
(3-0)
3 hrs. The development of mathematical concepts
and models concerned with industrial
engineering problems. Topics include queuing
theory, game theory, linear, and dynamic
programming. **Prerequisite:** IME 261, 262.

IME 312 Systems Decision Making (3-0)
3 hrs. 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:** MATH 260.

IME 315 Work Analysis and Design Lab (0–3)
1 hr. 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:** IME 305 or taken concurrently.

IME 316 Report Preparation (3–0)
3 hrs. Learning techniques and procedures for
preparation of technical documents:
Intensifying critical, analytical process of
thinking, and executing writing and oral
presentation. Methods of organizing
information, methods of data-gathering
capabilities. Verbal and written
reports are stressed. **Prerequisites:** IME 121, 124, 221, 222, 224, and ECE 101.

IME 326 Operations Planning and Control
(3–0)
3 hrs. Methods of controlling and coordinating
production using production planning,
scheduling, inventory control, and
dispatching. NOT FOR ENGINEERING CREDIT. **Prerequisite:** MATH 216 or MATH 260 or MATH 366.

IME 327 Vehicle Systems Diagnosis (2–3)
3 hrs. The study of the diagnosis techniques and
strategies necessary to identify malfunctions in the
total automotive vehicle system. Special
attention is given to laboratory and service
equipment, its use, calibration, and
data-gathering capabilities. Verbal and written
reports are stressed. **Prerequisites:** IME 121, 124, 221, 222, 224, and ECE 101.

IME 328 Quality Assurance and Control (3–0)
3 hrs. Techniques of controlling quality in
manufacturing systems. Topics include
organization of quality, methods of
measurement, and basic statistical tools. NOT
FOR ENGINEERING CREDIT. **Prerequisite:** MATH 216 or MATH 260.

IME 330 Simulation Modeling and Analysis
(3–0)
3 hrs. 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. **Prerequisites:** IME 206, 262.

IME 346 Programming for Computer-Aided
Design (2–3)
3 hrs. Modular software development for interactive
CAD. Topics include human interface for
interative 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:** IME 246 and CS 111.
IME 348 Designing for Production (2-3) 3 hrs.
Engineering documentation as it relates to the product development and manufacturing methods required to bring a quality product to the 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 affect 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: IME 154, 246, and 281.

IME 350 Production Thermoplastic Processing (2-3) 3 hrs.
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 tooling and extrusion equipment. Prerequisites: IME 250, and CMD 254, 255.

IME 352 Metal Casting (2-3) 3 hrs.
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: IME 254, and CMD 254, 255.

IME 357 Fabrication, Assembly, and Finishing (2-3) 3 hrs.
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, and printing, and vacuum metalizing. Review of the impact of the assembly and finishing processes on product quality and reliability. Prerequisites: IME 250, 281.

IME 358 Computer-Aided Manufacturing (2-3) 3 hrs.
Principles of operation of numerically-controlled systems for manufacturing. Application of CAD/CAM systems and graphics NIC in programming. Prerequisites: IME 254, 246, and CS 104 or 111.

IME 387 CAD/CAM Fundamentals (2-3) 3 hrs.
Application of computer graphics to drafting and design, transfer of drawings to part programs for CNC machine control. Considerations for computer-integrated manufacturing. (Not for majors in EGR and MFT.)

IME 402 Supervision of Industrial Operations (3-0) 3 hrs.
Supervisory duties and responsibilities of foremen, engineers, and technicians in industrial operations. Prerequisite: Junior standing.

IME 404 Plant Layout and Material Handling (3-3) 4 hrs.
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: IME 305, 326, and senior standing.

IME 412 Industrial Systems Management (3-0) 3 hrs.
Principles and applications of advanced systems management, including project management, system 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: IME 312.

IME 414 Material Handling and Facilities Design (3-3) 4 hrs.
Comprehensive understanding of the issues involved in the design of an industrial production system. Problems in plant location, product analysis, design, equipment selection, materials handling, and plant layout. Includes an extensive semester project to plan and design a manufacturing facility. Prerequisites: IME 205, 310, 316, 416 or taken concurrently.

IME 416 Operations Control in Industry (3-3) 4 hrs.
The function of production and inventory controls. Control of manufacturing production systems and modeling. Prerequisites: IME 206, 261, 262, 311.

IME 420 Modern Industrial Systems (1-6) 3 hrs.
Students will observe and analyze actual supervisory and managerial functions in industrial and service establishments. Conference procedures will be used in exploring many facets of supervisory and managerial practices and procedures. A charge for transportation is required. Prerequisites: Spring session prior to graduation.

IME 421 Automotive Design Analysis (2-2) 3 hrs.
Evaluations of the interrelationship of engineering standards, operating limitations, manufacturing, cost control, customer satisfaction, and repairability of modern automobile systems. Theoretical and written reports are required on "fit and finish," ergonomics, safety, performance, cost, and repairability. Prerequisite: IME 327.

IME 422 Engineering Teams: Theory and Practice (3-0) 3 hrs.
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. Prerequisites: COM 104 or IME 316 (may be taken concurrently), and upperclass standing.

IME 425 Automotive Drive Systems (2-3) 3 hrs.
The study and simulation of the transmission of power from the power system to the road. Both manual and automatic transmissions and transaxles, including CVTs, clutches, transfer-cases, front and rear wheel drive and half shafts, and differentials. The evaluation of design, construction, manufacturing adjustment, both on-board and off-board diagnostics. Special emphasis will be placed on near term alternative power transmission devices such as are used in Hybrid Drive systems. Prerequisite: IME 122.

IME 426 Automotive Structure, Ride, and Safety (2-3) 3 hrs.
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. Prerequisites: IME 122, 325.

IME 442 Ergonomics and Design (2-3) 3 hrs.
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.

IME 444 Advanced Product and Machine Design (2-3) 3 hrs.
Advanced projects in the application of geometric dimensioning and tolerancing to complex parts and assemblies. Geometrical components are analyzed and applied to meet design requirements for applied motion and force transmission projects. CAD application will be an important part of this course. Prerequisites: IME 144, 348, and 481.

IME 446 CAD Applications (2-3) 3 hrs.
Parametric macro development and applications customization on selected commercial 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: IME 246 and senior status.

IME 448 Computer-Aided Analysis (2-3) 3 hrs.
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., FEA). Customized design evaluation (e.g., symbolic evaluation). Interaction with, and among, selected drafting/modeling and design/analysis packages. Prerequisites: IME 283, 284, 348 and CS 111.

IME 452 Die Casting (2-3) 3 hrs.
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: IME 352.

IME 453 Maintenance in Manufacturing (2-3) 3 hrs.
Installation, adjustment, and maintenance of equipment. Machinery monitoring, diagnostics, and maintenance systems. Prerequisite: Senior standing.

IME 455 Advanced Metal Casting (2-3) 3 hrs.
The identification of causes for cast metal variability (melt, mold, and fill) through the use of instrumentation, data gathering, and analysis techniques. Strategies for establishing process control and process capability in metal casted parts. Prerequisite: IME 352.
IME 456 Process Testing and Measurement (2-3)
3 hrs.
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: CMD 254, IME 291.

IME 458 Manufacturing Systems Integration (2-3)
3 hrs.
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: CS 104, ECE 101 or 211 (ECE 211 may be taken concurrently).

IME 459 Mold Design and Construction (2-3)
3 hrs.
Mold and die design, processing and part requirements, molded holes and undercuts, threads, tool-making processes, tooling, materials, and maintenance of molds and mold construction using a wide range of cavity production methods. Computer analysis of temperature, pressure, and filling characteristics of a mold. Prerequisites: IME 250, 254.

IME 481 Metrology (2-3)
3 hrs.
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. Prerequisites: IME 348, MATH 260.

IME 487 Manufacturing Productivity Techniques (3-0)
3 hrs.
Application of modern processes, principles of productive tooling and inspection methods to quality production. The impact of emerging materials on processing techniques, organization, and systems for automation. Prerequisite: IME 261 or equivalent.

IME 488 Applied Process Reengineering (3-0)
3 hrs.
Application of analytical and process measurement techniques to process design decisions. Benefits of process standardization and improvement. This course is cross-listed with MKTG 485. Prerequisites: Senior standing, ISM major or minor or permission of instructor.

IME 490 Independent Research and Development (Arr.) 1–4 hrs.
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.

IME 499 Studies in Engineering (Arr.) 1–6 hrs.
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.

IME 500 Advanced Industrial Relations (3-0)
3 hrs.
Interplay among government agencies, labor organizations, and management. Particular emphasis is placed on collective bargaining procedures, issues, and applications through case studies. Prerequisite: Permission of instructor.

IME 501 Survey of Industrial Engineering Topics (3-0) 3 hrs.
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 any masters or graduate program offered by the IME department. This course may be used to meet the stated prerequisite requirements normally satisfied by IME 250 and IME 256 in the graduate program. Prerequisites: CHEM 103, PHYS 115, IME 150.

IME 505 Continuous Improvement in Operations (3-0) 3 hrs.
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.

IME 507 Computer Integrated Manufacturing (3-0) 3 hrs.
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. Prerequisite: Course in computer programming.

IME 508 Advanced Quality Management (3-0) 3 hrs.
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. Prerequisites: IME 318, or IME 328, or IME 501 or equivalent.

IME 512 Management of Service Operations (3-0) 3 hrs.
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.

IME 516 Design of Experiments and Regression Analysis (3-0) 3 hrs.
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. Prerequisite: IME 261 or equivalent.

IME 542 Human Factors Engineering (3-0) 3 hrs.
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-machine system. Topics include human capabilities and limitations; human input, output, and control; work space design; and the work environment.
MANUFACTURING ENGINEERING
Michael B. Atkins, Chair
WMU Regional Office
Kellogg Community College
Battle Creek, Michigan (616) 965-5380

The Department of Manufacturing Engineering offers a curriculum leading to the degree of Bachelor of Science in Engineering (Manufacturing). The goal of this curriculum is to develop students who have the ability to take a product design concept and design the manufacturing process. The curriculum includes mathematics, general education subjects, the basic sciences, the engineering sciences and specially designed courses for manufacturing engineering. The curriculum has extensive coverage of materials, manufacturing processes, and tool design. Background is also provided in engineering mechanics, electrical/electronics and manufacturing management.

Manufacturing engineers work in industries to design, develop and implement manufacturing processes to manufacture consumer products. They can be found working in a broad range of industries such as automotive, aircraft, appliances, etc. The manufacturing engineer might be expected to troubleshoot a manufacturing problem, to layout a manufacturing line, to write purchase specifications for manufacturing equipment, to implement automation equipment or to supervise production operations. The intent of this program is to prepare students for a diverse role in a manufacturing enterprise.

This curriculum was designed with the aid of an industrial advisory committee. This committee included a wide representation of manufacturers and represents their collective thinking as to what a modern day manufacturing curriculum should include.

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**Academic Advising**
Students should contact an advisor at the WMU Regional Office, Muskegon Community College, Muskegon, Michigan (616) 777-0500 as early as possible in the program to set up an academic plan of work. Alternatively, students can contact the Office of Advising and Admissions, College of Engineering and Applied Sciences, Room 2038 Kohman Hall, Western Michigan University, Kalamazoo, Michigan (616) 387-4033.

**Baccalaureate Writing Requirement**
Students who have chosen the Manufacturing Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IME 316 Report Preparation.

**Requirements**
Candidates for the Bachelor of Science in Engineering (Manufacturing) must satisfy the following requirements in addition to those required by Western Michigan University:
1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must begin with a course at the 100-200 level and conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV and/or V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.
2. A grade point average of 2.0 or better must be earned in courses presented for graduation with MFE, ME, IME, and ECE prefixes.
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 semester credit hours.

**First Semester**—16 hours
- MATH 122 Calculus I
- IME 150 Introduction to Manufacturing
- IME 102 Technical Communication
- IME 142 Engineering Graphics
- Area I Fine Arts*

**Second Semester**—17 hours
- MATH 123 Calculus II
- CHEM 110 General Chemistry I
- CHEM 111 General Chemistry Lab I
- MFE 120 Engineering Design and Verification
- PHIL 220 Critical Reasoning
- Area II The United States: Cultures and Issues*

**Third Semester**—16 hours
- MATH 272 Vector and Multivariate Calculus
- PHYS 205 Mechanics and Heat
- PHYS 206 Mechanics and Heat Lab
- CS 200 Programming Language Experience
- COM 104 Public Speaking
- Area VIII Health and Well-being

**Fourth Semester**—18 hours
- MATH 374 Introduction to Linear Algebra and Differential Equations
- PHYS 207 Electricity and Light
- PHYS 208 Electricity and Light Lab
- IME 261 Engineering Statistics
- ME 256 Statics
- MFE 220 Principles of N/C/CNC Machining

**Fifth Semester**—16 hours
- MFE 330 Manufacturing Materials I
- MFE 340 Design for People at Work
- ECE 212 Electronic Circuits and Systems
- ME 258 Dynamics
- PHIL 316 Ethics in Engineering and Technology

**Sixth Semester**—16 hours
- MFE 360 Computer Control of Manufacturing Operations
- ME 257 Mechanics of Materials
- ECE 312 Fundamentals of Electronics and Machines
- IME 316 Report Preparation
- IME 310 Engineering Economy

**Seventh Semester**—15 hours
- MFE 430 Manufacturing Materials II
- MFE 442 Quality Assurance
- MFE 440 Production Engineering
MFE 480 Senior Design I 2
Area IV Other Cultures and Civilizations* 3

Eighth Semester — 15 hours
MFE 420 Advanced Manufacturing Processes 4
MFE 424 Tool Design 3
MFE 444 Simulation of Industrial Operations 3
MFE 482 Senior Design II 2
Area V Social and Behavioral Sciences* 3

*At least two of these courses must be at the 300-400 level.

Manufacturing Engineering Courses (MFE)

A list of approved General Education courses can be found and is current in this catalog. Following course title indicates hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

MFE 120 Engineering Design and Verification (2-3) 3 hrs.
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 design. Introduction to statistical process control and quality assurance using precision measurement instruments and coordinate measuring systems. Prerequisites: IME 150, a course in computer-aided design or consent of instructor.

MFE 220 Principles of NC/CNC Machining (2-3) 3 hrs.
NC/CNC machine use and programming. Post processors, tool geometry, cutting feeds and speeds, and vision systems. Industrial automation. Introduction to advanced topics in Computer Integrated Manufacturing (CIM). Prerequisites: MFE 120, PHYS 205.

MFE 330 Manufacturing Materials I (3-3) 4 hrs.
Structure and properties of metallic materials. Considerations for selection in applications. Manufacturability. A three-hour laboratory is required. Prerequisites: CHEM 110 and 111; PHYS 205.

MFE 340 Design for People at Work (3-0) 3 hrs.
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. Prerequisite: PHYS 205.

MFE 360 Computer Control of Manufacturing Operations (2-3) 3 hrs.
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: Computer programming in C, ECE 212. Co-requisite ECE 312.

MFE 420 Advanced Manufacturing Processes (3-3) 4 hrs.

MFE 424 Tool Design (2-3) 3 hrs.

MFE 430 Manufacturing Materials II (3-3) 4 hrs.

MFE 440 Production Engineering (3-0) 3 hrs.
The quantitative and computer-based methods and techniques of planning and controlling manufacturing operations are presented. Topics included are production design and process selection, design of manufacturing facilities and jobs, aggregate planning, inventory systems, operations scheduling, and system improvement. Prerequisites: IME 261, MATH 230, MATH 272.

MFE 442 Quality Assurance (3-0) 3 hrs.
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. Prerequisites: IME 261, MATH 272.

MFE 444 Simulation of Industrial Operations (2-3) 3 hrs.
Use of computer simulation as a modeling tool with emphasis on concurrent 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. Prerequisites: IME 261; a course in computer programming using C.

MFE 480 Senior Design Project I (2-0) 2 hrs.
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 482. Prerequisite: Consent of instructor. Co-requisite: MFE 420, MFE 424.

MFE 482 Senior Design Project II (2-0) 2 hrs.
Completion of the engineering design project started in Senior Design Project I. A formal written and oral presentation is required. Prerequisite: MFE 480.
MECHANICAL AND AERONAUTICAL ENGINEERING

205

Kalamazoo Antique Auto Restorers Club, and the College itself. Program announcements are distributed during the application period. The Department of Mechanical and Aeronautical Engineering also annually presents several awards, which include:

Dean E. Blum Award—presented to an outstanding student of mechanical engineering who has demonstrated interest and ability in liberal studies. This award is in honor and recognition of the late Dr. Blum who, during his tenure as Professor and Chair of Mechanical Engineering, was an active supporter of liberal education for engineering students.

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.

Outstanding Aeronautical Engineering Scholar Award—presented to an aeronautical engineering student who is outstanding scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with aeronautical engineering.

Mechanical Engineering Presidential Scholar Award—presented to an outstanding mechanical engineering student who is selected using University-wide criteria which includes senior standing, superior scholastic ability, extra-curricular involvement, and professional promise.

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 mechanical engineers may be found.

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.

CURRICULUM

AERONAUTICAL ENGINEERING

Bachelor of Science in Engineering (Aeronautical)

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

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.

BACCAULAREATE WRITING REQUIREMENT

Students who have chosen the Aeronautical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ME 365 Machine Design I (3 hrs.) and ME 480 Mechanical and Aeronautical Engineering Project (3 hrs.).

REQUIREMENTS

Candidates for the Bachelor of Science in Engineering (Aeronautical) must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences, and/or behavioral sciences.) The sequence must begin with a course at the 100-200 level and conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV, and/or V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A grade point average of 2.0 or better must be earned in courses presented for graduation with AAE, ECE, IME, and ME prefixes.

3. A student is required to earn a grade of "C" or better in all 100-200 level departmental prerequisite courses before enrollment is permitted in the next sequence course.

4. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

5. Complete the following program of 131 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in the fall.

First Semester — 16 hours

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<td>AAE 261</td>
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<td>PHYS 309</td>
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AAE 250 Aeronautical Materials | 3
ECE 210 Circuit Analysis | 4

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<td>Mechanics of Materials</td>
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<td>ME 358</td>
<td>Mechanism Analysis</td>
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<td>Flight Vehicle Performance</td>
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<td>AAE 460</td>
<td>Aircraft Stability and Control</td>
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<td>Aircraft Structural Design</td>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 480</td>
<td>Mech/Aero Engineering Project</td>
<td>3</td>
</tr>
<tr>
<td>AAE 459</td>
<td>Flight Test Engineering and Design</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>Approved Design Elective</td>
<td>3</td>
</tr>
<tr>
<td>AAE 469</td>
<td>Aircraft Design</td>
<td>3</td>
</tr>
<tr>
<td>AREA V</td>
<td>General Education</td>
<td>3</td>
</tr>
</tbody>
</table>

* At least two of these courses must be at the 300–400 level.

MECHANICAL ENGINEERING

Bachelor of Science in Engineering (Mechanical)

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

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.

BACCAULAREATE WRITING REQUIREMENT

Students who have chosen the Mechanical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ME 365 Machine Design I or ME 480 Mechanical and Aeronautical Engineering Project.

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. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences,
and/or behavioral sciences. The sequence must begin with a course at the 100–200 level and conclude with a course at the 300–400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV, and V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A grade point average of 2.0 or better must be earned in courses presented for graduation with AAE, ECE, IME, and ME prefixes.

3. A student is required to earn a grade of "C" or better in all 100–200 level prerequisite courses before enrollment is permitted in the next sequence course.

4. No more than two grades of "D" or "Ddock" in courses presented for graduation may be counted for graduation.

5. Complete the following program of required courses.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>MATH 122 Calculus I, IME 142 Engineering Graphics, CHEM 110 General Chemistry I, CHEM 111 General Chemistry Laboratory I, IME 102 Tech Communication</td>
</tr>
<tr>
<td>Second Semester</td>
<td>MATH 123 Calculus II, PHYS 205 Mechanics and Heat, PHYS 206 Mechanics and Heat Lab, ME 220 Processes and Materials in Manufacturing, ME 250 Manufacturing Processes, CS 106 BASIC for Engineers</td>
</tr>
<tr>
<td>Third Semester</td>
<td>MATH 272 Vector/Multivariate Calculus, PHYS 207 Electricity and Light, PHYS 208 Electricity and Light Lab, ME 232 Thermodynamics I, ME 256 Statics, AREA I General Education*</td>
</tr>
<tr>
<td>Fourth Semester</td>
<td>MATH 374 Introduction to Linear Algebra and Diff. Equations, PHYS 309 Introductory Modern Physics, PHYS 310 Introductory Modern Physics Laboratory I, ME 257 Mechanics of Materials I, ME 258 Dynamics, ECE 210 Circuit Analysis I</td>
</tr>
<tr>
<td>Sixth Semester</td>
<td>ME 360 Control Systems, ME 335 Mechanical Engineering Laboratory I, ME Group 3 Elective, ME 431 Heat Transfer, AREA III General Education*</td>
</tr>
<tr>
<td>Seventh Semester</td>
<td>ME Group 2 Elective, ME 479 Project Planning, ME Group 3 Elective, ME Group 3 Elective, AREA V General Education*</td>
</tr>
<tr>
<td>Eighth Semester</td>
<td>ME 480 Mechanical and Aeronautical Engineering Project, IME 309 Engineering Economy, AREA IV General Education*</td>
</tr>
</tbody>
</table>

*This course has a prerequisite that is an elective.

**Aeronautical Engineering Courses (AAE)**

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

**AAE 250 Aeronautical Materials**

3 hrs. Material science of materials used in aerospace applications. Relationships between microscopic structure and the mechanical properties of metals, polymers, and composites. Prerequisites: CHEM 110,111, and MATH 122.

**AAE 261 Introduction to Aeronautical Engineering**

3 hrs. Introduction to aircraft systems, including airframe construction and design, propulsion systems, fluid power systems, and auxiliary systems, such as cabin environment, ice and rain control, fire warning and control, and fuel systems. Prerequisite: MATH 122, may be taken concurrently.

**AAE 361 Flight Vehicle Aerodynamics**

4 hrs. A study of incompressible aerodynamics of flight vehicles with emphasis on the effects of aerodynamics on vehicle design. Computer applications to the solution of the problems of flight vehicle aerodynamics. Prerequisites: MATH 272; AAE 261 or ME 356, PHYS 205, PHYS 206.

**AAE 371 Fundamentals of Aerodynamics**


**AAE 450 Flight Vehicle Performance**

3 hrs. 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: AAE 371.

**AAE 459 Flight Test Engineering and Design**

1–6 hrs. Analysis and synthesis of flight vehicle stability and control. Design of the aircraft control surfaces for different configurations to provide the required stability and control power. Man-machine interaction and effect on control surface sizing. Prerequisite: AAE 371.
AEE 435 Aircraft Structural Design (4–0) 4 hrs.
Structural design of aircraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints.
Prerequisite: ME 365

AEE 468 Aeronautical Propulsion Systems 4 hrs.
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. Prerequisites: ME 232; and ME 256 or AAE 371.

AEE 469 Aircraft Design (3–0) 3 hrs.
Conceptual and preliminary design of aircraft emphasizing performance, stability and control, and total vehicle efficiency.
Prerequisite: AAE 466 and AAE 490.

AEE 495 Topics in Aeronautical Engineering 1–6 hrs.
A specialized course dealing with a particular area of aeronautical engineering not included in other course offerings. May be repeated for credit with a different topic for up to a total of six credits. Prerequisite: Departmental consent.

AEE 499 Independent Study (1–6) 1–6 hrs.
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. Prerequisite: Departmental consent.

**Mechanical Engineering Courses (ME)**

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture-hours-lab hours).

ME 220 Processes and Materials in Manufacturing (3–3) 4 hrs.
Manufacturing principles and organization, principal processes used to make metal, plastic, and ceramic parts. Design considerations for computer integrated manufacturing, simultaneous engineering.

ME 232 Thermodynamics I (3–0) 3 hrs.
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 123, PHYS 205, PHYS 206.

ME 250 Materials Science (3–0) 3 hrs.
First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers and ceramics are developed. Includes treatment of environmental effects on all materials and optical and electronic properties. Prerequisites: CHEM 110 and 111, MATH 122.

ME 253 Statics and Mechanics of Materials (4–0) 4 hrs.
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. Compression, tension, shear, torsion, and bending in structural members, including stress distribution, deflection, and bucking. (Not for students required to take ME 257). Prerequisites: MATH 123, CS 106.

ME 256 Statics (3–0) 3 hrs.
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. Prerequisites: MATH 123, CS 106.

ME 257 Mechanics of Materials (4–0) 4 hrs.
Compression, tension, shear, torsion, and bending in structural members including stress distribution, deflection, bucking, and fatigue on engineering materials. Design and selection of simple machine members and a knowledge of design codes and standards are applied. Prerequisite: ME 256.

ME 258 Dynamics (3–0) 3 hrs.
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 256 or ME 253, PHYS 205, PHYS 206.

ME 335 Instrumentation 3 hrs.
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 356 and IME 384.) Prerequisites: ME 256, MATH 374.

ME 358 Mechanism Analysis (3–0) 3 hrs.
Analysis of displacement, velocity, and acceleration in mechanisms by analytical and graphical methods. Introduction to mechanism synthesis with computer applications. Prerequisite: ME 256.

ME 360 Control Systems (3–0) 3 hrs.
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. Prerequisites: ME 256, MATH 374, ECE 210.

ME 362 Theory of Engineering Experimentation (3–0) 3 hrs.
Principles of experimental design using a statistical approach. Statistical analysis of experimental data with computer applications. Prerequisites: MATH 123, CS 106.

ME 365 Machine Design I (2–3) 3 hrs.
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 may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: ME 220 or AAE 261; ME 250; ME 257; ME 358. ME 356 may be taken concurrently.

ME 367 Internal Combustion Engines I (2–3) 3 hrs.
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. Prerequisites: MATH 272, ME 258, ME 232.

ME 375 Experimental Stress Analysis (2–3) 3 hrs.
Principles and methods of non-destructive testing including internal and surface industrial methods of strain-gage techniques, planning of test procedures, interpretation of test results, and technical report preparation. NOT FOR ENGINEERING CREDIT. Prerequisites: IME 281, CMD 256.

ME 431 Heat Transfer 3 hrs.
Steady state and transient conduction, radiation functions, radiation networks, natural and forced convection, design of heat exchangers, and computer applications. Prerequisites: ME 232; ME 356 or AAE 371.

ME 432 Thermodynamics II (3–0) 3 hrs.
Advanced topics including gas-vapor mixtures, combustion, and compressible flow. Prerequisites: ME 232, ME 356. ME 356 may be taken concurrently.

ME 433 Environmental Systems Design in Buildings (3–1) 3 hrs.
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. Prerequisites: ME 431, ME 432.

ME 439 Design of Thermal Systems (2–3) 3 hrs.
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. Prerequisites: ME 335; ME 431; ME 432.

ME 450 Non-Metallic Materials (3–0) 3 hrs.
Advanced course in the science of non-metallic engineering materials- polymers, elastomers, composite materials and ceramics. Mechanical properties useful to design are related to atomic structure and fabrication processes. Includes fracture mechanics of polymers and composites. Prerequisites: ME 250, ME 365.

ME 453 Machine Design II (2–3) 3 hrs.
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. Prerequisites: ME 362, ME 365.

ME 460 Subsonic Aerodynamics (3–0) 3 hrs.
Subsonic aerodynamics for engineers. The study of incompressible and compressible flow around bluff bodies. Computer applications to the solution of aeroelastic problems. Prerequisites: ME 356.

ME 457 Experimental Solid Mechanics (2–3) 3 hrs.
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.  
Prerequisites: ME 250, ME 257, ME 335.

ME 459 Dynamics of Machinery (3–0)  
3 hrs.  
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.  
Prerequisites: ME 358.

ME 465 Vehicle Dynamics (3–0)  
3 hrs.  
Design of ground vehicle suspension and steering systems. Vehicle ride, handling and safety systems. Passive and active suspension control.  
Prerequisites: ME 358, ME 360, ME 365.

ME 467 Internal Combustion Engines II (3–0)  
3 hrs.  
Prerequisites: ME 232, 356, and 367.

ME 468 Engine Design (2–3)  
3 hrs.  
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.  
Prerequisites: ME 358, ME 467 or ME 432.

ME 470 Vehicle Structural Design (3–0)  
3 hrs.  
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 358 and ME 365.

ME 479 Mechanical and Aeronautical Engineering Project Planning (1–0)  
1 hr.  
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.  
Prerequisites: ME 335 and 360. Corequisites: ME 439 or ME 453 or ME 468 or AAE 450 or AAE 460.

ME 480 Mechanical and Aeronautical Engineering Project (1–6)  
3 hrs.  
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.  
Prerequisites: ME 479, and ME 439 or ME 453 or ME 468 or AAE 450 or AAE 460.

ME 481 Vehicle Design (2–3)  
3 hrs.  
Design of vehicle systems and/or subsystems.  
Prerequisites: ME 232, ME 257, ME 258, ME 250, or by permission of instructor.

ME 490 Independent Research and Development  
1–4 hrs.  
Individual research or special project.  
Available only by special arrangement with an instructor and approved by the department chair.  
Prerequisite: Consent of department.

ME 495 Topics in Mechanical Engineering:  
Variable Topics  
1–4 hrs.  
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 topical topic up to six credits.  
Prerequisite: Consent of department.

ME 498 Independent Readings  
1–6 hrs.  
An independent readings assignment, the description and purpose of which will be set forth on a form available at the department office.  
Prerequisite: Consent of department.

ME 499 Independent Studies  
1–6 hrs.  
An independent studies assignment available only by special arrangement with an instructor and approved by the department chair.  
Prerequisite: Consent of department.

ME 500 Automatic Control of Flight Vehicles  
(3–0)  
3 hrs.  
Synthesis of basic auto pilot and stability augmentation systems for flight vehicles. Advanced flight control structures including integrated flight/fire control, control of inertial cross-coupling. Human pilot plus airframe and the relationships with flying qualities requirements. Extensive use of commercial software tools.  
Prerequisites: ME 358.

ME 540 Computational Fluid Dynamics I (3–0)  
3 hrs.  
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.  
Prerequisites: ME 356; CS 201 or CS 306.

ME 553 Advanced Product Engineering (3–0)  
3 hrs.  
An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout.  
Prerequisites: ME 360, ME 453.

ME 555 Intermediate Dynamics (3–0)  
3 hrs.  
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.  
Prerequisites: ME 258, MATH 374.

ME 558 Mechanical Vibrations (3–0)  
3 hrs.  
A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems.  
Prerequisites: ME 258, MATH 374.

ME 560 Engineering Analysis (3–0)  
3 hrs.  
Application of vector analysis and differential equations to the solution of complex engineering problems.  
Prerequisite: ME 360 or equivalent.

ME 561 Finite Element Method (3–0)  
3 hrs.  
Development of finite element method for solution of one-, two- and three-dimensional problems in heat transfer, fluid flow, structures and elasticity.  
Prerequisites: ME 257, ME 356, ME 431, and MATH 374 or equivalents.

ME 562 Application of Numerical Methods in Engineering (3–0)  
3 hrs.  
Finite difference methods for initial boundary value problems. 2D finite differencing, boundary element methods applications to differential equations of heat transfer, fluid flow, and solid mechanics.  
Prerequisite: Consent of instructor.

ME 564 Engineering Noise Control (3–0)  
3 hrs.  
Laboratory demonstrations.  
Prerequisites: MATH 374, ME 258.

ME 569 Principles of Fatigue and Fracture  
(3–0)  
3 hrs.  
Basics of experimental techniques and modeling used in industry to study inelastic deformations, fatigue, and fracture of engineering materials and structures.  
Prerequisite: ME 365 or consent of instructor.

ME 571 Gas Dynamics (3–0)  
3 hrs.  
Prerequisites: ME 431 and ME 432.

ME 572 Advanced Thermodynamics (3–0)  
3 hrs.  
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.  
Prerequisites: ME 431 and ME 432.

ME 573 Engineering Materials (3–0)  
3 hrs.  
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.  
Prerequisite: ME 250.

ME 575 Tribology—Principles and Applications  
(3–0)  
3 hrs.  
Surface chemistry, topographical measurement and description, contact mechanics, wear mechanisms, lubrication and film formation, application to friction and wear situations in machine elements.  
Prerequisites: ME 366, ME 365.

ME 576 Principles of Heat Exchanger Design (3–0)  
3 hrs.  
Prerequisite: ME 431.
ME 580 System Modeling and Simulation (3–0) 3 hrs.
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 ECE 580. Prerequisites: ECE 371, ECE 380 or equivalent.

ME 585 Mechatronics (3–0) 3 hrs.
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 servos systems. Appropriate time will be devoted to develop a sound basis in the electro-mechanical discipline. This course is cross-listed as ECE 585. Prerequisites: ECE 210, ME 258 and ECE 371 or ME 360.

ME 586 System Identification (3–0) 3 hrs.
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 area of Mechanical Engineering not covered by the other courses in the curriculum. This course is cross-listed as ECE 586. Prerequisite: ECE 585 or ME 586.

ME 595 Topics in Mechanical Engineering 1–4 hrs.
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. Prerequisite: Consent of department.

PAPER AND PRINTING SCIENCE AND ENGINEERING
Larry Ahlman
Raja G. Aravamudhan
John H. Cameron
Paul D. Fleming
Harold Hladky
Margaret Joyce
Thomas W. Joyce
Andrew Kline
Lois Lemon
Peter E. Parker
Alexandra Pekarovicova
David K. Peterson
Dewei Qi
Abhay Sharma

The Department of Paper and Printing Science and Engineering offers four B.S. programs (paper science, paper engineering, chemical engineering, and printing), an M.S. program, and a Ph.D. program which provide extensive scientific and technical education. These programs prepare graduates for professional employment in business and industry, government, manufacturing, process engineering, marketing, and management. The paper program focuses on pulp, paper, environmental, and allied fields. The printing program emphasizes imaging, ink, and related fields. The chemical engineering program focuses on chemical process industries with emphasis on pulp and paper, environmental, and life sciences.

Academic Advising
Students should contact the Paper and Printing Science and 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, curriculum committee, and department chair. The academic advisor for Paper Science and Paper Engineering is Barbara Vileniski, located in Room 2670 McCracken Hall. Appointments may be made by calling (616) 387-2775. The academic advisor for Chemical Engineering is Dr. Peter Parker, located in Room 2610 McCracken Hall. Appointments may be made by calling (616) 387-2772. The academic advisor for Printing is Karin Moses, located in Room 1104 Welborn Hall. Appointments may be made by calling (616) 387-2800.

Work Experience
Industrial experience is encouraged through employment by paper, printing, chemical processing, or related companies for at least one of the three summers, as well as through employment in the 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.

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.

Required Prerequisite Grade
Students graduating from Paper Science, Paper Engineering/Process, Paper Science and Engineering minor must have a grade of "C" or better in all PAPR prefixed prerequisite courses or their equivalents. Students graduating in Chemical Engineering or with a Chemical Engineering minor must earn a grade of "C" or better in all CHEG prefixed prerequisite courses or their equivalents.

CURRICULA

PAPER SCIENCE
Bachelor of Science

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Paper Science major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 465 Research Design.

REQUIREMENTS
Candidates for the Bachelor of Science must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:
1. Students must earn a "C" or better grade in all PAPR prefixed prerequisite courses. The requirement of a PAPR prefixed prerequisite course will not be fulfilled with a grade less than "C".
2. At least one of the General Education courses must be at the 300–400 level.
3. Students must complete the following program of 136 semester credit hours.

First Semester — 17 hours
PAPR 100 Introduction to Pulp and Paper Manufacture 3
CHEM 110 General Chemistry I 3
CHEM 111 General Chemistry 3
Math 122 Calculus I 4
CS 106 Introductory Visual BASIC 1

Second Semester — 16 hours
PAPR 103 Printing Processes 2
CHEM 112 General Chemistry II 3
CHEM 113 General Chemistry 3
CHEM 200 Laboratory II 1
MATH 123 Calculus II 4
IME 102 Technical Communication 3

Third Semester — 18 hours
PAPR 203 Pulping and Bleaching 4
IME 261 Engineering Statistics 3
PHYS 205 Mechanics and Heat 3
CHEM 375 Organic Chemistry I 3
CHEM 376 Organic Chemistry Lab I 1

Fourth Semester — 19 hours
PAPR 204 Stock Preparation and Papermaking 4
CHEG 261 Environmental Engineering 3
MATH 272 Vector and Multivariate Calculus 4
PHYS 207 Electricity and Light 4

AREA I General Education 3

AREA II General Education 3

AREA III General Education 3

AREA IV General Education 4
Fifth Semester — 17 hours
PAPR 305 Paper Physics Fundamentals .......................... 4
CHEG 306 Material and Energy Balance .......................... 4
PAPR 333 Carbohydrate and Lignin Chemistry .................. 3
AREA V General Education (ECON 201) .......................... 3
*ELECTIVE ......................................................... 3

Sixth Semester — 17 hours
CHEG 312 Unit Operations in Chemical Engineering II .............. 3
PAPR 342 Coating .................................................. 4
PAPR 352 Recycling and Deinking ................................. 3
PAPR 430 Surface and Wet End Science ............................ 3
MATH 374 Introduction to Linear Algebra and Differential Equations 4

Seventh Semester — 15 hours
PAPR 310 Work Experience/Co-op .................................. 1
CHEG 311 Unit Operations in Chemical Engineering I ............. 3
PAPR 440 Seminar ................................................... 4
CHEG 483 Process Control I ........................................ 4
PAPR 485 Research Design .......................................... 3
CHEM 430 Physical Chemistry I ..................................... 3

Eighth Semester — 17 hours
PAPR 440 Seminar ................................................... 1
CHEM 436 Physical Chemistry Lab .................................. 2
*ELECTIVE .......................................................... 3
*ELECTIVE .......................................................... 3
*ELECTIVE .......................................................... 3

*ELECTIVES — Students must select a minimum of 17 credit hours from the following:
PAPR 310 Work Experience/Co-op .................................. 2
PAPR 341 Converting Processes ..................................... 4
PAPR 484 Process Control I ......................................... 4
PAPR 486 Independent Research .................................... 3
CHEM 222 Quantitative analysis ..................................... 4
CHEM 361 Organic Chemistry II ..................................... 4
CHEM 431 Physical Chemistry II ..................................... 3
CHEM 441 Physical Chemistry Lab .................................. 1
CHEM 520 Instrumental Methods in Chemistry ..................... 3
STAT 567 Statistical Design and Analysis .......................... 4

Priority Electives are shown in italics.

PAPER ENGINEERING

Bachelor of Science in Engineering (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.
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 WRITING REQUIREMENT
Students who have chosen the Paper Engineering major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 485 Research Design.

REQUIREMENTS
Candidates for the Bachelor of Science in Engineering (Paper) must satisfy the following requirements in addition to those required by the University:
1. All students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences, and/or behavioral sciences). The sequence must begin with a course at the 100–200 level and conclude with a course at the 300–400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV, and/or V, as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.
2. Students must earn a "C" or better grade in all PAPR prefixed prerequisite courses. The requirement of a PAPR prefixed prerequisite course will not be fulfilled with a grade less than "C".
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 300-400 level.
5. Students must complete the following program of 136 semester credit hours, which includes the courses in one of the following elective sequences: Paper Engineering I or Paper Engineering/Environmental. One sequence 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.

Paper Engineering/ Process

First Semester — 17 hours
PAPR 100 Introduction to Pulp and Paper Manufacture .................. 3
CHEM 110 General Chemistry I ..................................... 3
CHEM 111 General Chemistry II ................................... 3
IME 102 Technical Visual BASIC .................................. 1
PENN Physical Education ............................................ 2
AREA I General Education ......................................... 3

Second Semester — 16 hours
PAPR 103 Printing Processes ........................................ 2
CHEM 112 General Chemistry II ................................... 3
CHEM 113 General Chemistry Lab .................................. 1
MATH 122 Calculus I ................................................. 4
IME 102 Technical Communications ................................ 3
AREA II General Education ........................................ 3

Third Semester — 18 hours
PAPR 203 Pulping and Bleaching .................................... 4
IME 261 Engineering Statistics ..................................... 3
PHYS 205 Mechanics and Heat ...................................... 4
CHEM 375 Organic Chemistry I ..................................... 4
CHEM 375 Organic Chemistry Lab 1 ................................ 1
AREA III General Education ....................................... 3

Fourth Semester — 19 hours
PAPR 204 Stock Preparation and Papermaking ....................... 4
CHEG 261 Environmental Engineering ................................ 3
MATH 272 Vector and Multivariable Calculus .......................... 4
PHYS 207 Electricity and Light ...................................... 4
AREA IV General Education ....................................... 4

Fifth Semester — 17 hours
PAPR 305 Paper Physics Fundamentals ............................. 4
CHEG 306 Material and Energy Balance ............................ 4
PAPR 333 Carbohydrate and Lignin Chemistry ..................... 3
AREA V General Education (ECON 201) .......................... 3

Sixth Semester — 17 hours
PAPR 310 Work Experience/Co-op .................................. 1
CHEG 311 Unit Operations in Chemical Engineering II ............ 3
PAPR 440 Seminar ................................................... 4
CHEG 483 Process Control I ......................................... 4
PAPR 486 Research Design .......................................... 3
CHEM 430 Physical Chemistry ........................................ 3

Seventh Semester — 15 hours
PAPR 310 Work Experience/Co-op .................................. 2
PAPR 341 Converting Processes ..................................... 2
PAPR 464 Process Control II ........................................ 4
PAPR 486 Independent Research .................................... 3
STAT 567 Statistical Design and Analysis .......................... 4
MAE 253 Statics and Mechanics of Materials ....................... 4
ECE 210 Circuit Analysis ............................................ 4
FIME 310 Engineering Economy ..................................... 3

EIGHTH SEMESTER — 17 hours
PAPR 440 Seminar ................................................... 1
PAPR 460 Process Engineering and Design .......................... 4
*ELECTIVE .......................................................... 4
*ELECTIVE .......................................................... 4
*ELECTIVE .......................................................... 4

*ELECTIVES — Students must select a minimum of 15 credit hours from the following:
PAPR 310 Work Experience/Co-op .................................. 2
PAPR 341 Converting Processes ..................................... 2
PAPR 484 Process Control II ........................................ 4
PAPR 486 Independent Research .................................... 3
STAT 567 Statistical Design and Analysis .......................... 4
MAE 253 Statics and Mechanics of Materials ....................... 4
ECE 210 Circuit Analysis ............................................ 4
FIME 310 Engineering Economy ..................................... 3

Priority electives are shown in italics.

Another course in IME, MGMT, or COM can be substituted for IME 310 with permission of the advisor.

Paper Engineering/ Environmental

First Semester — 17 hours
PAPR 100 Introduction to Pulp and Paper Manufacture .................. 3
CHEM 110 General Chemistry I ..................................... 3
CHEM 111 General Chemistry II .................................... 3
MATH 122 Calculus I ................................................. 4
CS 106 Introductory Visual BASIC .................................. 1
PENN Physical Education ............................................ 2
AREA I General Education ......................................... 3

Second Semester — 16 hours
PAPR 103 Printing Processes ........................................ 2
CHEM 112 General Chemistry II .................................... 3
CHEM 113 General Chemistry ....................................... 3
MATH 122 Calculus I ................................................. 4
IME 102 Technical Communications ................................ 3
AREA II General Education ........................................ 3

Third Semester — 18 hours
PAPR 203 Pulping and Bleaching .................................... 4
IME 261 Engineering Statistics ..................................... 3
PHYS 205 Mechanics and Heat ...................................... 4
CHEM 375 Organic Chemistry I ..................................... 4
CHEM 375 Organic Chemistry Lab 1 ................................ 1
AREA III General Education ....................................... 3

Fourth Semester — 19 hours
PAPR 204 Stock Preparation and Papermaking ....................... 4
CHEG 261 Environmental Engineering ................................ 3
MATH 272 Vector and Multivariable Calculus .......................... 4
PHYS 207 Electricity and Light ...................................... 4
AREA IV General Education ....................................... 4
BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Printing major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 485 Research Design.

Management Option

First Semester — 16 hours
PAPR 157 Imaging Systems 3
PAPR 150 Fundamentals of Graphic Arts 3
MATH 116 Finite Mathematics 3
CHEM 110 General Chemistry I 3
CHEM 111 General Chemistry I Laboratory 1
IME 102 Technical Communication 3

Second Semester — 15 hours
PAPR 100 Introduction to Pulp and Paper Manufacturing 3
BIS 102 Introduction to Information Processing OR CS 105 Introduction to Computers 3
ECON 201 Principles of Microeconomics 3
MATH 216 Business Statistics 3
AREA I General Education* 3

Third Semester — 16 hours
PAPR 250 Lithographic Technology 3
PAPR 251 Design and Electronic Publishing 3
MATH 200 Calculus with Applications 4
IME 150 Introduction to Manufacturing 3
ECON 202 Principles of Macroeconomics 3

Fourth Semester — 17 hours
PAPR 160 Introduction to Industrial Environmental Control 3
PAPR 215 Introduction to Ink 3
PAPR 257 Computer Graphics 3
ACCT 210 Principles of Accounting 3
IME 305 Work Analysis 3
AREA VIII General Education 2

Fifth Semester — 16 hours
PAPR 359 Gravure Presswork 3
MGMT 250 Organizational Behavior 3
IME 326 Operations Planning and Control 3
IME 328 Quality Assurance and Control 3
AREA II General Education* 3

Sixth Semester — 16 hours
PAPR 357 Digital Color Imaging Environments 3
PAPR 358 Flexographic Presswork 3
IME 402 Supervision of Industrial Operations 3
AREA III General Education* 3
Approved Elective** 3

Seventh Semester — 15 hours
PAPR 310 Work Experience/Co-op 1
PAPR 440 Seminar 1
PAPR 462 Print Estimating 3
PAPR 463 Finishing/Binding 3
PAPR 485 Research Design 3
Approved Elective** 3

Eighth Semester — 17 hours
PAPR 440 Seminar 1
PAPR 454 Advanced Lithographic Presswork 3
PAPR 457 Advanced Digital Imaging 3

Marketing Option

First Semester — 16 hours
PAPR 157 Imaging Systems 3
PAPR 150 Fundamentals of Graphic Arts 3
MATH 116 Finite Mathematics 3
CHEM 110 General Chemistry I 3
CHEM 111 General Chemistry I Laboratory 1
IME 102 Technical Communication 3

Second Semester — 15 hours
PAPR 100 Introduction to Pulp and Paper Manufacturing 3
BIS 102 Introduction to Information Processing OR CS 105 Introduction to Computers 3
ECON 201 Principles of Microeconomics 3
MATH 216 Business Statistics 3
AREA I General Education* 3

Third Semester — 16 hours
PAPR 250 Lithographic Technology 3
PAPR 251 Design and Electronic Publishing 3
MATH 200 Calculus with Applications 4
IME 150 Introduction to Manufacturing 3
ECON 202 Principles of Macroeconomics 3

Fourth Semester — 17 hours
PAPR 160 Introduction to Industrial Environmental Control 3
PAPR 215 Introduction to Ink 3
PAPR 257 Computer Graphics 3
ACCT 210 Principles of Accounting 3
IME 305 Work Analysis 3
AREA VIII General Education 2

Fifth Semester — 16 hours
PAPR 359 Gravure Presswork 3
MGMT 250 Organizational Behavior 3
IME 326 Operations Planning and Control 3
IME 328 Quality Assurance and Control 3
AREA II General Education* 3

Sixth Semester — 16 hours
PAPR 357 Digital Color Imaging Environments 3
PAPR 358 Flexographic Presswork 3
IME 402 Supervision of Industrial Operations 3
AREA III General Education* 3
Approved Elective** 3

Fifth Semester — 16 hours
PAPR 359 Gravure Presswork 3
MGMT 371 Marketing Research 3
MGMT 372 Purchasing Management 3
Approved Elective** 3
AREA II General Education* 3

Sixth Semester — 16 hours
PAPR 357 Digital Color Imaging Processes 3
PAPR 358 Flexographic Presswork 3
MGMT 374 Advertising 3
Approved Elective** 3
AREA III General Education* 3

Printing Technology

Bachelor of Science

Candidates for the Bachelor of Science in Printing must satisfy all of the requirements of 127 hours of either the Marketing Option or the Management Option. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
Seventh Semester

- PAPR 310 Work Experience/Coop - 1
- PAPR 440 Studio - 1
- PAPR 462 Print Estimating - 4
- PAPR 463 Finishing/Bindery - 3
- PAPR 485 Research Design - 3
- MKTG 484 Business Logistics - 3

Eighth Semester - 17 hours

- PAPR 440 Seminar - 1
- PAPR 454 Advanced Lithographic Presswork - 3
- PAPR 457 Advanced Digital Imaging - 3
- MKTG 470 Industrial Marketing - 3
- Approved Elective** - 3
- AREA IV General Education* - 4

* At least two of these courses must be at the 300-400 level.
** Electives to be selected with the approval of the Printing curriculum advisor. These may include but are not limited to the following:
- BIS 260 Microcomputer Business Applications - 3
- CHEM 112/13 General Chemistry II/ Lab - 3/1
- CHEM 370/371 Introduction to Organic Chemistry/Lab - 3/1
- PAPR 204 Stock Preparation and Papermaking - 4
- PAPR 314 Materials Characterization for Paper and Imaging - 2
- PAPR 341 Converting Processes - 2
- PAPR 486 Independent Research - 3
- IME 142 Engineering Graphics - 3
- IME 150 Introduction to Manufacturing - 3
- IME 246 Introduction to Computer Aided Design - 3
- IME 328 Quality Assurance and Control - 3

CHEMICAL ENGINEERING

Bachelor of Science in Engineering (Chemical)

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 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 WRITING REQUIREMENT
Students who have chosen the Chemical Engineering major will satisfy the Baccalaureate Writing requirement by successfully completing CHEG 487 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. All students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must begin with a course at the 100-200 level and conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, III, IV and/or V as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.
2. Students must earn a "C" or better grade in all CHEG prefixed prerequisite courses. The requirement of a CHEG prefixed prerequisite course will not be fulfilled with a grade less than "C.
3. No more than two grades of "D" or "DC" may be counted for graduation.
4. At least two of the General Education courses must be at the 300-400 level.
5. Students must complete the following program of 136 semester credit hours, which includes the courses in one of the following elective options. One option 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
- CHEG 101 Introduction to Chemical Engineering - 3
- CHEM 110 General Chemistry I - 3
- CHEM 111 General Chemistry I Laboratory - 1
- MATH 122 Calculus I - 4
- IME 102 Technical Communication - 3
- AREA I General Education* - 3

Second Semester - 17 hours
- CHEM 112 General Chemistry II - 3
- CHEM 113 General Chemistry Laboratory - 1
- PHYS 205 Mechanics and Heat - 4
- PHYS 206 Mechanics and Heat Laboratory - 1
- MATH 123 Calculus II - 4
- CS 106 Introductory Visual BASIC - 1
- AREA III General Education* - 3

Third Semester - 17 hours
- CHEG 281 Data Acquisition and Handling - 1
- PHYS 207 Electricity and Light - 4
- PHYS 208 Electricity and Light Laboratory - 1
- MATH 272 Vector and Multivariate Calculus - 4
- IME 261 Engineering Statistics - 3
- Approved Elective** - 3

Fourth Semester - 19 hours
- CHEG 261 Environmental Engineering - 3
- CHEG 306 Material and Energy Balance - 4
- CHEM 225 Quantitative Analysis - 3
- CHEM 226 Quantitative Analysis Laboratory - 1
- MATH 374 Introduction to Linear Algebra and Differential Equations - 4
- ME 253 Statistics and Mechanics of Materials - 4
- Approved Elective** - 4

Fifth Semester - 17 hours
- CHEG 311 Unit Operations I - 3
- CHEG 320 Chemical Engineering Thermodynamics - 3
- CHEG 381 Computer Modeling and Simulation—Chemical Processes - 1

CHEM 430 Physical Chemistry - 3
ME 253 Statistics and Mechanics of Materials - 4
OR
Approved Elective** - 4

AREA V General Education* - 3

Sixth Semester - 16 hours
- CHEG 410 Chemical Reaction Engineering - 3
- CHEG 450 Plant Economics and Project Design - 3
- CHEG 483 Process Control I - 4
- CHEM 377 Organic Chemistry - 3
- CHEM 378 Organic Chemistry Laboratory - 1
- Approved Elective** - 3

Eighth Semester - 16 hours
- CHEG 420 Separation Processes - 3
- CHEG 487 Senior Design Project - 3
- Approved Elective** - 3
- Approved Elective** - 3
- AREA IV General Education* - 4

** Elective to be selected with the approval of the Chemical Engineering advisor. The electives will be selected from one of the options listed below.

Inks and Imaging Option
16-17 HOURS
- PAPR 150 Fundamentals of Graphic Arts - 3
- OR
- PAPR 103 Printing Processes - 2
- PAPR 157 Imaging Systems - 3
- Plus at least 11 hours from the following:
- CHEG 250 Lithographic Technology - 3
- PAPR 251 Design and Electronic Publishing - 3
- PAPR 257 Computer Graphics - 3
- CHEG 310 Industrial Experience - 1-2
- PAPR 357 Digital Color Imaging Processes - 3
- PAPR 358 Flexographic Presswork - 3
- PAPR 415 Inks and Imaging - 3
- PAPR 416 Imaging Materials and Processes - 4

Life Sciences Option
Choose at least 17 hours from the following, including at least one 400-level course:
- BIOS 150 Molecular and Cellular Biology - 4
- BIOS 151 Organismal Biology - 4
- BIOS 211 Human Anatomy - 4
- BIOS 232 Microbiology and Infectious Diseases - 4
- BIOS 240 Human Physiology - 4
- BIOS 250 Genetics - 3
- BIOS 420 Human Genetics - 3
- BIOS 437 Histology - 3
- BIOS 497 Senior Seminar offered on Microbial Ecology - 3
- CHEM 355 Introduction to Biochemistry - 3
- CHEG 310 Work Experience/Co-op - 1-2
**PAPER AND PRINTING SCIENCE AND ENGINEERING 213**

### MINORS

**PAPER SCIENCE AND ENGINEERING**
A minor in paper science and engineering may be earned by completing the following 20 semester hours of departmental courses: PAPR 100, PAPR 103, PAPR 203, PAPR 204, CHEG 306, and PAPR 352. The minor is suitable for other engineering graduates and physics and chemistry graduates, as they will have most of the prerequisites for these courses.

**GRAPHIC ARTS**
A minor in Graphic Arts may be earned by completing satisfactorily the following eighteen hours of departmental courses: PAPR 100, 157, 250, 251, and at least six hours elected from among PAPR 257, 341, 342, 400, 403, and 454.

**CHEMICAL ENGINEERING**
A minor in Chemical Engineering may be earned by completing the following 20 semester hours of Chemical Engineering courses: CHEG 281, CHEG 306, CHEG 311, CHEG 312, CHEG 330, and CHEG 410. In addition, students would complete CHEM 112/113 and CHEM 430 as prerequisites for CHEG 410. The minor is most suitable for other engineering graduates and physics and chemistry graduates.

### Paper and Printing Science and Engineering Courses (PAPR)

A list of General Education courses can be found earlier in this catalog. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours). The following will be offered as honors courses for interested students: CHEG 261, 306, 311, 312, 487 and PAPR 430, 460, 486.

**PAPR 100 Introduction to Pulp and Paper Manufacturing (2–3)**
3 hrs.
A lecture-laboratory course giving an introduction to 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. Prerequisite: High school chemistry, CHEM 110 and 111, or equivalent (concurrently).

**PAPR 103 Printing Processes (1–3)**
2 hrs.
A course designed to provide non-printing majors a working knowledge of various printing processes: (1) letterpress, (2) flexography, (3) gravure, (4) lithography, and (5) offset and letterpress. Some graphic designers may also be interested in this course.

**PAPR 150 Fundamentals of Graphic Arts (2–3)**
3 hrs.
An introductory course describing the printing industry. Copy preparation, photo imaging by camera and desktop systems, film assembly and proofing, presswork, and bindery. Comparison of all printing methods. Lithography and screen printing process printing.

**PAPR 157 Imaging Systems (2–3)**
3 hrs.
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: PAPR 100.

**PAPR 160 Introduction to Environmental Technology (3–0)**
3 hrs.
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 efficient management methods and regulations. The topics are covered in concert with public health, ethical, social, legal and economic concerns.

**PAPR 203 Pulping and Bleaching (3–3)**
4 hrs.
An advanced study of the processes involved in the production of papermaking fibers. Areas covered include wood yard operations, pulping, bleaching, stock preparation, chemical recovery, and alternate fiber sources. Analysis is made using chemical, physical, and engineering principles. Lectures are augmented by laboratory exercises and field trips. Prerequisite: PAPR 100 or CHEG 101; CHEG 110 and 111.

**PAPR 204 Stock Preparation and Papermaking (3–3)**
4 hrs.
An advanced study of the processes involved in the formation, consolidation, and drying of a web of paper. Areas covered include refining, Fourdriner 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 203.

**PAPR 215 Introduction to Ink (2–3)**
3 hrs.
Formulation, manufacturing, quality evaluation, and waste disposal of liquid and paste inks. Relationship between the chemical and physical properties of inks and their printing quality. Concepts of rheology and surface energy. Prerequisite: PAPR 150, CHEM 110 and 111.

**PAPR 250 Lithographic Technology (2–3)**
3 hrs.
Experience in basic lithographic offset principles, press operations, mechanical adjustments, inks, and chemical reactions, as well as the advantages and disadvantages of lithography. Multi-color processes, inks, and papers used in lithographic printing. Prerequisite: PAPR 150.

**PAPR 251 Design and Electronic Publishing (2–3)**
3 hrs.
Prepress preparation of text and graphics for printing. The evolution of text and graphic preparation through electronic page assembly methods. Development and completion of various text and graphic design layouts in full page assembly with the application of typographic alternatives, design principles, and color schemes while using various electronic prepress imaging systems. Prerequisites: PAPR 150, BIS 102 or CS 105 or CS 106.

**PAPR 257 Computer Graphics (2–3)**
3 hrs.
Computer graphics from the point of view of both hardware and software. The representation, display, and manipulation of graphical objects. The analysis and display of graphics to printed graphics, both direct digital and conventional. Prerequisites: PAPR 157, 251.

**PAPR 305 Paper Physics Fundamentals (3–3)**
4 hrs.
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. Prerequisites: PAPR 204, IME 261 or STAT 364.

**PAPR 310 Work Experience / Co-op (1–3)**
1–3 hrs.
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. Departmental consent is required. Open only to department majors. Prerequisite: Junior standing.

**PAPR 314 Materials Characterization for Paper and Imaging (1–3)**
2 hrs.
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. Prerequisite: PAPR 100 and PAPR 103 or 150.
PAPR 333 Carbohydrate and Lignin Chemistry (3-0) 3 hrs.
Consideration of the chemistry of wood, pulp, and pulping by-products. Included topics are cellulose, lignin, accessory carbohydrates, extractives, and spent liquor utilization. 
Prerequisite: PAPR 203. Corequisite: CHEM 375 and 376.

PAPR 341 Converting Processes (2-0) 2 hrs.
A lecture consideration of converting operations for paper and paperboard. Paper and paperboard properties, special manufacturing processes, and other packaging materials will be covered. 
Prerequisite: PAPR 204.

PAPR 342 Coating (3-3) 4 hrs.
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 325.

PAPR 348 Water Quality and Regulations (2-0) 2 hrs.
Physical, chemical and biological characteristics of water. Hydrology, governmental regulations, water and wastewater evaluation and treatment processes. 
Prerequisite: CHEM 110 and 111.

PAPR 349 Water Quality and Regulations (Lab) (0-3) 1 hr.
Physical, chemical and biological characteristics of water and wastewater treatment processes. 
Prerequisites: CHEM 110 and 111; Corequisite: PAPR 348.

PAPR 351 Water Quality and Microbiology (2-0) 2 hrs.
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 351 by paper science or paper engineering majors.)

PAPR 352 Recycling and Deinking (3-0) 3 hrs.
The recovery of waste paper and other fiber sources for use in the manufacturing of paper and paperboard products and other commercial applications. Waste fiber collection, dispersion, contaminant separation, deinking, and product characteristics. 
Prerequisite: PAPR 203.

PAPR 353 Wastewater Treatment Systems (3-3) 4 hrs.
A study of the fundamental principles, design considerations, and use of the unit processes and operations employed in waste water treatment. Physical, physicochemical, and biological treatments are considered. 
Prerequisites: CHEG 306; PAPR 348, PAPR 349

PAPR 357 Digital Color Imaging Processes (2-3) 3 hrs.
Application of various color separation and image assembly systems to the reproduction of color originals common to most printing publications and processes. Color theory, color correction, color proofing, and color enhanced publishing. Densitometry and spectrophotometry to illustrate color measurement and control applications. 
Prerequisite: PAPR 297.

PAPR 358 Flexographic Presswork (2-3) 4 hrs.
Rubber and photopolymer plate manufacture, mounting and proofing, water and solvent inks, substrates, and flexographic press and converting operations.  
Prerequisites: PAPR 150, CHEM 110 and 111.

PAPR 359 Gravure Presswork (2-3) 4 hrs.
Cylinder manufacturing, proofing and gravure press operation. Press components, register controls, ink variables, substrate selection, doctor blades, and electrostatic assist. 
Prerequisites: PAPR 150, CHEM 110 and 111.

PAPR 415 Inks and Imaging (2-3) 3 hrs.
A course designed to provide science and engineering majors with a basic understanding of formulation, manufacture, and testing of inks.  
Prerequisite: PAPR 357, CHEM 110 and 111.

PAPR 416 Imaging Materials and Processes (3-3) 4 hrs.
A course designed to provide science and engineering majors with a basic understanding of various printing processes detail; imaging materials and processes, pre-press processes and color and imaging science will be some of the topics covered in the course. 
Prerequisites: PAPR 103, CHEM 375 and 376, CHEM 430, and MATH 272.

PAPR 430 Surface and Wet End Science (3-0) 3 hrs.
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 375 and 376; PAPR 333.

PAPR 440 Seminar 1 hr.
A seminar course using guest speakers, university students, and field trips to add depth and breadth to the background of students. 
Prerequisite: Junior standing.

PAPR 450 Solid Waste Treatment (2-3) 3 hrs.
The practice, technology, and economics of the treatment of solid wastes generated by municipal and industrial sources are studied. Discussion will include treatment, disposal, in-process utilization, and conversion to useful by-products for solid and semi-solid wastes. 
Prerequisite: Junior standing.

PAPR 451 Air Pollution Control (2-3) 3 hrs.
The origins, effects, measurement and control of air pollution are examined. Pollution abatement methods are studied and applied to private, municipal and industrial sources. 
Prerequisites: PAPR 261 or equivalent.

PAPR 454 Advanced Lithographic Presswork (2-3) 3 hrs.
Practical problems in press setup. Plate imaging, register controls, ink variations, substrate choices, and lithographic press configurations and systems. 
Prerequisite: PAPR 250, CHEM 110 and 111, and MATH 216 concurrently.

PAPR 457 Advanced Digital Imaging (2-3) 3 hrs.
Prerequisites: PAPR 357, MATH 200.

PAPR 460 Process Engineering and Design (3-3) 4 hrs.
General principles of design used to review, develop and optimize pulp and paper manufacturing processes and facilities. Installation and operating costs, environmental and resource concerns, and performance and safety standards will be used to evaluate alternative solutions. Oral and written reports of individual and team efforts. 
Prerequisites: PAPR 203, 204, and 392; CHEG 261, 311, and 312; or permission of instructor.

PAPR 462 Print Estimating (3-3) 2 hrs.
Estimating the price of printed materials before manufacture and in the final pricing of that printed matter. Computerized estimating systems and techniques. 
Prerequisites: PAPR 250 and 357, ACTY 210.

PAPR 463 Finishing/Bindery (2-3) 3 hrs.
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; postpress, regulations, and procedures. 
Prerequisite: PAPR 462.

PAPR 464 Modern Printing Practices (2-0) 2 hrs.
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.

PAPR 484 Process Control II (4-0) 4 hrs.
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: PAPR 483.

PAPR 485 Research Design (3-0) 3 hrs.
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 basic university-level writing requirement of the student's curriculum.

PAPR 486 Independent Research 3 hrs.
Adds the laboratory research component to PAPR 485. 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. 
Prerequisite: PAPR 485.
PAPR 495 Topics in Paper and Printing
1–4 hrs.
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.

PAPR 499 Independent Studies
1–6 hrs.
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.

PAPR 510 Printability Analysis (2–3)
3 hrs.
Relationships between printed substrate, ink, printing process and resulting print quality from both the theoretical and measurement standpoints. 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. **Prerequisite:** PAPR 204 or 250.

Chemical Engineering Courses (CHEG)

A list of General Education courses can be found earlier in this catalog. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

CHEG 101 Introduction to Chemical Engineering (2–3)
3 hrs.
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. **Prerequisite:** High school chemistry; Corequisite: CHEM 110 and 111, IME 102.

CHEG 261 Environmental Engineering
3 hrs.
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. **Prerequisite:** CHEM 110 and 111, MATH 123, PHYS 113 or 205.

CHEG 281 Data Acquisition and Handling
1 hr.
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:** Knowledge of a programming language. Corequisite: IME 261.

CHEG 306 Material and Energy Balance (3–3)
4 hrs.
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. **Prerequisites:** CHEM 110 and 111, MATH 123, PHYS 205.

CHEG 310 Work Experience/Coop
1–2 hrs.
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. **Prerequisites:** Departmental consent; junior standing.

CHEG 311 Unit Operations in Chemical Engineering I (2–3)
3 hrs.
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. Laboratory experiments demonstrating various principles and equipment will be conducted. **Prerequisite:** CHEG 306.

CHEG 312 Unit Operations in Chemical Engineering II (2–3)
3 hrs.
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. Laboratory experiments demonstrating various principles and equipment will be conducted. **Prerequisite:** CHEG 306.

CHEG 320 Chemical Engineering Thermodynamics (3–0)
3 hrs.
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. CHEM 112 and 113, CHEG 306.

CHEG 330 Mass Transfer (2–3)
3 hrs.
Fundamentals of diffusional mass balances; diffusion in solids, liquids, and gases. Convective mass transfer; simultaneous heat and mass transfer. Component separation in continuous processes; gas absorption and adsorption; liquid-liquid extraction and distillation. **Prerequisites:** CHEG 311 or 312; Corequisites: CHEG 311 or 312.

CHEG 381 Computer Modeling and Simulation—Chemical Processes (0–3)
1 hr.
A laboratory class covering usage and application of process simulation packages; module set up, data inputting and optimization techniques. **Prerequisite:** CHEG 306.

CHEG 382 Computer Modeling and Simulation—Fluid Flow (0–3)
1 hr.
A laboratory class covering usage and application of computational fluid mechanics packages. **Prerequisite:** CHEG 311.

CHEG 410 Chemical Reaction Engineering
3 hrs.
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. **Prerequisites:** CHEM 430 and CHEG 300; Corequisite: CHEG 330.

CHEG 420 Separation Processes (2–3)
3 hrs.
Survey of separations based on physical properties, phase equilibria and rate processes. Analysis and modeling of separation processes. Staged and countercurrent operations. **Prerequisite:** CHEG 330.

CHEG 450 Plant Economics and Project Design
3 hrs.
Process synthesis and operability characteristics; dynamics of chemical engineering industries; economics of process evaluation; optimization in design and selection of process evaluation; optimization in design and selection of process and/or equipment alternatives; bases for cost estimation. **Prerequisites:** CHEG 330, 381; Corequisites: CHEG 410 or 420.

CHEG 483 Process Control I (3–3)
4 hrs.
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 311 or 312; one of the two may be taken concurrently.

CHEG 487 Senior Design Project
3 hrs.
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. Emphasis will be on working in small design groups, submission of written thesis, 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. **Prerequisites:** CHEG 382, 450.

CHEG 495 Topics in Chemical Engineering
1–3 hrs.
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:** Permission of instructor.

CHEG 499 Independent Studies
1–3 hrs.
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:** Permission of instructor.
The mission of the College of Fine Arts is to provide scholarly activity, creative experiences and research that informs and supports instruction, performance and exhibitions. In addition, the College must provide the resources that will allow students to become effective performers, artists, educators, practitioners, scholars, researchers and specialists in their chosen disciplines. These professionals will be sensitive and experienced in working with diverse populations in schools, arts organizations, communities and families. Critical to this mission are the constant evolution of effective instruction for students; the exploration of meaningful and ever-changing aesthetic issues; educational and artistic partnerships throughout the region; and national and international outreach that enrich the lives of all.

The Goals are:

• to graduate students who will be artist-practitioners in the various fine arts;
• to educate teachers who will perpetuate the strong traditions of the arts;
• to educate therapists to use the arts in a healing capacity;
• to prepare scholars who will continue to disseminate historical and theoretical information;
• to foster an appreciation of the arts among general university students, who will constitute the growing body of people whose lives are enriched by the arts;
• to contribute to the cultural life of the university and the greater Kalamazoo community;
• and to expand our outreach nationally and internationally.

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 and Orientation grants admission to Western Michigan University for undergraduate students. Application forms may be obtained by writing to the Office of Admissions and Orientation.

Enrollment in an art curriculum is contingent upon admission to the University, which is achieved through the application process; and approval of the Art Department, which is achieved through the portfolio review process. The student should begin by making application to the University and requesting portfolio information from the Department of Art. Prospective art history majors should submit writing samples, as outlined in the portfolio information. Both procedures should be commenced early in the senior year, 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. The Art Department's portfolio will help many students make a more intelligent choice regarding their educational career. Further information regarding admission to an art major curriculum may be obtained by writing the Art Student Advisor in the Department of Art. The Department welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

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 you would fulfill a required art course, or for any course you 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, Department of Art, Western Michigan University, Kalamazoo, MI 49008, or call (616) 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 Winter semester thereafter. To make an appointment please call (616) 387-2440.

Miscellaneous

BACCALAUREATE WRITING REQUIREMENT

Students who major in Art will satisfy the Baccalaureate Writing Requirement by successfully completing ART 325 Writing About Art.

Students who major in Art History will satisfy the Baccalaureate Writing Requirement by successfully completing ART 327 Writing About Art History.

Students who major in Art Teaching will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society.

COMPUTER USAGE

The Department 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 490-497 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 department a minimum of two sets of slides of their work before receiving a grade for their graduation presentation.

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 studio classes. All other students may work in the regular classroom studios at night and on Saturdays. The department 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 Department of Art offers the following degree programs: Bachelor of Fine Arts with a major in Art and an emphasis in either Ceramics, Painting, Photography, Printmaking, or Sculpture; Bachelor of Fine Arts with a major in Graphic Design; Bachelor of Arts with a major in Art History; Bachelor of Arts with a major in Art Teaching. 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 department also offers two minors: Art and Art History.

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 department. It also is necessary to be at or above the 300-level in the area to which they are applying.

Areas of emphasis: ceramics, painting, photography, printmaking, and sculpture. Art teaching students must complete the requirements of one of the studio areas of emphasis in order to satisfy certification requirements of the College of Education and the art education sequence in the Art Department: ART 252, 352, 452, and 552.

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

ART 104 Object Drawing 3

ART 105 Drawing Studio 3

ART 107 Form and Surface 3

ART 108 Form and Space 3

ART HISTORY REQUIREMENT

ART 220 History of Art 3

ART 221 History of Art 3

Two additional Art History courses at the 300- or 400-level, or at the 500-level with permission of instructor.

BACCALAUREATE-LEVEL WRITING REQUIREMENT

ART 325 Writing About Art 3

STUDIO EMPHASIS

Areas include: Ceramics, Painting, Photography, Printmaking, and Sculpture.

ART ELECTIVES

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-art courses may be applied to the elective requirement.

GRADUATION PRESENTATION

Select one from:

ART 490 Graduation Presentation and Seminar—Painting 3

ART 491 Graduation Presentation and Seminar—Photography 3

ART 492 Graduation Presentation and Seminar—Printmaking 3

ART 494 Graduation Presentation and Seminar—Sculpture 3

ART 496 Graduation Presentation and Seminar—Ceramics 3

GRAPHIC DESIGN MAJOR — BACHELOR OF FINE ARTS

85 hours

This degree is designed for qualified students who intend to become professional 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 winter 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 Department 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
ART 104 Object Drawing 3
ART 105 Drawing Studio 3
ART 107 Form and Surface 3
ART 108 Form and Space 3

GRAPHIC DESIGN COURSES ............. 43
ART 250 Color for Graphic Design 3
ART 251 Typography I 3
ART 262 Graphic Design I: Visual Aesthetics 3
ART 261 Graphic Design II: Graphic Form 3
ART 350 Typography II 3
ART 351 Typography III 3
ART 360 Graphic Design III: Visual Systems 3
ART 361 Graphic Design IV: Design Applications 3
ART 371 Special Topics 3
ART 460 Graphic Design V: Advanced Problems 3
ART 461 Graphic Design VI: Senior Projects 4
ART 492 Graduation Project Graphic Design in Progress 3
ART 570 Intern I 3
ART 571 Intern II 3

PHOTOGRAPHY COURSE ................. 6
ART 248 Photography 3
ART 348 Photography 3

BACCALAUREATE WRITING REQUIREMENT ............. 3
ART 325 Writing About Art 3

ART HISTORY COURSES ............. 12
ART 220 History of Art 3
ART 221 History of Art 3

Two additional Art History courses at the 300- or 400-level, or at the 500-level with permission of instructor 6

ART ELECTIVES ......................... 9
Select from Art Studio courses. Two courses must be in sequence.

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 both the major and the minor requirements of this curriculum and are distributed as follows:

BASIC STUDIES REQUIREMENT ............. 12
ART 104 Object Drawing 3
ART 105 Drawing Studio 3
ART 107 Form and Surface 3
ART 108 Form and Space 3

ART HISTORY REQUIREMENT ............. 12
ART 220 History of Art 3
ART 221 History of Art 3

Two additional Art History courses at the 300- or 400-level, or at the 500-level with permission of instructor 6

BACCALAUREATE WRITING REQUIREMENT ............. 3
ART 325 Writing About Art 3

ART ELECTIVES ......................... 27
Art major studio credits. Electives and required art courses could 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.

ART HISTORY MAJOR — BACHELOR OF ARTS
40 credit 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 Art Department, is interdisciplinary in nature and requires or encourages complementary coursework in History of Art, Languages, and other areas. Students receive a variety of classroom-related experiences, as well as opportunities for internships and study abroad.

200-LEVEL SURVEY REQUIREMENT ............. 9
ART 220 History of Art 3
ART 221 History of Art 3
and either
ART 222 Art of Africa, Oceania, and the Americas 3
ART 223 Introduction to Asian Art History 3

300-LEVEL REQUIREMENT ............. 12

BACCALAUREATE LEVEL WRITING
ART 327 Writing About Art History 3

CHOOSE ONE (1) FROM AREA ONE:
ART 321 Topics in Art History (with an Ancient to Baroque topic) 3
ART 381 Greek and Roman Art 3
ART 383 Medieval Art 3
ART 385 Renaissance Art 3
ART 386 Baroque Art 3

CHOOSE ONE (1) FROM AREA TWO:
ART 321 Topics in Art History (with a 19th-Century to Modern topic) 3
ART 388 19th-Century European and American Art 3
ART 389 European and American Art from 1900-1945 3
ART 390 20th-Century Art from 1945-Present 3
ART 391 Women in Art 3
ART 392 20th-Century Design History 3
HIST 315 Popular Art and Architecture in America 3

CHOOSE ONE (1) FROM AREA THREE:
ART 321 Topics in Art History (with a non-Western topic) 3
ART 363 Native American Art 3
ART 364 African Art 3
ART 365 Chinese Art 3
ART 366 Japanese Art 3
ART 367 Art of India 3

400- AND 500-LEVEL REQUIREMENT ........... 10

REQUIRED COURSES ............. 4
ART 499 Senior Thesis 1
ART 527 Art History Methods 3

CHOOSE ONE (1) ............. 3
ART 435 Art of the Book 3
ART 436 Contemporary/Alternative Art 3
ART 437 History of Photography 3
ART 466 Buddhist Art 3
HIST 468 Russian Art and Art Patronage 3

CHOOSE ONE (1) ............. 3
ART 521 Topics in Art History: 3
ART 522 Topics in Medieval and Renaissance Art 3
ART 523 Topics in Modern Art 3
ART 524 Topics in Native American and African Art 3
ART 525 Topics in Asian Art 3

ELECTIVES ............. 9
ART 520 Independent Study in Art History 2-3
ART 529 Art History Internship 1

ELECTIVE REQUIREMENT ............. 9
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 300 or above in the following departments: History; Comparative Religion; literature courses in the Departments of English and of Foreign 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 251 Period Interiors I, FCS 252 Period Interiors II, and FCS 326 History of Costume; and PHIL 320 Philosophy of Art in the Department of Philosophy.

FOREIGN LANGUAGE REQUIREMENT ............. 8
Eight hours of one foreign language are required. French and German are recommended as research languages, however, Spanish, Italian, Chinese, Japanese, or other languages approved by the Art History faculty may also be applied to the requirement. Students may test out of this requirement by placement in the 200-level or above on the Foreign Language Proficiency Examination. The foreign language requirement credits are counted under Proficiency 4g of the General Education requirements.

ART TEACHING MAJOR — BACHELOR OF ARTS
64 credit hours

This program is intended to develop artist-teachers certified to teach art at the elementary and secondary levels and prepared to continue their studies at a graduate school. The requirements of the secondary curriculum of the College of Education must be satisfied.

BASIC STUDIES REQUIREMENT ............. 12
ART 104 Object Drawing 3
ART 105 Drawing Studio 3
ART 107 Form and Surface 3
ART 108 Form and Space 3

200-LEVEL REQUIREMENT ............. 15
ART 210 Life Drawing 3
ART 230 Ceramics 3
ART 231 Sculpture 3
ART 240 Painting I 3
ART 241 Intaglio and Relief 3

ART HISTORY REQUIREMENT ............. 9
ART 220 History of Art 3
ART 221 History of Art 3

One additional Art History course at the 300- or 400-level, or at the 500-level with permission of instructor 3

ART EDUCATION REQUIREMENT* ............. 12
ART 252 Art Education Workshop 3
ART 352 Preparation for Art Teaching (Elementary) 3
ART 452 Preparation for Art Teaching (Secondary)  3
ART 552 Preparation for Art Teaching  3

ART ELECTIVES  16
Electives must be determined in consultation with an art advisor. Three (3) credits of non-Western Art History may be applied to the elective requirement.

COLLEGE OF EDUCATION COURSES  21
ED 250 Human Development  3
ED 305 K-12 Content Area Literacy  3
ED 395 School and Society  3
ED 410 Second Language Education  2
ED 475 Internship Teaching  10

*Art teaching courses (252, 352, 452, 552) must be taken in sequence and may not be taken concurrently. Therefore, Art Teaching majors must enroll in Art 252 in the fall semester of the sophomore year and continue taking one art education course, in sequence, in each subsequent semester. This is necessary in order to complete the intern teaching in the senior year and complete the degree in a four-year span. One semester of intern teaching in art, preferably in both elementary and secondary situations, is required.

ART MINOR  24 credit 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
ART 104 Object Drawing  3
ART 105 Drawing Studio  3
ART 107 Form and Surface  3
ART 108 Form and Space  3

ART ELECTIVES  12
Must be art studio (will not include art history courses).

ART HISTORY MINOR  18 credit 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
ART 220 History of Art  3
ART 221 History of Art  3

ART HISTORY ELECTIVES  12
CHOOSE ONE NON-WESTERN ART HISTORY ELECTIVE FROM AMONG THE FOLLOWING  3
ART 222 Art of Africa, Oceania, and the Americas
ART 223 Introduction to Asian Art History
ART 321 Topics in Art History (with a non-Western topic)
ART 363 Native American Art
ART 364 African Art
ART 365 Chinese Art
ART 366 Japanese Art
ART 367 Arts of India

CHOOSE THREE ART HISTORY ELECTIVES FROM AMONG THE FOLLOWING; ONE COURSE MUST BE AT THE 400-OR 500-LEVEL  9
ART 321 Topics in Art History: Variable Topics
ART 381 Greek and Roman Art
ART 383 Medieval Art
ART 385 Renaissance Art

ART 386 Baroque Art  3
ART 388 Nineteenth Century European and American Art  3
ART 389 European and American Art 1900-1945  3
ART 399 Twentieth-Century Art 1945-Present  3
ART 391 Women in Art  3
ART 392 Twentieth-Century Design  3
HIST 305 Popular Art and Architecture in America  3
ART 435 Art of the Book  3
ART 436 Contemporary/Alternative Art  3
ART 437 History of Photography  3
ART 466 Buddha Art  3
HIST 468 Topics in European History: Russian Art and Art Patronage  3
ART 520 Independent Study in Art History  3
ART 521 Topics in Art History: Variable Topics  3
ART 522 Topics in Medieval and Renaissance Art  3
ART 523 Topics in Modern Art  3
ART 524 Topics in Native American and African Art  3
ART 525 Topics in Asian Art  3
ART 527 Art History Methods  3
ART 529 Art History Internship  1-3

Art Courses (ART)

A list of approved General Education courses can be found in "Academic Policies and Procedures" earlier in this catalog.

Art Courses for Non-Art Majors or Minors
Those seeking a broadly inclusive studio experience in art are advised to take ART 130 and/or 140. Further recommended courses in specific media for non-art majors include Drawing 201, Acrylic Painting 202, Printmaking 203, Sculpture 205, Ceramics 206, Jewelry 207, and Watercolor 208. ART 120, 130, 140, 150, 148, 220, and 221 are open with no prerequisites to non-art majors and can satisfy the Area I, Fine Arts, requirements of General Education.

ART 104 Object Drawing  3 hrs.
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 drawings with as elemental to the drawing process. An ability to render and draw expressively, in a variety of media, is stressed. Prerequisites: ART or ATE majors and minors only.

ART 105 Drawing Studio  3 hrs.
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. Prerequisites: ART or ATE majors and minors only.

ART 107 Form and Surface  3 hrs.
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. Prerequisites: ART or ATE majors and minors only.

ART 108 Form and Space  3 hrs.
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. Prerequisites: ART or ATE majors and minors, and Interior Design majors only.

ART 120 Introduction to Art  3 hrs.
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 symbols, as play and as fantasy. 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 meets Area I, Fine Arts, General Education requirement.

ART 130 Studio Experience—(3-D)  3 hrs.
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 meets Area I, Fine Arts, General Education requirement.

ART 140 Studio Experience—(2-D)  3 hrs.
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 meets Area I, Fine Arts, General Education requirement.

ART 148 Direct Encounter with the Arts ($35 fee)  4 hrs.
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 148, MUS 148, THEA 148. May be taken only once from College of Fine Arts Departments. This course meets Area I, Fine Arts, General Education requirement.

ART 150 Art Education Workshop  3 hrs.
A studio course structured to provide the classroom teacher with the opportunity to explore, experiment and develop concepts related to art, creativity, and perception. Such concepts are explored and developed through the use of a variety of art materials and techniques. Prerequisite: For the Elementary Education Minor only. May not be taken by Integrated Creative Arts Minors, nor Art majors or minors.
ART 200 The Creative Process Through Art 3 hrs.
Individual involvement in the creative process related to human growth and development by means of oral and visual art media. Prerequisite: Integrated Creative Arts Minor only. This course waives the ART 150 requirement for the Elementary Education majors.

ART 201 Non Art Major: Drawing 3 hrs.
This course is a non-professional enrichment experience in basic drawing. The course objectives are 1) to learn basic drawing techniques and their relationships to various media such as graphite, charcoal, and conte crayon, 2) to learn proper usage of papers and drawing tools, and 3) to develop personal expression through drawing. Not applicable to art majors or minors.

ART 202 Non-Art Major: Acrylic Painting 3 hrs.
This course is a non-professional enrichment experience in basic acrylic painting. The course objectives are 1) to learn the fundamental techniques of application for acrylic paint, and 3) to develop personal expressive use of the medium. Not applicable to art majors or minors.

ART 203 Non Art Major: Printmaking 3 hrs.
This course is a non-professional enrichment experience in basic Printmaking. The course objective is to learn the fundamental techniques of etching, lithography, and block printing. Studio time will be provided for students to work on a project in each of these media. A class fee will be charged to cover the cost of materials and supplies. Not applicable to art majors or minors.

ART 205 Non Art Major: Sculpture 3 hrs.
This course is a non-professional enrichment experience in Basic Sculpture. The course objectives are 1) to learn basic techniques of clay modeling and plaster casting, and 2) to develop personal expression in these media. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 206 Non Art Major: Ceramics 3 hrs.
This course is a non-professional enrichment experience in basic Ceramics. The course objectives are 1) to learn the fundamentals of Ceramic construction, including coil building, and limits of clay as a material. A class fee will be charged for clay and glaze supplies. Not applicable to art majors or minors.

ART 207 Non Art Major: Jewelry 3 hrs.
This course is a non-professional enrichment experience in basic Jewelry. The course objectives are 1) to learn the proper use of metal-making tools and equipment, 2) to learn the basic techniques of making hand-wrought jewelry, and 3) to develop an awareness of the technical and creative range of metal as a medium for body decoration. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 208 Non Art Major: Watercolor 3 hrs.
This course is a non-professional enrichment experience in basic Watercolor. The course objectives are 1) to learn the proper use of watercolor brushes and tools, 2) to learn basic techniques for manipulating watercolor, and 3) to understand presentation models for finished watercolor paintings. A class fee will be charged for materials and information handouts. Not applicable to art majors or minors.

ART 210 Life Drawing 3 hrs.
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. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 220 History of Art 3 hrs.
An historical survey of art from prehistoric ages to the Renaissance. This course meets Area I, Fine Arts, General Education requirement.

ART 221 History of Art 3 hrs.
An historical survey of art from the Renaissance through the contemporary period. This course meets Area I, Fine Arts, General Education requirement.

ART 222 Art of Africa, Oceania, and the Americas 3 hrs.
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.

ART 223 Introduction to Asian Art History 3 hrs.
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 South Asia. Art will be discussed in relation to wider cultural contexts, historical and political ideas, and aesthetic approaches.

ART 230 Ceramics 3 hrs.
A course devoted to a survey of pottery processes, including handbuilding, technical information and a limited experience with the potter's wheel. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 231 Sculpture 3 hrs.
A fundamental course in sculpture exploring the theories and concepts of three-dimensional art forms in context with the cultural, structural and compositional principles will be studied. An overview of historical sculptural forms will be presented. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 236 Jewelry and Metalworking 3 hrs.
A survey of jewelry projects with instruction in design and metal craft. Copper, brass, and silver are the principal materials. Basic stone setting and Asa Inuksee techniques are usually included. Students generally fashion several jewelry pieces in this class. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 240 Painting I 3 hrs.
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. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 241 Intaglio and Relief 3 hrs.
A fundamental exposure to the techniques of intaglio and Relief printing and an introduction to print aesthetics. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 242 Watercolor Painting 3 hrs.
An overview of the application, techniques, and limitations of the watercolor painting medium. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 243 Lithography 3 hrs.
A basic introduction to Lithography through aluminum plate techniques. Fundamental discussion of stone lithography and aesthetic possibilities of the medium. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 244 Hand Papermaking 3 hrs.
An introduction to the basic techniques of hand papermaking as an art form. Prerequisites: ART or ATE major and minors only.

ART 245 Graphic Design-Non BFA in Graphic Design 3 hrs.
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. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 246 Screenprint 3 hrs.
Introduction to screenprint fundamentals, techniques and procedures, exploring at length the expressive potentials of the medium—to include basic color printing procedures. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 248 Photography 3 hrs.
Introductory course covering the function of the camera, exposure meter, lenses, b/w films, processing and printing. Emphasis is placed upon perceptive imagery and development of technical proficiency. Prerequisites: ART 104, ART 105, ART 107, ART 108.

ART 250 Color for Graphic Design 3 hrs.
Fall 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. Prerequisites: ART 104, ART 105, ART 107, ART 108, and ART 220, acceptance into BFA in graphic design by portfolio review.

ART 251 Typography I 3 hrs. Winter 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. Prerequisites: ART 250, ART 250.

ART 252 Art Education Workshop (Majors) 3 hrs.
A studio course involving projects, media and materials, handled on an aesthetic level but appropriate for the creative and maturational ability of the K-12 art student. Prerequisites: ART 104, ART 105, ART 107, ART 108, and ART 240.

ART 256 Computer Imaging I 3 hrs.
Introduction to computer graphics as an image-making process and as manipulation of scanned (found) images. After a basic
orientation to computer processing, several software programs will be used for the development of digital images as formal fine art, illustration, and as visual communication. **Prerequisites:** ART 104, ART 105, ART 107, ART 108.

**ART 260 Graphic Design I: Visual Aesthetics**
3 hrs. Fall
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. **Prerequisites:** ART 104, ART 105, ART 107, ART 108, and ART 220; acceptance into BFA with a major in graphic design by portfolio review.

**ART 261 Graphic Design II: Graphic Form**
3 hrs. Winter
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. **Prerequisites:** ART 252, ART 260.

**ART 305 Inter-Related Arts Processes: Art, Dance, and Music**
3 hrs. Art, dance, and music will be dealt with as the expressive means at the core of the creative and educative process. The student will be exposed to the craftsmanship of each art form, the experiences of synthesizing art forms so that each form contributes to the aesthetic value of the final product.

**ART 310 Intermediate Drawing**
3 hrs. Drawing as the study of form and as a conclusive aesthetic statement. Model available during approximately ½ of the class meetings. **Prerequisite:** ART 210.

**ART 321 Topics in Art History: Variable Topics**
3 hrs. Investigation of changing topics in art history in class or seminar sessions at an undergraduate level. Course topics are variable. **Prerequisites:** ART 220 or 221 for all ART Department majors. Repeatable for credit under a different topic.

**ART 325 Writing About Art**
3 hrs. 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 fulfill the baccalaureate-level writing requirement of the student's curriculum. **Prerequisite:** Junior or senior level Art major only.

**ART 327 Writing About Art History**
3 hrs. 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. **Prerequisites:** ART 220, ART 221, and Art History major.

**ART 330 Ceramics**
3 hrs. Continuation of ART 230 with opportunity for concentration in the medium. Some experimentation in glazing. **Prerequisite:** ART 230.

**ART 331 Sculpture**
3 hrs. Development of individual sculptural direction in all media. Advanced welding, molding and casting techniques are among the media explored. **Prerequisite:** ART 231 or consent of instructor.

**ART 338 Jewelry and Metalsmithing**
3 hrs. Intermediate level metalsmithing work. Continued skill development in jewelry design, stone setting, and solder fabrication. Basic lapidary work usually included. **Prerequisite:** ART 238.

**ART 340 Painting II**
3 hrs. Continuation of ART 240. **Prerequisite:** ART 240.

**ART 341 Intaglio and Relief**
3 hrs. 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. **Prerequisite:** ART 241.

**ART 342 Watercolor**
3 hrs. Advanced problems in watercolor techniques to include composition. **Prerequisite:** ART 242.

**ART 343 Lithography**
3 hrs. 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. **Prerequisite:** ART 243.

**ART 344 Hand Papermaking**
3 hrs. The techniques of producing paper to be used as support for various media. **Prerequisite** ART 244.

**ART 346 Screenprint II**
3 hrs. 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. **Prerequisite:** ART 246.

**ART 348 Photography**
3 hrs. Introduction to the view camera, color processing/printing, and various studio lighting techniques involved in product photography. Emphasis is placed upon exploring the potential of color photography and the development of individual imagery. **Prerequisite:** ART 248 and ownership of a 35mm color or medium format camera.

**ART 350 Typography II**
3 hrs. Fall
Exploring compositional relationships involving the single word, line, colophon, page arrangement and structural systems. Semantic and syntactic issues will be investigated in projects and exercises. Computer technology will be investigated. **Prerequisites:** ART 261, ART 251.

**ART 351 Typography III**
3 hrs. Winter
Designing with systems, sequence and series as complex typographic problems. Application of theoretical, pragmatic and technical issues to problems common in public and institutional communication. Computer technology will be investigated. **Prerequisites:** ART 350, ART 360.

**ART 352 Preparation for Art Teaching (Elementary)**
3 hrs.
A teaching laboratory course designed to familiarize prospective elementary art teachers with teaching philosophies, methods and creative teaching procedures using varied media, and materials. Emphasis is placed upon qualitative art programming in the elementary school. **Prerequisite:** ART 252.

**ART 356 Computer Imaging II**
3 hrs.
Exploration of computer graphics as an art-making medium and as an auxiliary to other media. Experimentation with various programs, development of an integrative approach to composing images and pictures, and exploration of hard copy output. **Prerequisite:** ART 256 or equivalent experience.

**ART 360 Graphic Design III: Visual Systems**
3 hrs. Fall
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. **Prerequisites:** ART 251, ART 261.

**ART 361 Graphic Design IV: Design Applications**
3 hrs. Winter
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. **Prerequisites:** ART 350, ART 360.

**ART 363 Native American Art**
3 hrs.
An exploration of the variety and vitality of the arts of American Indian peoples of North America living north of the Rio Grande from prehistoric times to the present, placing these arts within the framework of the historical and cultural contexts in which they are made.

**ART 364 African Art**
3 hrs.
An exploration of the variety and vitality of the arts of American Indian peoples of North America living north of the Rio Grande, from prehistoric times to the present, placing these arts within the framework of the historical and cultural contexts in which they are made.

**ART 365 Chinese Art**
3 hrs.
Historical investigation of the major traditions of Chinese painting. Emphasis will be given to the analysis of style, subject matter, techniques, and aesthetics as well as the social, political, and cultural contexts.

**ART 366 Japanese Art**
3 hrs.
Historical investigation of the major traditions of Japanese painting. Emphasis will be given to the analysis of style, subject matter, techniques, and aesthetics as well as the social, political, and cultural contexts.

**ART 367 Arts of India**
3 hrs.
Exploration of the visual culture of India, from the Indus Valley Civilization until the advent of
the British Raj in India in the seventeenth century. Fundamental to this course will be the meaning and symbolic content of the works of art, specifically in relation to the major religious traditions of India, namely Hinduism, Buddhism, and Islam.

ART 371 Special Topics 3 hrs.
Topics offered could be any of the following: package design, exhibit design, sign/symbol design, interactive electronic media, photography, type as image, applied color, visual translation, and any additional topic of interest. Prerequisite: ART 350, ART 360.

ART 381 Greek and Roman Art 3 hrs.
Discussion of Greek and Roman art from 3000 BCE to 400 C.E. Material covered will include Cycladic, Mycenaean, as well as the many stylistic divisions of the Greek and Roman periods. Prerequisite: Art 220.

ART 383 Medieval Art 3 hrs.
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 220.

ART 385 Renaissance Art 3 hrs.
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 221.

ART 386 Baroque Art 3 hrs.
Presentation of European and colonial art of the late sixteenth, seventeenth, and early eighteenth centuries. The social and political context of the art will be examined in addition to traditional methods of art criticism, formal analysis, and connoisseurship. Prerequisite: ART 221.

ART 388 Nineteenth Century European and American Art 3 hrs.
Major developments, such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism are examined in Europe and America. Recent approaches to the study of nineteenth-century art will be examined. Prerequisite: ART 221.

ART 389 European and American Art 1900-1945 3 hrs.
Emphasis is placed upon the roots of contemporary trends and the contributions of individuals to new modes of presentation in Europe and America. Major developments, including Fauvism, Cubism, Expressionism, and Surrealism are discussed using both traditional and current methods of analysis. Prerequisite: ART 221.

ART 390 Twentieth-Century Art: 1945 to Present 3 hrs.
Major trends in art since World War II are discussed. Emphasis is placed upon contemporary methods of art theory and criticism. Prerequisite: ART 221.

ART 391 Women in Art 3 hrs.
Historical survey of selected women painters, sculptors, architects, designers, and craftsmen. Investigation of the individual and group artistic contributions of these women in the context of their historical setting. Particular emphasis will be placed on women artists' roles in society and the arts community as they evolved in the last century. Prerequisite: Art 220 or 221.

ART 392 Twentieth Century Design History 3 hrs.
Major trends in design in the past 100 years, beginning with the Arts and Crafts movement through post modernism. Major developments include Art Nouveau, Art Deco and the Bauhaus. Art forms include architecture, interior design, graphics, illustration and crafts. Prerequisite: ART 221.

ART 435 Art of the Book 3 hrs.
Discussion of the art of book illustration from medieval to modern times. The class will examine various approaches to layout and design, as well as different theories of illustration and narration. Prerequisites: 220 and 221.

ART 436 Contemporary/Alternative Art 3 hrs.
Examination of how painting and sculpture in the 20th century began to give way to new forms of artistic expression. Media to be considered will include recent video, computer, performance, and installation art. The works will be approached in relationship to earlier 20th-century sources such as Dada, Surrealism, and Fluxus. Prerequisite: 221.

ART 437 History of Photography 3 hrs.
Survey of photography from its early years to the present with emphasis on its aesthetic, historical, technical, and social contexts. Prerequisite: 221.

ART 452 Preparation for Art Teaching (Secondary) 3 hrs.
This course is designed to provide the art education student with the professional knowledge, skills, and practice for teaching in middle and high schools. It focuses on developing teaching strategies that include writing outcome statements, developing appropriate curriculum and activity materials, developing assessment techniques, and developing classroom management techniques and professional classroom methods. The students will work with teaching and understanding techniques for Discipline Based Art Education. Practicum field work is required as part of this course. Prerequisites: ART 252, 352, and Art Teaching major status.

ART 460 Graphic Design V: Advanced Problems 3 hrs. Fall
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 580 Intern I. Prerequisites: ART 351, ART 361.

ART 461 Graphic Design VI: Senior Projects 4 hrs. Winter
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. Prerequisite: ART 460.

ART 466 Buddhist Art 3 hrs.
This course is an examination of the major Buddhist traditions in Asia, focusing on the visual arts of India, Nepal, Tibet, and Japan. Particular attention will be given to Buddhist iconography from an historical viewpoint, emphasizing the relationship of the arts and religious practices. The course will also explore the mutual exchanges and influences exerted by Buddhism throughout Asia as well as the distinctive religious expressions within each region. Prerequisites: Art 223, or Art 365, or Art 366, or Art 367.

ART 490 Graduation Presentation and Seminar—Painting 3 hrs.
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. Prerequisites: Senior standing and BFA candidacy.

ART 491 Graduation Presentation and Seminar—Sculpture 3 hrs.
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. Prerequisites: Senior standing and BFA candidacy.

ART 492 Graduation Presentation and Seminar—Graphic Design 3 hrs.
Investigation and evaluation of contemporary topics and trends in graphic design. Students will be exposed to how graphic designers 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 graphic design to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.

ART 493 Graduation Presentation and Seminar—Photography 3 hrs.
Investigation and evaluation of contemporary topics and trends in photography. Students will be exposed to how photographers 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 photography to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.

ART 494 Graduation Presentation and Seminar—Printmaking 3 hrs.
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
ART 496 Graduation Presentation and Seminar—Ceramics

3 hrs.
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. Prerequisites: Senior standing and BFA candidacy.

ART 499 Senior Thesis

1 hr.
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 publication-quality draft. Art History majors only; registration requires approval by supervising faculty member.

ART 500 Independent Studies

1–6 hrs.
An opportunity for qualified undergraduates to elect an area of special interest and pursue it in depth. Prerequisite: Permission of department. Repeatable for credit.

ART 510 Drawing Workshop

1–6 hrs.
Continuation of ART 310. Prerequisite: ART 310. Repeatable for credit.

ART 520 Independent Study in Art History

2–3 hrs.
Problems in Art History from ancient times to the present, selected by the individual student in consultation with the instructor. Prerequisites: ART 220, ART 221, and an ART 500-level course in the area of interest; permission of department. Repeatable for credit.

ART 521 Topics in Art History: Variable Topics

3 hrs.
Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Repeatable for credit under a different title. Prerequisites: Art History major or minor with junior status of higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 522 Topics in Medieval and Renaissance Art

3 hrs.
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. Prerequisites: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 523 Topics in Modern Art

3 hrs.
Investigation of changing topics in modern art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. Prerequisites: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 524 Topics in Native American and African Art

3 hrs.
Investigation of changing topics in Native American and African art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. Prerequisites: Student must be an Art History major or minor with junior status higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 525 Topics in Asian Art

3 hrs.
Investigation of changing topics in Asian art in seminar sessions. Advanced theory and methods are stressed. Research papers are required. Course has variable topics. Prerequisites: Art History majors or minors with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 527 Art History Methods

3 hrs.
Intensive study of the methods, literature, and research techniques used in art historical inquiry and writing. Prerequisite: Art History major or minor with junior status or higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

ART 529 Art History Internship

1 hr.
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 student is placed. Art History majors and minors only; registration requires approval by supervising faculty member.

ART 530 Ceramics Workshop

1–6 hrs.
Advanced work in ceramics on an independent basis. Prerequisite: ART 330. Repeatable for credit.

ART 531 Sculpture Workshop

1–6 hrs.
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. Prerequisite: ART 331. Repeatable for credit.

ART 535 Multi-Media Workshop

1–6 hrs.
Various forms of art that deviate from conventional media, such as light, kinetic, and performance art. The student is expected to have a solid background in one of the traditional art forms, such as ceramics, painting, sculpture, printmaking, drawing, graphic design or multimedia. Permission of instructor is required. Repeatable for credit.

ART 536 Jewelry and Metalsmithing Workshop

1–6 hrs.
Advanced work in jewelry design and metalsmithing. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 336. Repeatable for credit.

ART 540 Painting Workshop

1–6 hrs.
Continuation of ART 340. Prerequisites: ART 340. Repeatable for credit.

ART 541 Printmaking Workshop

1–6 hrs.
An advanced workshop for experienced printmaking students, all printmaking media available; emphasis on development of personal concepts and refinement of methods appropriate to individual needs through research. Prerequisite: Any ART 300-level printmaking course. Repeatable for credit.

ART 542 Watercolor Workshop

1–6 hrs.
Continuation of advanced watercolor techniques with emphasis on experimentation. Prerequisite: ART 342. Repeatable for credit.

ART 544 Hand Papermaking

1–6 hrs.
A continuation of ART 244 and ART 344. Prerequisite: ART 344.

ART 548 Photography

1–6 hrs.
Professional development through research in advanced projects. Prerequisite: ART 348. Repeatable for credit.

ART 552 Preparation for Art Teaching

3 hrs.
A course dealing with: the current social problems and issues which affect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); phenomena of perceptual learning, the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Prerequisites: ART 452 and art major status.

ART 553 Independent Studies in Art Education

1–6 hrs.
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.) Prerequisites: ART 252, ART 352, ART 452, ART 552 and permission of the art education chairman. This course is open to graduates and non-degree level students.

ART 560 Arts Education for the Elementary Teacher

3 hrs.
A studio course for the elementary classroom teacher to provide experiences in qualitative elementary art and integrated arts programming in the elementary public school. Repeatable for credit.

ART 570 Intern I

3 hrs. Fall, Winter
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 contact, budget preparation, electronic pre-press production and interface with printers and the printing industry. Prerequisites: ART 351, ART 361.

ART 571 Intern II

3–6 hrs. Winter
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. Prerequisites: ART 450, ART 580.
DANCE

Nina Nelson, Chair
Jane Baas
Trudy Cobt
Wendy Cornish
David Curwen
Sharon Garber
Janet Stillwell
Lindsey Thomas

The Department of Dance seeks to fulfill its responsibility to further the development of the art of dance, through creating and publicly producing dance which reflects the highest aesthetic standards; sponsoring events which enrich the dance life of the community; conducting research on dance; and providing dance experiences which have artistic and educational value. The Department endeavors to produce versatile graduates who delight in which to carve their own careers, who have the sensibilities, who have a firm foundation upon which to carve their own careers, who have the conviction to hold firm in their aesthetic goals; and who have the skills necessary for survival in an ever-changing field. For the general student, the Department endeavors to foster an understanding and appreciation of dance by providing opportunities to practice and view dance. Western Michigan University is an accredited institutional member of the National Association of Schools of Dance.

Programs

The Department of Dance offers three programs in dance: Bachelor of Fine Arts in Dance (80 hours), Bachelor of Arts in Dance (53 hours), and a Dance Minor (18 hours). The BA 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 101, 102, 103, 104, 125, 181, and 225. A fee is required. The fee is used to provide a musical accompanist. The fee is also used to provide a musical accompanist. The fee is also used to provide a musical accompanist. The fee is also used to provide a musical accompanist.

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 3123; (616) 387-5845

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 dance academic advisor during the academic year. It is the responsibility of the student to make an appointment with the dance academic advisor during the academic year. It is the responsibility of the student to make an appointment with the dance academic advisor during the academic year.

Annual Meetings

Department meetings are held the day before classes begin for the fall semester to prepare the student for the academic year. At these meetings, students will receive a calendar of events and information regarding Department policies and procedures. Attendance is mandatory for all dance majors and minors.

Additional Study Options

Students are encouraged to study with dance professionals whenever possible and to afford for completion of these requirements. All dance students are urged to take advantage of advising services offered by the Department of Dance for assistance in making educational choices and for interpretation of requirements stated in the Undergraduate Catalogue.

Miscellaneous

Focus of Major Technique Courses

Ballet courses emphasize the understanding of the classical ballet vocabulary with attention to stylistic variations, and piano accompaniment is provided. Students are exposed to a variety of modern dance styles such as Cunningham, Horton, and as well as Bartenieff Fundamentals 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 and/or live 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. This is consistent with the requirement for professional level advancement in professional schools. A passing grade in a technique class does not imply automatic progression to the next level. Faculty determine if a student is ready to move to the next level just prior to Registration for the coming semester.

Class Fees for Major Technique Courses

A fee is required from each student enrolled in DANC 110, 120, 125, 130, 145, 210, 220, 225, 230, 310, 320, 330, 425, and 440. A majority of the fee is used to provide a musical accompanist. The remainder is used to provide a musical accompanist. The remainder is used to provide a musical accompanist. The remainder is used to provide a musical accompanist.

Scholarships

Scholarships, awards, and assistantships are available for new and continuing students. Award recipients are selected by the faculty on the basis of outstanding achievement in the field and overall academic excellence. Entering students who wish to be considered for scholarships must audition, submit two letters of recommendation, as well as have an interview with the faculty at either the November or February New Student Audition Day. Current students apply in February 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 or email the Office at finaid-info@wmich.edu or call the Office at (616) 387-6000.

Admission

Admission to the University is granted by the Office of Admissions and Orientation for undergraduate students. Applications are available by writing to the Office of Admissions and Orientation, or students may apply online (616) 387-2000, or via WMU's World Wide Web site. Enrollment in dance major programs at WMU is contingent upon admission to the University and acceptance to the department via an audition. Auditions for acceptance into the dance department are normally held in November, February and April. 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 be accepted. 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. Prospective dancers may elect to apply for scholarships via the November or February audition dates. In addition to the three classes, scholarship candidates also 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 range from $200 to $2,000 per academic year, some of which may be renewable.

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 180 Choreography I; DANC 181 Improvisation 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 dance department at (616) 387-5830 or contacting the dance academic advisor on email at: jane.baas@wmich.edu.
themselves the opportunity for study with artists-in-residence on Western's campus. Limited scholarships 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, graduation presentations, special class-related performances, University musicals and operas, and the department performing ensemble. Students must be enrolled in the major or minor program 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 formal dance concerts. The Department is committed to publicly presenting the dances of students who demonstrate choreographic proficiency. Special opportunities in performance and choreography are available on- and off-campus and are posted as they occur.

PROGRAMS

DANCE MAJOR—BACHELOR OF FINE ARTS

60 hours

Students may petition for entrance into the BFA program after completion of:

1. at least one semester each of ballet, jazz, and modern major technique courses
2. DANC 180 Choreography I
3. DANC 181 Improvisation
4. at least one dance theory course.

Eligibility of transfer students to petition will be determined on an individual basis by the dance department advisor. Petition forms are available from the Dance Department Advisor. Petition forms are to be submitted by mid-February and mid-August.

In order to continue in the BFA 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 BFA after a minimum of one additional semester at WMU.

By the end of the student's junior year, the BFA student must create and perform a solo dance in a public showing which exhibits his/her choreographic, technical, and performance skills at this time.

A grade of "C" or better is mandatory in all required dance courses.

GENERAL EDUCATION REQUIREMENTS

The student enrolled in the BFA in Dance must complete all General Education Requirements as described in this catalog. Since the BFA in Dance is a credit-hour intensive curriculum, the BFA student may count DANC 145 Experiencing Dance (also counts in General Education Area I) toward the BFA major.

REPRESENTATIVE COURSES ARE DESCRIBED BELOW.majors use this course to propose a practicum project as a capstone experience. Students have a variety of opportunities to participate in the Department of Dance.

Area VIII Health and Well-being

Education requirement for dance majors.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Dance major will satisfy the baccalaureate-level writing requirement by successfully completing DANC 345 Twentieth Century American Dance.

REQUIREDS PROGRAMS

CAPSTONE EXPERIENCE

DANC 400 Practicum (Prereq: Approved application required) 1
DANC 445 Senior Seminar (Prereq: Senior standing) 1

(DANC 480 Graduating Presentation is also considered a capstone experience in choreography, production, and management for the BFA student.)

RELATED STUDIES—9 total 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 220 Cultural Anthropology 3
ART 140 Studio Experience (2-D) 3
ART 148 OR
DANC 148 OR
MUS 148 OR
THEA 148 Direct Encounter with the Arts 3
ART 220 History of Art 3
ART 221 History of Art 3
BISC 112 Principles of Biology 3
BIOC 211 Human Anatomy (Prereq: BIOC 112) 4
ED 230 The Nature of Creativity 3
ENGL 105 Thought and Writing: Variable topics 3
ENGL 110 Literary Interpretation 4
ENGL 150 Literature and Other Arts 4
ENGL 305 Professional Writing 4
FREN 100 Basic French I 4
FREN 101 Basic French II (Prereq: 100 or equivalent) 4
HIST 315 Popular Art and Architecture in America 3
MGMT 210 Small Business Management 3
MUS 150 Music Appreciation: Live Music 4
MUS 151 Music Appreciation: Pop/Jazz 4
MUS 350 American Music 4
MUS 352 Non-Western Music 4
MUS 450 Music Appreciation: The Symphony 4
PHIL 200 Introduction to Philosophy 4
PHIL 312 Philosophy of Art 4
REL 311 Myth and Ritual 4
THEA 100 Introduction to Theatre 3
THEA 105 Introduction to African-American Theatre 3
THEA 141 Improvisation 3
THEA 142 Acting I 3

DANCE MAJOR—BACHELOR OF ARTS

53 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. The student is required to schedule an appointment with the assigned dance faculty member to receive the faculty feedback. By the beginning of the junior year, the BA student is expected to declare an area of focus in dance electives, including choreography and theory courses. By the end of the junior year, the student must design and propose a practicum project as a capstone experience which will further develop the focus area. The practicum proposal must be
approved by a member of the dance faculty, who agrees to supervise the practicum experience for the student’s enrollment in DANC 400 in the senior year. A grade of “C” or better is mandatory in all required courses.

**GENERAL EDUCATION REQUIREMENT**

The student enrolled in the BA in Dance must complete all General Education Requirements as described in this catalog. DANC 196 Conditioning for Dance, in combination with DANC 295 Introduction to Dance Science and Kinesiology, meets the Area VIII Health and Well-being General Education requirement for dance majors.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Dance major will satisfy the Baccalaureate-level Writing Requirement by successfully completing DANC 345 Twentieth Century American Dance.

**LIBERAL ARTS REQUIREMENTS**

In addition to the minimum University General Education Proficiency and Distribution Requirements, the student enrolled in the BA 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 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—18 total hours**

BA students must enroll in at least one major technique course (DANC 110, 120, 210, 220, 310, 320, 330) each semester. 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 (DANC 460, 465). The student must complete at least one semester of one of the following: DANC 310, 320, 330. DANC 125, 225, and 425 may be used to complete the Technique/Performance requirement.

**REQUIRED COURSES IN DANCE STUDIES (Choreography and Theory)—35 total hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 180</td>
<td>Choreography I (Prereq: DANC 101)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 181</td>
<td>Dance Improvisation</td>
<td>1</td>
</tr>
<tr>
<td>DANC 280</td>
<td>Choreography II (Prereq: 180, 181)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 225</td>
<td>Ballet History (Prereq: 145)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 345</td>
<td>Twentieth Century American Dance (Prereq: 145)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 101</td>
<td>Beginning Ballet</td>
<td>2</td>
</tr>
<tr>
<td>DANC 110</td>
<td>Ballet Technique I</td>
<td>2</td>
</tr>
<tr>
<td>DANC 210</td>
<td>Ballet Technique II</td>
<td>2</td>
</tr>
<tr>
<td>DANC 225</td>
<td>Special Studies: Men’s Ballet</td>
<td>2</td>
</tr>
<tr>
<td>DANC 310</td>
<td>Ballet Technique III</td>
<td>2</td>
</tr>
<tr>
<td>DANC 425</td>
<td>Special Studies: Pointe, Partnering</td>
<td>1</td>
</tr>
<tr>
<td>DANC 320</td>
<td>Jazz Technique II</td>
<td>2</td>
</tr>
<tr>
<td>DANC 330</td>
<td>Modern Technique III</td>
<td>2</td>
</tr>
<tr>
<td>DANC 345</td>
<td>Special Studies: African-American Dance</td>
<td>2</td>
</tr>
<tr>
<td>DANC 103</td>
<td>Beginning Modern</td>
<td>2</td>
</tr>
<tr>
<td>DANC 130</td>
<td>Jazz Technique I</td>
<td>2</td>
</tr>
<tr>
<td>DANC 230</td>
<td>Modern Technique II</td>
<td>2</td>
</tr>
<tr>
<td>DANC 330</td>
<td>Modern Technique III</td>
<td>2</td>
</tr>
</tbody>
</table>

**ELECTIVES—6 total hours**

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—DANC 110, 120, 125, 310, 220, 225, 230, 310, 320, 330, 425—if one of these courses has not been elected under **Required Courses in Technique** listed above.

**DANCE MINOR**

18 hours

**REQUIRED COURSES IN TECHNIQUE—6 total hours**

- Two credit hours in ballet selected from:
  - DANC 101 Beginning Ballet
  - DANC 210 Ballet Technique II
  - DANC 225 Special Studies: Men’s Ballet
  - DANC 310 Ballet Technique III
  - DANC 425 Special Studies: Pointe, Partnering

- Two credit hours in jazz selected from:
  - DANC 102 Beginning Jazz
  - DANC 120 Jazz Technique I
  - DANC 220 Jazz Technique II
  - DANC 320 Jazz Technique III
  - DANC 330 Modern Technique III

**REQUIRED COURSES IN CHOREOGRAPHY/THEORY—4 total hours**

- DANC 145 Experiencing Dance
- DANC 181 Dance Improvisation

**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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 180</td>
<td>Choreography I (Prereq: DANC 101)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 185</td>
<td>Music Fundamentals for Dancers (Prereq: DANC 101)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 195</td>
<td>Introduction to Bartenieff Fundamentals (Prereq: DANC 101)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 196</td>
<td>Conditioning for Dancers (Prereq: DANC 101)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 245</td>
<td>Ballet History (Prereq: DANC 145)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 295</td>
<td>Introduction to Dance Science and Kinesiology</td>
<td>2</td>
</tr>
<tr>
<td>DANC 296</td>
<td>Introduction to Laban Movement Analysis (Prereq: DANC 145)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 325</td>
<td>Special Studies in Dance Theory</td>
<td>2</td>
</tr>
<tr>
<td>DANC 345</td>
<td>Twentieth Century American Dance</td>
<td>3</td>
</tr>
<tr>
<td>DANC 389</td>
<td>Lighting and Staging for Dance</td>
<td>2</td>
</tr>
<tr>
<td>DANC 489</td>
<td>Dance Management</td>
<td>2</td>
</tr>
</tbody>
</table>

**DANCE COURSES (DANC)**

**DANC 101 Beginning Ballet**
2 hrs. Elementary ballet technique for the general student. The emphasis is placed on line, control, alignment and musicality. Students will learn simple combinations utilizing fundamental classical ballet vocabulary.

**DANC 102 Beginning Jazz**
2 hrs. Elementary jazz technique for the general student. Rhythmic integration of isolated movements with emphasis on dynamics, style and performance is stressed.

**DANC 103 Beginning Modern**
2 hrs. Elementary modern technique for the general student. The emphasis is placed on body integration, locomotor skills, dynamic variety, and musicality.

**DANC 104 Beginning Tap**
2 hrs. 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.

**DANC 110 Ballet Technique I**
2 hrs. An introduction to the art of ballet, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on development of technique, musicality and strength of movement through the Russian method of training. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

**DANC 120 Jazz Technique I**
2 hrs. 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 120 until advanced to DANC 220 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

**DANC 125 Special Studies in Introductory Dance Technique**
1–6 hrs. A study of areas in introductory dance technique not included in regularly scheduled courses. Examples of possible topics include: African-American Dance, Music Theatre Dance Styles, Dance Technique Skill Building, and World Dance Forms. Repeatable for credit up to 6 hours.

**DANC 130 Modern Technique I**
2 hrs. 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 130 until advanced to DANC 230 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

DANC 145 Experiencing Dance 3 hrs.
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, 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.

DANC 148 Direct Encounter with the Arts 4 hrs.
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, theater, sculpture, music, poetry, dance, and architecture. Classroom discussions are held following the students' participation in the various art experiences 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 148, MUS 148, THEA 148. May be taken only once from College of Fine Arts Departments.

DANC 180 Choreography I 2 hrs.
A practical experience in dealing with the basic elements of dance composition. Emphasis will be placed on solo choreographic studies. Prerequisite: Advisor consent.

DANC 181 Dance Improvisation 1 hr.
Exploration of movement through spontaneous problem-solving. The course is designed to evoke the student's creative individuality and sense of ensemble.

DANC 185 Music Fundamentals for Dancers 2 hrs.
Designed for the novice in music, the course places emphasis on rhythmic skills, but also teaches basic concepts of notation, clef, scales, key signatures, intervals and triads. The rhythm work begins with reading of simple and compound meters and progresses through complex syncopations and polyrhythmic exercises. Students will be able to read and perform rhythmic patterns using a variety of percussion instruments. Additionally, students will be introduced to formal concepts in music as well as phrase, period, cadence and abstract form. Prerequisite: Dance majors and minors only.

DANC 195 Introduction to Barteneff Fundamentals 1 hr.
This course introduces Irmgard Barteneff's theories of functional movement. Through practice students will explore major Barteneff concepts such as body connection, achieving movement initiation, mobility/stability and spatial intent. Students will also learn the "Basic Six," a series of movement sequences which are distillations of Barteneff's theories.

DANC 196 Conditioning for Dancers 2 hrs.
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; means of enhancing dance performance, including instruction on equipment such as rover disks, Therabands, and the Current Concepts Reformer utilizing the Dancer Specific™ technique. This course, in conjunction with DANC 295, meets the Area VIII Health and Well-being General Education requirement for dance majors.

DANC 210 Ballet Technique II 2 hrs.
A development of ballet technique at the intermediate level. Emphasis is on increased strength and flexibility, jumps, turns, and an introduction for women to pointe technique. Students will continue in DANC 210 until advanced to DANC 310 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Ballet Technique I instructor.

DANC 220 Jazz Technique II 2 hrs.
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 220 until advanced to DANC 320 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique I instructor.

DANC 225 Special Studies in Intermediate Dance Technique 1-6 hrs.
A study of areas in intermediate dance technique not included in regularly scheduled courses. Examples of possible topics include: Men's Ballet, Repertory, Intermediate Tap, and Contact Improvisation. Repeatable for credit up to 6 hours. Prerequisite: Consent of instructor.

DANC 230 Modern Technique II 2 hrs.
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 230 until advanced to DANC 330 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Modern Technique I instructor.

DANC 245 Ballet History 3 hrs.
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: DANC 145.

DANC 280 Choreography II 2 hrs.
Further exploration of the compositional elements as used in group choreography. Prerequisite: DANC 180 and DANC 181.

DANC 285 Musical Style and Form for Dancers 2 hrs.
The course surveys composers and musical style from the Renaissance through the twentieth century. There will be an emphasis on the chief stylistic characteristics of the major composers of each period, and discussion of the particular compositions in relation to their suitability for choreographic treatment. Score-reading is an important aspect of the course. Prerequisite: DANC 185

DANC 290 Dance in the Elementary School 3 hrs.
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.

DANC 295 Introduction to Dance Science and Kinesiology 3 hrs.
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 196, meets the Area VIII Health and Well-being General Education requirement for dance majors.

DANC 296 Introduction to Laban Movement Analysis 2 hrs.
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 Barteneff Fundamentals. Prerequisite: Sophomore standing.

DANC 310 Ballet Technique III 2 hrs.
Ballet technique for the advanced/pre-professional student in the classical idiom. Emphasis is placed on complex movement sequences, ensemble awareness, pointe technique and men's combinations. Repeatable for credit. Prerequisite: Placement audition or approval of Ballet Technique II instructor.

DANC 320 Jazz Technique III 2 hrs.
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. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique II instructor.

DANC 325 Special Studies in Dance Theory 1-6 hrs.
A study of areas in 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 consent.

DANC 330 Modern Technique III 2 hrs.
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. Repeatable for credit. Prerequisite: Placement audition or approval of Modern Technique II instructor.
### DANC 345 Twentieth Century American Dance (3 hrs.
A survey of the purposes, functions, and manifestations of American dance forms beginning in 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: forerunners and pioneers of modern dance; avant-garde and post-modernists; and artists of jazz, tap, Broadway, movies, and the current media. Students will write several short papers and prepare a research paper. Examinations will 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:** DANC 145

### DANC 380 Choreography III (2 hrs.)
Concert and musical theatre choreography in the student's area of concentration. **Prerequisite:** DANC 280.

### DANC 385 Introduction to Dance Notation (2 hrs.)
A study of dance notation systems which provide practical methods of recording human movement for purposes of analysis and reading. The course includes reading (interpretation), theory, and practice at the introductory level. **Prerequisites:** DANC 110, DANC 130, and DANC 185.

### DANC 389 Lighting and Staging for Dance (2 hrs.)
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 via both manual and computer lighting boards. Students will have hands-on experience in producing dance concerts through crew assignments completed outside of class, including hanging crew, running crew, and striking crew. The culminating assignment for the course is designing and executing lighting for a dance. **Prerequisite:** Approved application required.

### DANC 400 Practicum (1-4 hrs.)
An individual approach to a practical field experience in dance. The student must file an approved application for this/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:** Approved application required.

### DANC 425 Advanced Technique (1-6 hrs.)
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. Repeatable for credit up to 6 hours. **Prerequisite:** Consent of instructor.

### DANC 440 Teaching Dance Technique (2 hrs.)
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. The student will serve concurrently as a demonstrator two days per week in a dance technique course, as arranged by the course instructor. **Prerequisite:** Advisor consent.

### DANC 445 Senior Seminar (1 hrs.)
An exploration of current trends, literature and developments in dance in a seminar format.

### DANC 459 Non-Reading Independent Study in Dance (1-4 hrs.)
Advanced undergraduate students with good academic standing may elect to independently pursue the study of a specific 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:** Approved application required.

### DANC 495 Performance Workshop (2 hrs.)
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 385.

### DANC 496 Performance in Musical Theatre (2 hrs.)
Students will perform in musical theater 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 theater. **Prerequisite:** Approved application required.

### DANC 498 Readings in Dance (1-4 hrs.)
Advanced undergraduate students with good academic standing may elect to independently pursue a program of readings in areas of special interest. Repeatable for credit up to 4 hours. **Prerequisite:** Approved application required.
MUSIC

Richard O’Hearn, Chair
Richard Adams
David Loberg Code
Curts Curtis-Smith
Igor Fedotov
Delores Gauthier
Daniel Jacobson
Stephen Jones
Renata Artman Knific
Thomas Knific
Trent P. Kynaston
David Little
John A. Lychner
James McCarthy
Margaret Mernion
Andrew Miller
Joe Miller
Michael Miller
Judy Moonnet
William Pease
Johnny Phengio
Carl Ratner
Robert J. Ricci
Eda Ricci
Silvia Roederer
Wendy Rose
David A. Sheldon
Lori Sims
Christine Smith
David S. Smith
Robert Spradling
Matthew Steel
Scott W. Thomburg
Linda Trotter
Bruce Uchimura
Karen Winklund
Brian Wilson
Steve M. Wolfinbarger
Bradley Wong
Stephen Zegree

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 requirement for recital attendance: Music majors are required to attend Music courses and to complete their formal education in the classroom, grades K-8. 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 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 year of the music course work which will apply to that minor.

Admission

Admission to Western Michigan University is granted only by the Office of Admissions and Orientation for undergraduate students. Application forms may be obtained by writing to the Office of Admission and Orientation. 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. The student should begin by making application to the University and requesting audition 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 on the major instrument or voice, the student's musical aptitude, and upon academic abilities reflected in grade point average and various scholastic test scores as are available. Efforts are made to evaluate the student on the basis of musical potential and not upon desire to enter a specific professional area of music. All students commence a major in music with common “core” requirements and are, therefore, considered for entry into the major with this common basis in mind. A student considering a music major 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 160, which is required of all music majors in the first year of study, the student must demonstrate knowledge of fundamentals. A fundamentals examination will be administered at the time the student is initially advised about classes. The School of Music's audition and testing program has helped many students make a more intelligent choice regarding their educational careers. Further information regarding admission to a music curriculum may be obtained by writing the Music Student Advisor in the School of Music. 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 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 majors of applying credit hours, not applicable to music curriculum requirements, toward General Education electives or free electives.

The School of Music is a member of the National Association of Schools of Music. The School of Music's audition and testing program has helped many students make a more intelligent choice regarding their educational careers. Further information regarding admission to a music curriculum may be obtained by writing the Music Student Advisor in the School of Music. The Music Student Advising Office provides one-stop advising for all students in a music curriculum. Advice on general education and major/minor requirements can be provided by consulting the music student advisor. Only when a student pursues a minor outside of the School of Music 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

In addition to required course work, all students must satisfy additional requirements in recital attendance and recital performance.

The requirement for recital attendance: All music majors are required to attend Music
Convoction (MUS 101) each semester they are in residence. Each student is allowed to be absent from one convocation per semester. Without exception, only one absence per semester will be excused. Any absences beyond “one” 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 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, and music theory. 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 two alternatives for fulfilling degree requirements: (1) request a waiver of the requirement and elect an equivalent number of hours in music courses at the college level, or (2) receive credit for the course(s) in which competency is demonstrated by passing 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 for admission to the music curriculum. Decisions on music scholarships are made beginning in mid-March, so early auditions are advised.

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 email the Office at finaid-info@wmich.edu or call the Office at (616) 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.

**Curricula**

When a student is admitted to the music curriculum, a major area of concentration is usually not declared. By the end of the first year, students may declare a major area of concentration; the student must complete requirements in the music "core," which are courses required of all music majors, regardless of professional or vocational interests in the field. Core requirements will normally be taken in the first two years. For students interested in an in-depth introduction to the two professions for which this university offers certification courses (music education and music therapy), an opportunity will be given for them to register for Field Experience courses.

**Baccalaureate Writing Requirements**

Students who have chosen any music major will satisfy the Baccalaureate Writing Requirement by successfully completing MUS 352 Non-Western Music.

**Bachelor of Music**

**Core Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music Convocation 101 (7 semesters)</td>
<td>0</td>
</tr>
<tr>
<td>*Applied Music 200-300 (see Electives below)</td>
<td>14</td>
</tr>
<tr>
<td>Basic Music 160, 161, 260, 261</td>
<td>12</td>
</tr>
<tr>
<td>Aural Comprehension 162, 163, 259, 265</td>
<td>4</td>
</tr>
<tr>
<td>History or Theory Elective</td>
<td>2</td>
</tr>
<tr>
<td>*Music History and Literature 170, 270, 271</td>
<td>8</td>
</tr>
<tr>
<td>*Performance Elective (see Electives below)</td>
<td>8</td>
</tr>
<tr>
<td>Keyboard Fundamentals 120-121</td>
<td>2</td>
</tr>
<tr>
<td>Conducting 215</td>
<td>1</td>
</tr>
<tr>
<td>General Education Electives</td>
<td>37</td>
</tr>
<tr>
<td>Major Area of Concentration</td>
<td>13-41</td>
</tr>
<tr>
<td>Free Electives to make a minimum of 122 semester credit hours.</td>
<td></td>
</tr>
<tr>
<td>Music Clearance (verification of completion of recital performance and attendance requirements).</td>
<td></td>
</tr>
</tbody>
</table>

**Exceptions to Core Requirements**

**Jazz Studies** majors may fulfill two of the four semester major ensemble requirements by electing MUS 118, 119, 210 or 212.

**Music Therapy** majors complete only 8 hours of Applied Music 200 (including successful completion of a Sophomore Hearing); only 4 hours of Performance Electives, and are not required to complete a music history elective.

**Composition** majors complete only eight hours of Applied Music 200 (including successful completion of a Sophomore Hearing) and four hours of Applied Music 300; and only four hours of Performance Electives.

Keyboard majors are to replace Keyboard Fundamentals 120 and 121 with MUS 190 Accompanying (1 credit) in freshman-sophomore years and MUS 100 Organ (1 credit) in junior-senior years.

**Music Education:** Choral/General Music majors complete only 7 semesters of Performance Electives. Students for whom keyboard is the applied instrument must elect MUS 190 Accompanying in the freshman-sophomore years as one of the core performance electives and may choose to substitute one credit of MUS 100 Organ for one credit of MUS 300 Piano. It is recommended that all Music Education majors elect at least one jazz experience/ensemble.

**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 190 Accompanying in the freshman-sophomore years as one of the required performance electives, and may choose to substitute one credit of MUS 100 Organ for one credit of MUS 300 Piano. Instrumental Education majors must also sing in Grand Chorus (or other choral ensemble) for two semesters. It is recommended that all Music Education majors have at least one jazz experience/ensemble.

**All students wishing to earn a teaching certificate** should have no less than one year of keyboard skills upon entry to the major. Therefore, Keyboard Fundamentals (120-121) 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. All students are required to elect four semesters of a major ensemble. The major ensembles are: 107, 108, 110, 111, 112, and 113.

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 single 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 107, 108, 109, 110, 111, 112, 113, 118, 119, 210, 210, 211, 212, 218, 317, 517.

Please note: All keyboard majors are required to elect one semester of MUS 190 Accompanying (therapy majors excepted). The student is expected to complete one performance elective during each term of enrollment.

**Music History majors** are required to complete two semesters of MUS 517, Collegium Musicum.

**Theory electives** may be selected from the following: MUS 263, 360, 555, 558, 560, 565, 566, 567.

**Music History/Literature electives** may be selected from the following list of courses: MUS 570, 571, 572, 573, 574, 577, 576, 579, 590, 581, 583, 585, 586, 587.

**ELECTING A MAJOR AREA OF STUDY**

Music majors will elect a major area of concentration in the fourth semester of study. The student will be accepted in the area of choice if he/she qualifies under the following guidelines:

**Music History, Composition, Theory, Therapy**

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 and Elementary Education/Music**

The student must have met the standards of the College of Education; 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 (400 level) courses in 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 in music therapy core courses, and have an overall GPA of 2.5. 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 intern teaching assignment or for a intern teaching assignment. The application for intern teaching assignment must be made in the Office of Professional Field Experiences prior to one full year before the assignment is to begin.

Music Education: Instrumental Emphasis

Grants certification to teach music at any grade level (K-12) 18 hrs.

Instrumental Methods I (344) 3
Methods Elective I 3
Select from the following: String Methods (345), Instrumental Methods II (347), Choral Methods (340), or General Music Methods (336).

Teaching and Learning in Music (348) 3

Conducting (331) 2

Class Instruments 6

Band—Complete these courses: Flute/Saxophone (145), Oboe/Bassoon (142); Trumpet/French Horn (143); Trombone/Tuba (144); Percussion (130); Clarinet (133)

Strings—Complete three courses from those listed above for band emphasis and complete three quarters of study on a minor of two string instruments other than own major string instrument, or complete MUS 128 and 129 plus four courses courses from those listed above for band emphasis.

Note: Those who test out of any of the above must fulfill their class instrument requirements by completing one or more of the following: String Class—Cello, Double Bass (126); String Class—Viola, Violin (129); Vocal Techniques for Music Educators (117); Music 130, 133, 142, 143, 144, 145.

Methods Elective II 2
Select from the following: Music for the Special Student (385), Technology in Music Education (386)

Keyboard Musicianship 220-221 2

Those who "comp out" of keyboard will complete this requirement by selecting courses from the class instrument or methods elective areas. Students who do not qualify for entry at the 220 level must complete Keyboard Fundamentals (120) and/or 121 as a deficiency.

College of Education Courses 21

Human Development 250 3
K-12 Content Literacy 305 3
School and Society 395 3
Seminar in Intern Teaching 410 2

Before the student will be recommended for intern teaching, she/he must have completed all courses in the major with a minimum grade-point average of 3.0. The application for intern teaching assignment must be made in the Office of Professional Field Experiences prior to one full year before the assignment is to begin.

Music Education: Choral/General Major

Grants certification to teach music at any grade level (K-12) 17 hrs.

General Music Methods 336 3
Choral Techniques 339 2
Methods Elective I 3
Select from the following: Choral Methods (340), Instrumental Methods I (344), String Methods (345)

Teaching and Learning in Music (348) 3

Conducting (330) 3

Imprint elective 1

Select one from the following: Fundamentals of Guitar (126); Instruments of the Band and Orchestra (278); Instruments of the Classroom (290).

Methods Elective II 2
Select from the following: Music for the Special Student (385), Technology in Music Education (386)

Keyboard Musicianship 220-221 2

Those who "comp out" of keyboard will complete this requirement by selecting courses from the class instrument or methods elective areas. Students who do not qualify for entry at the 220 level must complete Keyboard Fundamentals (120) and/or 121 as a deficiency.

Piano, Keyboard Musicianship 220, 221, 320, 321, and/or pass the exam administered by the Keyboard and Professional Education areas. Students who do not qualify for entry at the 220 level must complete Keyboard Fundamentals (120) and/or 121 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.

Voice Pass exam for Keyboard Musicianship 321, given by the Keyboard and Professional Education areas. The student should take Vocal Techniques for Music Educators 117 as part of four semesters of voice study. Four semesters of study are required, with one semester at 200 level voice.

College of Education Courses 21

Human Development 250 3
K-12 Content Literacy 305 3
School and Society 395 3
Seminar in Intern Teaching 410 2

Before the student will be recommended for intern teaching, she/he must have completed all courses in the major with a minimum grade-point average of 3.0. The application for intern teaching assignment must be made in the Office of Professional Field Experiences prior to one full year before the assignment is to begin.

Music Therapy Major

Core requirements (minus exceptions)

Courses in Music Therapy 281, 289, 290, 380, 381, 383, 472, 473, 479, 480, 481 22

* Keyboard Musicianship 220, 221, 320, 322 4

Fundamentals of Guitar 126 1

Voice Class 117 1

Instruments of the Band and Orchestra 278 1

Music Classroom 280 2

Professional Electives: select from 123, 128, 129, 130, 132, 142, 143, 144, 145, 306, 366, 555, 558, Applied Music 300, Performance Electives (selected from electives listed under Core Requirements) 5

Psychology 100 and 250 6

Special Education 530 3

* All music therapy majors who have passed a piano competency exam may be excused from any Keyboard Musicianship requirements except MUS 322.

The student must achieve a 3.0 grade point average in the therapy major in order to be recommended for MUS 481. In completing the General Education requirements the therapy major must complete BIO 112 and SPPA 200. The therapy major must complete at least one course in dance.

Music Performance: Instrumental Major

In order to be permitted to major in music performance the student must achieve a minimum grade-point average of 3.25 in MUS 200 and pass a performance qualifying examination (see "Electing a Major Area of Study")

Applied Music (in addition to Core requirements) 200 4

Applied Music (in addition to Core requirements) 300 10

Performance Electives (in addition to Core Requirements) 22

Chamber Music 218 2

Composition 262 2

Advanced History/Literature (in addition to Core Requirements) 2

Counterpoint 560 2

Music Electives 5

Senior Recital (required for Music Clearance) 0

Music Performance: Jazz Studies

Applied Music (in addition to Core Requirements) 300 10

Jazz Ensembles 119 or 212 2

Jazz Combo 218 2

Jazz Composition 262 2

Jazz Arranging 555, 556 4

Jazz Improvisation 556, 559 4

Jazz History and Literature 563 4

Keyboard Musicianship 220, 221, 320, 321 4

Professional Electives (choose from Piano 100, Composition 262/263, Conducting 330/331, Technology in Music and Music Education 386, Counterpoint 560/561, Seminar in Composition 564, Orchestration 567/568, Musical Acoustics 566, Electronic Media 594) 2

All Bachelor of Music—Jazz Studies candidates are required to present a senior recital.

Music Performance: Keyboard Major

In order to be permitted to major in music performance the student must achieve a minimum grade-point average of 3.25 in MUS 200 and pass a performance qualifying examination (see "Electing a Major Area of Study")

Applied Music (in addition to Core Requirements) 22

Applied Music (in addition to Core requirements) 300 4

Performance Electives (in addition to Core Requirements) 22

Chamber Music 218 2

Composition 262 2

Advanced History/Literature (in addition to Core Requirements) 2

Counterpoint 560 2

Keyboard Literature 580 2

MUSIC 231
Music Performance: Vocal Major

In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.25 in Applied MUS 200 and pass a performance qualifying examination (see "E lecting a Major Area of Study").

Applied Music (in addition to Core Requirements) 200 .......................... 4
Applied Music (in addition to Core Requirements) 300 .......................... 10
Performance Electives (in addition to Core Requirements; See Electives above) .......................... 2

In addition to the 8 hrs. of foreign languages above, the music performance-vocal major must include two semesters of one foreign language in completing General Education requirements. The language must be selected from the list of approved General Education Proficiency 4 courses.

Music Theory

Composition 262 ........................................ 2
Introduction to Musicology 570-571 .................. 6
Seminar in Music Theory 565 (2 semesters) ............. 4
Music History/Literature Elective (see Electives above) ........................................ 4
Counterpoint 560-561 .................................. 4
Orchestration 567-568 ................................ 4
Professional Electives (choose from Composition 262, Seminar in Music Theory 565, Composition 567/568, Medieval Music 585, Renaissance Music 586) .......................... 4

All Bachelor of Music—Music History candidates must demonstrate a level of proficiency equal to that of MUS 320 Advanced Keyboard Musicianship. This may be done through a placement exam or the successful completion of the course.

BACHELOR OF ARTS

124 total hours

1. General Education Electives .......................... 37
2. A major in music:
   Music Composition 101 (6 semesters) ............. 12
   Applied Music 200 (must pass sophomore hearing) ........................................ 8
   Basic Music 160-161, 260-261 .................. 12
   Aural Comprehension 162, 163, 259, 265 ............... 4
   Keyboard Fundamentals 120-121 ................ 8
   Music History/Literature 170, 270, 271 ............. 8
   Performance Electives (major ensemble) .............. 4
   Music Electives .................................. 12
3. A minor in another department in University (minimum) 15
   (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

To be awarded a Bachelor of Arts degree, the student, in completing requirements as outlined above, must have completed at least 70 hours of General Education, language and literature, science, and social science, including at least eight hours in one foreign language. If two or more years of high school preparation in a foreign language are presented for entrance, the requirements for foreign language may be waived.

BACHELOR OF FINE ARTS

Music History

GER 200-201 and FREN 400 or FREN 200-201 and GER 400 ........................................ 12
Introduction to Musicology 570-571 ................. 6
Music History Electives (see Electives above) .............. 10
Counterpoint 560-561 .................................. 4
Professional Electives (choose from Composition 262, Seminar in Music Theory 565, Composition 567/568, Medieval Music 585, Renaissance Music 586) .......................... 4

All Bachelor of Music—Music History candidates must demonstrate a level of proficiency equal to that of MUS 320 Advanced Keyboard Musicianship. This may be done through a placement exam or the successful completion of the course.

Music Appreciation: Live Music 150 .......................... 4
American Music 350 .................................. 4

*Personal auditions required (pending space availability).

Electives (10 to 14 hours); minors select from:
   Keyboard Musician 120, 121, 220, 221, 320, 321, 322, Voice Class 122, 123; Music Appreciation 150, 151, 350, 352, 450; Basic Music 161, 260, 261, electives; Aural Comprehension 163, 259, 265; Conducting 215, 330, 331; Composition 262, 263, 362; Music History and Literature 170, 270, 271, electives; Jazz Studies 264, 465, 556, 558, 559, 583; Applied Music 100; Performance Electives 107, 108, 109, 110, 111, 112, 113, 118, 119, 190, 210, 211, 212, 218, 317, 517; Other electives as approved by the music advisor.

THE SCHOOL OF MUSIC DOES NOT OFFER A MINOR LEADING TO ELEMENTARY OR-SECONDARY TEACHING CERTIFICATION.

Music Courses (MUS)

A list of approved General Education courses can be found earlier in this catalog.

Ensembles

MUS 106 Western String Chamber Orchestra 1 hr.
A select string ensemble that explores the finest string orchestra repertoire, from Baroque to the twentieth century. The group maintains an active on- and off-campus performance schedule and will require a strong commitment and desire for musical and technical excellence. Membership by audition only. Prerequisite: Audition.
MUS *107 Treble Choir 1 hr.
An ensemble of female vocalists which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.
MUS *108 Collegiate Singers 1 hr.
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.
MUS 109 Marching Band 1 hr.
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.
MUS 110 Symphonic Band 1 hr.
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.
MUS 111 University Orchestra
1 hr.
The University 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.

MUS *112 University Chorale
1 hr.
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 Treble Choir, but membership is open to other singers with the consent of the conductor.

MUS 113 Concert Band
1 hr.
The 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.

MUS 118 Gold Company II
1 hr.
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.

MUS 119 Gold Company
1 hr.
A select ensemble which specializes in Jazz, Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental combo 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.

MUS 210 Jazz Lab Band
1 hr.
The Jazz Lab Band affords the 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 and off campus. Membership is by audition.

MUS 211 Studio Accompanying
1 hr.
A laboratory experience in accompanying solo music. Students will be assigned three to four hours of varied studio accompanying per week. This course may be repeated for credit not to exceed a total of two semester hours.

MUS 212 Jazz Orchestra
1 hr.
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.

MUS 218 Instrumental Chamber Music
1 hr.
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.

MUS 317 Opera Workshop
1 hr.
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.

MUS 514 Instrumental Chamber Music
1 hr.
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.

MUS 516 Music Theatre Practicum
1 hr.
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. May be repeated for credit.

MUS 517 Collegium Musicum
1 hr.
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.

Applied Music
Private lessons (applied music) in organ, piano, voice, and all orchestral and band instruments are offered to all University students to the extent that instructor time and practice facilities are available. Priority in applied music study is given first to music majors, second to music minors, and third to students wishing to take the study on an elective basis. All students who take private lessons must register for applied music by reporting to the Music Office. Only students enrolled in other classes at Western are eligible to receive applied music instruction. An audition or interview is necessary in order to be approved for study.

Students are required to make arrangements for a lesson time with the private teacher in the first days of each term. Every student should have a lesson during the first week of the term. Final examinations are required of all students in applied music. Examinations will be heard and graded by a panel of members of the music faculty.

Students who register for one hour of credit per semester receive one 25-minute lesson per week; two credit hours, one 40-minute lesson; four credit hours, one 60-minute lesson. The more credit a student receives in applied music, the more is expected in practice time and materials.

A $7 fee is required for those enrolled in applied music at the 200, 300, 500, and 600 level in order to bring guest artists/performers to campus for additional musical instruction and enrichment.

MUS 100 Applied Music
1-2 hrs.
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.

MUS 199 Applied Music-Music Theatre (voice)
1-4 hrs.
This level of Applied Music indicates "lower division" standing for music theatre students who have been approved for this level. Prerequisite: MUS 116

MUS 200 Applied Music
1-4 hrs. ($7)
This level of applied music indicates "lower division" standing for music students who have been approved for this level through auditions or jury examinations.

MUS 201 Sophomore Hearing
1 hr.
An examination in applied music. All vocal majors must pass this to qualify for upper-level applied study.

MUS 300 Applied Music
1-4 hrs. ($7)
This level of applied music indicates "upper division" standing in applied music and is used to designate junior and seniors who have been approved for upper-level study. A maximum of four credits per semester may be earned at this level.

MUS 301 Senior Hearing
1 hr.
An examination in upper-level applied music. All Wind-Percussion majors must pass this examination to be cleared for graduation.

MUS 501 Master Class
2 hrs.
The study of literature, performance practices, and techniques for a specific major (organ, piano, voice). Individual performance assignments will be made appropriate to each student's level of accomplishment. Class meetings may vary from small groups of students with common performance levels to group rehearsals. Each semester may be earned at this level.

MUS 502 Master Class Voice
2 hrs.
The study of literature, performance practices, and techniques for a specific major (organ, piano, voice). Individual performance assignments will be made appropriate to each student's level of accomplishment. Class meetings may vary from small groups of students with common performance levels to group rehearsals. Each semester may be earned at this level.

MUS 599 Applied Music-Music Theatre (voice)
1-4 hrs.
This level of Applied Music indicates "lower division" standing for music theatre students who have been approved for this level. Prerequisite: MUS 116

Music Classes

MUS 101 Music Convocation
No Credit ($50 fee)
A series of special musical events required of music majors. Programs include lectures and recitals by faculty, selected students, and guest artists. ($50 fee) is assessed to all music majors in order to provide funds for travel and instruments used by students throughout the music program.

MUS 102 Piano Class I
2 hrs. ($5 fee)
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.
MUS 103 Piano Class II
2 hrs. ($5 fee)
A continuation of MUS 102 Piano Class I. Because course goals do not align with other keyboard courses in the School of Music, the student will not be prepared to progress into other piano courses offered for music majors/minors. **Prerequisite:** MUS 102 or instructor consent.

MUS 115 Voice Technique I
2 hrs.
The students who have been approved for this course by audition will explore and develop the voice as a healthy instrument for musical theatre performance. Vocal technique will be emphasized with some singing and coaching of easy lyrics and arias from musical comedy and opera. Application of healthy vocal technique to dialogue will be included. **Prerequisite:** Audition only.

MUS 116 Voice Technique II
2 hrs.
A continuation of MUS 115, Voice Technique I. **Prerequisite:** MUS 115.

MUS 117 Vocal Techniques for Music Educator I
1 hr.
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.

MUS 120 Keyboard Fundamentals
1 hr.
The course covers basic fundamentals of piano technique, sight-reading, transposition, improvisation, and simple harmonization of melodies using primary harmonies. The course must be taken concurrent with or following MUS 160. **Prerequisite:** MUS 159 or music reading ability.

MUS 121 Keyboard Fundamentals
1 hr.
A continuation of 120. 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 pentatonic scales and specified chord progressions. **Prerequisite:** MUS 120 or instructor consent.

MUS 122 Voice Class
1 hr.
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. **Prerequisite:** MUS 122.

MUS 123 Voice Class
1 hr.
A continuation of MUS 122. Repertoire will include early English songs and seventeenth and eighteenth century Italian songs as well as other standard selections, with a minimum of five songs to be memorized during the semester. **Prerequisite:** MUS 122.

MUS 124 Guitar Class I
2 hrs.
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.

MUS 125 Guitar Class II
2 hrs.
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 124 or instructor consent.

MUS 126 Fundamentals of Guitar
1 hr.
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 160.

MUS 128 String Class—Cello, Double Bass
1 hr.
A course in the fundamentals of pedagogy and performance for the cello and double bass presented through materials commonly used in classes in the public schools. **Prerequisite:** Music Education major.

MUS 129 String Class—Violin, Viola
1 hr.
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.

MUS 130 Percussion Class
1 hr.
Fundamentals of percussion instrument pedagogy and performance. The student is required to perform on the snare drum in an acceptable manner and 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.

MUS 133 Clarinet Class
1 hr.
Fundamentals of clarinet pedagogy and performance. For music majors only.

MUS 141 Music in Special Education
3 hrs. ($10 fee)
Designed for teachers of exceptional children. Study of methods and materials for singing, rhythm, and creative activities in classes for emotionally, mentally and physically handicapped. The student learns functional use of piano and informal instruments. Values of musical activities for all exceptionalities are emphasized. Substitutes for MUS 240 for Special Education majors.

MUS 142 Oboe/Bassoon Class
1 hr.
Fundamentals of oboe and bassoon pedagogy and performance. **Prerequisite:** Music majors only.

MUS 143 Trumpet/Horn Class
1 hr.
Fundamentals of trumpet and horn pedagogy and performance. **Prerequisite:** Music majors only.

MUS 144 Trombone/Tuba Class
1 hr.
Fundamentals of trombone and tuba pedagogy and performance. **Prerequisite:** Music majors only.

MUS 145 Flute/Saxophone Class
1 hr.
Fundamentals of flute and saxophone pedagogy and performance. **Prerequisite:** Music majors only.

MUS 146 Direct Encounter with the Arts ($50 fee)
4 hrs.
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, theater, 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 145, DANC 148, THEA 148. May be taken only once from College of Fine Arts Departments.

MUS 150 Music Appreciation: Live Music
4 hrs.
An introduction to music and music literature in conjunction with attendance at music concerts and recitals on campus. Classroom discussion and readings will guide the student through a variety of listening experiences that will stimulate perception and enjoyment of music on a visual as well as aural level. This approach will also insure a wide sampling of musical styles and media while encouraging the student to become more aware of his/her musical surroundings. A schedule of the musical events required for the semester will be issued during the first week of the semester. MUS 150 may not be elected by music majors to fulfill General Education requirements.

MUS 151 Music Appreciation: Jazz/Pop
4 hrs.
A study of the development of jazz and its importance as an American art form. The course includes a survey of the beginnings of jazz as a blending of the musical cultures of Africa and Europe. The development of jazz from the late nineteenth century up to the present will be traced. Current trends in jazz and rock, as well as electronic influences in contemporary pop music will be emphasized. Studies will include sociological and cultural trends and their influence on the evolution of the various styles and forms of jazz and pop. Implications for the future will be considered. MUS 151 may not be elected by music majors to fulfill General Education requirements.

MUS 152 Rock Music: Genesis and Development
3 hrs.
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 1965 to present. It may not be elected by music majors to fulfill General Education requirements.

MUS 158 Jazz/Pop Music Theory
2 hrs.
A course in the theory on which Jazz and Popular musics are based. Topics covered will include chord nomenclature, construction, and voicings together with basic keyboard instrumentation and ear training. The course is open to music majors and non-majors who can
read music. Prerequisite: MUS 160 with "C" or better, or permission of the instructor.

MUS 159 Fundamentals of Music
2 hrs.
A study of fundamentals, including notation, scales, intervals, basic chord construction, and the rhythmic/metric aspect of music. This course is open to all students as an introductory study in music theory.

MUS 160 Basic Music I
3 hrs.
A study of traditional harmony through partwriting and analysis including the inversions of diatonic chords and dominant seventh chords. Prerequisite: Acceptance as a music major or minor and the passing of a qualification examination in music fundamentals.

MUS 161 Basic Music II
3 hrs.
A continuation of MUS 160. Includes the study of secondary dominants, augmented sixth chords, borrowed chords, and modulation to foreign keys. Prerequisite: MUS 160 with the grade of "C" or better.

MUS 162 Aural Comprehension I
1 hr.
Aural comprehension strives to produce a listener/performer who can perceive sound in meaningful patterns — developing a hearing mind and thinking ear. This is achieved by the tandem development of two types of activities: listening and performance. Listening includes dictation, recognition or perception of musical events, and ensemble skills. Performance includes sight-reading, prepared performance, and improvisation. This course concentrates on diatonic melodies, simple and compound divisions of the beat, intervals, and triads. Prerequisite: Acceptance into MUS 160.

MUS 163 Aural Comprehension II
1 hr.
A continuation of MUS 162. This course develops dictation, error detection, sight-reading, performance, and improvisation skills applied to more advanced diatonic melodies, subversions of simple and compound beats, and diatonic chord progressions. Prerequisite: MUS 162 with a grade of "C" or better.

MUS 170 Music History I
2 hrs.
An introductory survey of the music from the Baroque period through the early nineteenth century. Prerequisite: MUS 160.

MUS 190 Accompanying
1 hr.
Supervised experience in accompanying vocal and instrumental music, both solo and ensemble.

MUS 215 Conducting
1 hr.
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 161, MUS 163, and MUS 170 all with a grade of "C" or better.

MUS 220 Keyboard Musicianship
1 hr.
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 121 with a grade of "C" or better, or instructor consent.

MUS 221 Keyboard Musicianship
1 hr.
A continuation of MUS 220. 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 220 with a grade of "C" or better, or instructor consent.

MUS 233 Italian/English Diction
1 hr.
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.

MUS 234 French/German Diction
1 hr.
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.

MUS 240 Music for the Classroom Teacher
3 hrs. (1/2 day)
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 encouraged in educational materials and studied in relation to their future uses in the classroom.

MUS 259 Aural Comprehension III
1 hr.
A continuation of MUS 258. This course develops dictation, error detection, sight-reading, performance, and improvisation skills applied to modal and chromatic melodies, irregular subdivisions of simple and compound beats, and chromatic chord progressions. Prerequisite: MUS 258 with a grade of "C" or better.

MUS 260 Basic Music III
3 hrs.
A continuation of MUS 161 designed to reinforce the melodic, harmonic and rhythmic concepts of traditional music by means of analysis and composition assignments. The main emphasis will be on the study of 18th and 19th-century techniques, styles, composers and forms. Prerequisite: MUS 161 with a grade of "C" or better.

MUS 261 Basic Music IV
3 hrs.
A continuation of MUS 260 designed to reinforce the melodic, harmonic and rhythmic concepts of traditional music by means of analysis and composition assignments. The main emphasis will be on the study of 20th century techniques, styles, composers, and forms. Prerequisite: MUS 260 with a grade of "C" or better.

MUS 262 Composition
2 hrs.
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. Prerequisite: MUS 161, or permission of instructor.

MUS 263 Composition
2 hrs.
A continuation of MUS 262. Prerequisite: MUS 262.

MUS 264 Jazz Composition
2 hrs.
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. Prerequisite: MUS 158 (or instructor consent); MUS 260 or concurrently.

MUS 265 Aural Comprehension IV
1 hr.
A continuation of MUS 259. This course develops dictation, error detection, sight-reading, performance, improvisation, and aural analysis skills applied to 20th century melodic, rhythmic, and harmonic idioms. Prerequisite: MUS 259 with a grade of "C" or better.

MUS 270 Music History II: Medieval/Renaissance
3 hrs.
An introductory survey of the music of late Antiquity through the early seventeenth century. Prerequisite: MUS 170.

MUS 271 Music History III: Nineteenth/Twentieth Century
3 hrs.
An introductory survey to the music of the early Romantic era through the twentieth century. Prerequisite: MUS 170.

MUS 279 Instruments of the Band and Orchestra
1 hr.
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 280 Instruments of the Music Classroom
1 hr.
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 281 Introduction to Music Therapy
1 hr.
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 100.
MUS 289 Music Therapy Activities for Children 2 hrs.
This class will examine labels and categorizations involved in children's 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 presentation format. Prerequisite: MUS 126 and MUS 281, or both may be taken concurrently.

MUS 290 Music Therapy Activities for Adults 2 hrs.
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 presentation format. Prerequisite: MUS 126 and MUS 290, or both may be taken concurrently.

MUS 320 Advanced Keyboard Musicianship 1 hr.
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 221 with a grade of "C" or better, or instructor consent.

MUS 321 Keyboard Skills for Singers 1 hr.
A course designed to concentrate on piano skills necessary for vocal and Elementary Education/Music (EEM) majors. The course will include accompanying techniques, harmonization using secondary dominants, transposition, open-score reading, sight-reading of melodies while improvising accompaniments, and improvisation using blues progression and scales. Prerequisite: MUS 320 with a grade of "C" or better or instructor consent.

MUS 322 Keyboard Harmonization Skills 1 hr.
A course devoted to developing harmonization and improvisation skills necessary for music therapy majors. The types of improvisation covered include use of pentatonic textures, modes, ostinati, use of lead-sheet symbols, playing by ear, functional keyboard harmony, and sight-reading. The course will also be open to piano majors wishing to increase their functional skills on the piano. Prerequisite: MUS 320 with a grade of "C" or better or instructor consent.

MUS 330 Choral Conducting and Literature 2 hrs.
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. Prerequisite: MUS 215 with a grade of "C" or better.

MUS 331 Instrumental Conducting and Literature 2 hrs.
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 215 with a grade of "C" or better.

MUS 336 General Music Methods 3 hrs.
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 will have an opportunity to participate in general music classes in area schools one week. Prerequisite: Acceptance into Music Education curriculum.

MUS 339 Choral Techniques 2 hrs.
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 330 or concurrent.

MUS 340 Choral Methods 3 hrs.
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. Prerequisite: MUS 339 or MUS 344 with a "C" or better.

MUS 344 Instrumental Methods I 3 hrs.
Students will apply various learning theories, behaviorist techniques, and cognitive learning skills to the instrumental music lesson. Students will participate in designing a beginning instrumental music program and a system for initiating goals for program development. Administrative skills needed to implement and maintain an instrumental program will be developed. Various philosophies of music education and curriculum development will be discussed. Field experiences in the schools will constitute some of the assignments in this course. Prerequisite: Acceptance into Music Education curriculum.

MUS 345 String Methods 2 hrs.
Extensive involvement with actual teaching of strings in public schools is a central part of this course. The course presents the theoretical, pedagogical, and practical aspects of string instruction in elementary, middle, and senior high schools. Administrative duties needed to maintain string programs will be examined. Job seeking and professional growth will also be discussed. Prerequisite: MUS 344 with a "C" or better.

MUS 347 Instrumental Methods II 3 hrs.
Advanced study of the materials and methods needed for successful teaching of instrumental music in the schools. Extensive involvement with actual teaching of bands in public schools is a central part of this course. Students will focus on the development of aesthetic behaviors and performance objectives for junior and senior high instrumental ensembles. Highly specialized ensemble techniques such as marching band, arranging, jazz ensemble, solo and ensemble contest and festival preparation, etc., will be discussed. Job seeking and professional growth will be discussed. Prerequisite: MUS 344 with a "C" or better.

MUS 348 Teaching and Learning in Music 3 hrs.
This course is designed to teach students to write outcome statements, to plan and prepare learning activities to reach those outcomes, and to evaluate and assess the process used and outcomes. Classroom management, questioning techniques, conceptual hierarchies, sequencing techniques, program goals, short and long term goals related to program goals, and lesson planning will be discussed. Application will be in the junior high/middle school music classroom.

MUS 350 American Music 4 hrs.
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.

MUS 352 Non-Western Music 4 hrs.
A study of the traditional music of China, Japan, Southeast Asia, India and the Arabic countries, as well as of the non-literate cultures around the world, such as American Indian, Australian Aboriginal, African, and Micronesian. One or several cultures will be selected for close study and a particular attempt will be made to understand customs and attitudes of a people through their music. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.

MUS 360 Style Analysis 2 hrs.
An analytic study of the larger forms from the instrumental and vocal repertoire. Prerequisite: MUS 250 with a grade of "C" or better.

MUS 362 Seminar in Music Composition 4 hrs.
Original work in composition accompanied by study and analysis of advanced twentieth century compositions and creative concepts. May be repeated for credit. Prerequisite: MUS 263.

MUS 380 Psychology of Music 2 hrs.
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 musicianship; the nature of musical memory; the understanding of the functional musical structure of life's music. Prerequisite: MUS 263.

MUS 381 Research in the Psychology of Music 2 hrs.
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 380 with a grade of "C" or better.

MUS 383 Observation and Measurement in Music Therapy 1 hr.
Overview of techniques of behavior measurement and accountability paired with actual clinical observation. **Prerequisite:** MUS 281 or concurrent. Reserve time for observation.

MUS 385 Music for the Special Student 2 hrs.
This course will provide an overview of disabilities, federal and state requirements, and problems of the gifted, talented, and culturally differentiated student. Methods for providing successful music experiences will be discussed. The course will provide opportunities to plan sample strategies (including individualized) for the special student found in the music classroom. **Prerequisite:** MUS 349 or concurrent.

MUS 386 Technology in Music and Music Education 3 hrs.
A class to prepare students to use computers and other related tools for professional tasks in music and music education. The class will acquaint students with ethical, legal and social issues related to computer usage, and develop a background in using computers 1) for word processing, creation of graphic images, database management and spreadsheet analysis; 2) to control synthesizers and other devices for digital sampling and synthesis, composing, arranging, and performing; 3) for managing and enriching musical learning through Computer Based Instruction in music; and 4) for information exchange and communication across networks. The course fulfills the University’s computer literacy requirement. **Prerequisite:** Music Education major or Music major.

MUS 387 Performance Development and Technique 3 hrs.
A workshop format utilizing exercises, scene rehearsals and performances in order to develop students' performing ability in musical theatre. Content includes sound and motion exercises, routing of a song or aria, and projection and auditioning techniques. **Prerequisite:** Consent of advisor and THEA 290 (on either prep or running crews).

MUS 450 Music Appreciation: The Symphony 3 hrs.
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 450 may not be elected by music majors to fulfill General Education requirements. Not open to graduate music majors.

MUS 472 Clinical Practicum in Music Therapy I 2 hrs.
A lecture/lab 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. **Prerequisites:** MUS 281, MUS 289, MUS 290, or MUS 283. Reserve time for clinical participation.

MUS 473 Clinical Practicum in Music Therapy II 2 hrs.
A continuation of MUS 472. **Prerequisite:** MUS 472. Reserve time for clinical participation.

MUS 479 Influence of Music on Behavior 3 hrs.
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 472. Reserve time for clinical participation. Liability insurance required.

MUS 480 Music Therapy Methods and Materials 3 hrs.
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 472. Reserve time for clinical participation. Liability insurance required.

MUS 481 Music Therapy Internship 2 hrs.
A six-month internship at an approved facility. **Prerequisite:** Consent of department.

MUS 490 Undergraduate Workshop in Special Problems 1–3 hrs.
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.

Open to Upperclass and Graduate Students

MUS 530 Advanced Choral Conducting 2 hrs.
Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance. **Prerequisite:** Audition required.

MUS 531 Advanced Instrumental Conducting 2 hrs.
Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. **Prerequisite:** Audition required.

MUS 542 Studies in Music Education: (topic) 2 hrs.
Topic to be announced. Selection will be made from the following or similar topics: Music in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated to an accumulation of not more than 4 credits.

MUS 546 Computer Assisted Instruction in Music 3 hrs.
The primary goal of the course is to teach students who already program some of the specific techniques used in developing original software for CAI in music. The main activity in the course will be programming, and one of the products of the course should be, for example, a program of sufficient sophistication as to at least potentially qualify it for publication. **Prerequisite:** CS 105 or CS 502 or consent of instructor.

MUS 555 Jazz Arranging 2 hrs.
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 voicing, scoring practices, calligraphy and contemporary trends within the medium. **Prerequisite:** MUS 158 (or instructor consent) and MUS 161, "C" or better required in each course.

MUS 556 Advanced Jazz Arranging 2 hrs.
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. **Prerequisite:** MUS 555 and MUS 264 or concurrently.

MUS 558 Jazz Improvisation I 2 hrs.
A study and directed application of the fundamentals of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions and complex scales and new applications. All students will be required to develop aural and performance skills relative to those theory skills. **Prerequisite:** MUS 158 (or instructor consent) and 161, "C" or better is needed in each class.

MUS 559 Jazz Improvisation II 2 hrs.
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 new applications. All students will be required to develop aural and performance skills relative to those theory skills. **Prerequisite:** MUS 558 and MUS 218 Jazz Ensemble or concurrently.

MUS 560 Counterpoint 2 hrs.
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. **Prerequisite:** MUS 161 with grade of "C" or better.

MUS 561 Counterpoint 2 hrs.
A continuation of MUS 560. **Prerequisite:** MUS 560.

MUS 564 Seminar in Electronic Music Composition 2 hrs. ($30 fee)
Original music composition with digital and analogue synthesizers and computers. Creation of sound scores for concert performances, film, video, dance, theatre, or art installations. Includes the investigation of various types of sound synthesis, as well as the operation of studio sound mixers and multi-track recorders. In addition to the weekly seminar, the student will be assigned a number of hours weekly for independent work in the studio for the realization of the project, which will receive periodic guidance and criticism from the instructor. May be repeated for credit. Lab fee required ($30). **Prerequisite:** MUS 263 or permission of the instructor.

MUS 565 Seminar in Music Theory 2 hrs.
Research projects in music theory. Research methods and analytic discipline are stressed. Study will be focused in an area of the student’s need or interest. **Prerequisite:** MUS 261.

MUS 566 Musical Acoustics 3 hrs.
A course designed for the music student. Discussion as well as laboratory demonstration of such concepts as: simple vibrating systems, waves and wave propagation; complex vibrations, resonance; intensity and loudness levels; tone quality; frequency and pitch;
A study of the characteristics of instruments, and of arranging for the various individual instruments and instrumental ensembles, vocal and instrumental. Topics to be studied include leading historians, past and present; modern methods of research, with special emphasis on primary sources; and bibliography of the field. Prerequisite: MUS 570.

MUS 572 Baroque Music (1600–1750) 3 hrs.
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. Prerequisite: MUS 270 and MUS 271.

MUS 573 Classical Music (1750–1800) 2 hrs.
Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classical opera. Prerequisites: MUS 270 and MUS 271.

MUS 574 Romantic Music (1800–1910) 3 hrs.
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 Romanticism. Prerequisite: MUS 270 and MUS 271.

MUS 577 Symphonic Literature 2 hrs.
A survey of music written for symphony orchestra during the Classic and Romantic periods.

MUS 578 Chamber Music Literature 2 hrs.
A survey of chamber music literature of the Classic and Romantic periods.

MUS 579 Operatic Literature 2 hrs.
A survey of opera from 1600 to the present.

MUS 580 Solo Literature: (Topics) 2 hrs.
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. Prerequisite: MUS 270 and MUS 271.

MUS 581 Choral Music Literature 2 hrs.
A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

MUS 582 Wind Music Literature 2 hrs.
A survey of windband ensembles and literature from the Renaissance period through the twentieth century. Prerequisite: MUS 270 and MUS 271.

MUS 583 Jazz History and Literature 3 hrs.
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 gain an understanding of a particular style. Prerequisite: MUS 558 or department's consent.

MUS 585 Medieval Music 2 hrs.
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. Performance practice options will be explored, with emphasis onemphasis on primary manuscript sources and scholarly performing editions. Prerequisites: MUS 270 and MUS 271.

MUS 586 Renaissance Music 2 hrs.
A survey of music in Western Europe from the early fifteenth century to the early seventeenth century. Development of the major musical genres 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. Prerequisites: MUS 270 and MUS 271.

MUS 587 Contemporary Music 2 hrs.
A survey of trends in European music and music of the Americans from about 1910 to the present day.

MUS 588 Music Cultures of the World 3 hrs.
This topics course is designed to provide students with an intensive study of the musical traditions of a single cultural-geographic area. Attention will focus on the characteristics of instruments and instrumental ensembles, vocal traditions, sound structures, and oral traditions as well as the historical, political, and socio-demographic factors that shape the area's performing traditions. May be repeated for credit with different topics. Prerequisite: Consent of instructor for non-music majors.

MUS 589 Topics in Ethnomusicology 3 hrs.
This topics course examines various methods, problems, and issues in ethnomusicological writing and research. Topics will vary and be announced each semester. The approach taken in the course reflects current practice in the field of ethnomusicology, drawing upon theoretical writings in a variety of disciplines including ethnomusicology, musicology, anthropology, theater, cultural studies, and women's studies. May be repeated for credit with different topics. Prerequisite: Consent of instructor for non-music majors.

MUS 590 Studies in Pedagogy 1–4 hrs.
Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit. Prerequisite: MUS 300 level applied voice or permission of instructor.

MUS 594 Electronic Media 2 hrs. ($30)
The purpose of this course is to expose the student to the equipment used in various recording situations and its operation, as well as discussing the artistic use of this equipment. Although techniques course, areas which affect the creative aspects of the final recording will be discussed (such as microphone placement, tasteful vs. inappropriate editing, etc.). In addition to the recording aspects, other electronic instruments used in performances will be surveyed, including synthesizers of various types (both keyboard and non-keyboard) and traditional electronic instruments (guitars, electronic organs, electronic pianos, and various sound modification devices).

MUS 595 Workshops in Music Education 1–4 hrs.
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. Prerequisite: advisor's consent.

MUS 596 Multi-track Recording 2 hrs.
A course in the theory and techniques of multi-track recording and mixing. Students begin with an in-depth study of the mechanics of a multi-track recorder and the signal flow of a recording/mixing console. Microphone techniques as well as various approaches to room set-up are presented through reading assignments and studio demonstrations. Attention is given both to traditional techniques and the need for engineers to try new approaches to familiar circumstances. Students also study the most commonly used signal processors and how they might be used during recording or mixing for best results. Various listening assignments introduce students to the subtleties of mixing. A final project is required wherein each student must organize and execute a full 24-track production, from microphone selection through the final mix. Prerequisite: MUS 594 or instructor consent.

MUS 597 Projects in Music 1–4 hrs.
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. Prerequisite: Application approved by music advisor.

MUS 599 Projects in Recording Technology 1–4 hrs.
An independent study allowing the unusually qualified student the opportunity to explore a topic or problem in sound system components. Prerequisite: MUS 596 and approval by instructor.
The Theatre Department 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.

Opportunities for participation in the production program begin with the freshman year. The department presents four faculty-directed productions in the mainstage season, and four productions in the Studio Series, all in the Irving S. Gilmore Theatre Complex. Additional student-directed plays are presented in the Footlights I and II Series and in the directing classes. All regularly enrolled students in good academic standing (2.0 g.p.a. or above) are eligible to participate in these productions.

The Department of Theatre is fully accredited by the National Association of Schools of Theatre. 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 Admission and Orientation for undergraduate students. Application forms may be obtained by writing to the Office of Admissions and Orientation, 2240 Seibert Administration Building. 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/interview program. The student may proceed by making application to the University, at which time notification will be sent about the audition/interview program in the Department, or a request may be made for an opportunity to audition prior to making application to the University by obtaining an Admission/Application from the Department of Theatre. The student is 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 on 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, and upon letters of recommendation. Further information regarding admission to a theatre or music-theatre curricula may be obtained by contacting the Department of Theatre. The Department welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Advising

Advisor: Dr. Joan Herrington
1106 Gilmore Theatre Complex: (616) 387-3220

The theatre academic advisor will assist any student enrolled in the University with course selections in theatre. Appointments are made through the departmental secretary (387-3220). Theatre majors and minors must confer with the theatre advisor who will help them plan their program. Music Theatre Performance and Theatre Education Majors should meet with their respective advisors.

Transfer Credit

It is department policy to accept no more than 18 hours of transferred credit toward a non-teaching major, 12 hours toward a teaching major, and 9 hours toward a minor. Students transferring into the Performance Program will be assessed at the time of their audition and will be placed into the program at the level of study deemed appropriate by the Performance faculty.

PROGRAMS

The Department of Theatre offers three majors—Theatre, Theatre Education, and Music Theatre Performance—and one minor—Theatre.

BACCALAUREATE WRITING REQUIREMENT

Theatre students should take THEA 370 Theatre History I to complete the Baccalaureate Writing Requirement. Theatre Education majors may take THEA 370 or the designated course in their second major to complete the Baccalaureate Writing Requirement. Students who have chosen the Music Theatre Performance BFA degree program will satisfy the Baccalaureate Writing Requirement by successfully completing THEA 372 Music Theatre History Script Analysis II.

THEATRE MAJOR

Bachelor of Arts

57 Credit Hours

This program is designed for the students who want to prepare for graduate study in theatre or advanced, specialized professional training. It offers a program containing a broad background in theatre with a concentration in Performance or a concentration in Design and Technical Production.

REQUIDED COURSES

| THEA 120 | Stagecraft I | 3 |
| THEA 141 | Improvisation | 3 |
| THEA 142 | Acting I | 3 |
| THEA 170 | Script Analysis | 3 |
| THEA 232 | Scenic Design | 3 |
| THEA 290 | Theatre Practicum | 6 |
| THEA 331 | Costume Design | 3 |
| THEA 332 | Lighting and Sound Design | 3 |
| THEA 351 | Directing I | 3 |
| THEA 370 | Theatre History I | 3 |
| THEA 371 | Theatre History II | 3 |

THEA 470 Development of Theatre Art 3

Required Courses for PERFORMANCE Concentration (THEA)

| THEA 241 | Voice and Movement | 3 |
| THEA 245 | Acting | 3 |
| THEA 342 | Acting III | 3 |
| THEA 344 | Period Styles of Acting | 3 |

and two (2) of the following three (3) courses:

| THEA 352 | Directing II | 3 |
| THEA 441 | Acting Studio | 3 |
| THEA 443 | Acting for the Camera | 3 |

THEA 313 | Drafting and Color Media | 3 |
| THEA 132 | Period Styles of Design | 3 |
| THEA 220 | Stagecraft II | 3 |
| THEA 431 | Advanced Design | 3 |
| THEA 432 | Computer-Aided Theatre Design | 3 |

Required Courses for DESIGN AND TECHNICAL PRODUCTION Concentration (THD)

| THEA 131 | Drafting and Color Media | 3 |
| THEA 132 | Period Styles of Design | 3 |
| THEA 220 | Stagecraft II | 3 |
| THEA 431 | Advanced Design | 3 |
| THEA 432 | Computer-Aided Theatre Design | 3 |

Electives (Art, Engineering, Consumer Resources, English, Theatre) 3

A grade of "C" or better is required in all courses.

SUGGESTED COURSE OF STUDY FOR PERFORMANCE MAJORS (THR)

First Year—Fall

| THEA 120 | 141 | 170, 290 |
| THEA 142, 290 | |

(These courses may be taken either semester.)

Second Year—Fall

| THEA 245, 290 |
| THEA 241, ENGL 252 (General Education, prerequisite to THEA 370), THEA 290 |

(All Performance students following this course of study are reviewed by the Performance faculty. Satisfactory review is necessary for the student to elect upper-level coursework.)

Second Year—Winter

| THEA 290, 342, 351, 370 |
| THEA 290, 344, 371 |

(These courses may be taken either semester.)

Fourth Year—Fall/Winter

| THEA 470, choose two from THEA 352, 441, 443 |

SUGGESTED COURSE OF STUDY FOR DESIGN AND TECHNICAL PRODUCTION MAJORS (THD)

First Year—Fall

| THEA 120, 131 or 132 (as offered), 141, 170, 290 |
| THEA 142, 290 |

(These courses may be taken fall or winter semester.)

Second Year—Fall

| 131 or 132 (as offered), 290 |
| THEA 220 (as offered), 232 or 331 or 332, 290, ENGL 252 (General Education, prerequisite to THEA 370) |

(All students following this course of study are reviewed by the Design and Technical Production faculty and staff at the end of the second year. Satisfactory review is necessary for the student to elect upper-level courses.)

Third Year—Fall

| THEA 232 or 331 or 332, 290, 370, 431 or 432 (as offered) |
| THEA 290 (as offered), 232 or 331 or 332, 290, 351, 371 |

(These courses may be taken third or fourth year.)

Fourth Year—Fall

| THEA 351 or 432 (as offered), 470, elective (see list below) |

("These courses may be taken third or fourth year.)

Fourth Year—Winter

| THEA 400 |

ELECTIVES: Design and Technical Production students must elect three credit hours from the
THEATRE MINOR
24 credit hours

REQUIRED COURSES
THEA 120 Stagecraft I 3
THEA 141 Improvisation 3
THEA 142 Acting I 3
THEA 170 Script Analysis 3
THEA 290 Theatre Practicum 3
THEA 370 Theatre History I 3
THEA 371 Theatre History II 3
and one (1) of the following:
THEA 232 Scenic Design 3
THEA 331 Costume Design 3
THEA 332 Lighting and Sound Design 3
A grade of "C" or better is required in all courses.

THEATRE EDUCATION MAJOR
This is a non-certifiable major. Students seeking teacher certification must meet the requirements of the College of Education, University, and State Board of Education. All students seeking certification are required to have a certifiable major and minor.

Bachelor of Arts
38 credit hours

REQUIRED COURSES
THEA 120 Stagecraft I 3
THEA 141 Improvisation 3
THEA 142 Acting I 3
THEA 170 Script Analysis 3
THEA 232 Scenic Design 3
THEA 244 Theatre in Education 3
THEA 290 Theatre Practicum 3
THEA 331 Costume Design 3
THEA 332 Lighting and Sound Design 3
THEA 351 Directing I 3
THEA 352 Directing II 3
THEA 471 Methods of Teaching Theatre 3
THEA 564 Drama in Education 3
A grade of "C" or better is required in all courses.

Suggested Courses for Theatre Education Majors (THN)
First Year—Fall
THEA 120, 141, 170, 290
First Year—Winter
THEA 142, 290
(*These courses may be taken either semester)
Second Year—Fall
THEA 143, 232, 290
Second Year—Winter
THEA 244 (as offered), 331
All students following this course of study are reviewed by the Director of Theatre Education at the end of the second year. Satisfactory review is necessary for the student to elect upper-level Theatre courses.

Third Year—Fall
THEA 351
Third Year—Winter
THEA 244 (as offered), 332, 352, 471
Fourth Year—Fall/Winter
THEA 564
Fifth Year—Fall
Student Teaching

MUSIC THEATRE PERFORMANCE
Bachelor of Fine Arts
83 credit hours

ADMISSION
Admission to the program is by prepared audition before the Dance, Music, and Theatre faculty. Additional information is available by contacting the curriculum advisor. Continuance in the program is based upon periodic reviews. Moreover, at the end of the sophomore year, each student must pass a performance jury in order to continue in the program; unanimous approval by each performance area is required. Music Theatre majors must audition for all staff-directed musical comedy, opera, and operettes each year. A student must audition and enroll in Level I technique classes in ballet and jazz, or be placed in Level I classes upon completion of remedial work. The student must also be able to enroll in MUS 160 by passing a Music Qualification Exam. The student may be accepted for up to one year probationary period in the program to reach this proficiency level in dance and/or music.

REQUwED COURSES IN DANCE . . . . . 21 hrs.
DANC 104 Beginning Tap 2
DANC 110 Ballet Technique I 2
DANC 120 Jazz Technique I 2
DANC 125 Special Studies in Dance Technique, Music Theatre: Dance Styles 1
DANC 495 Music Theatre Workshop (Prereq: 395); MTP majors only 2
DANC 496 Music Theatre Performance (Prereq: MTP majors only) 6
Technical classes at Level I or above 6

REQUwED COURSES IN MUSIC . . . . . . 23 hrs.
MUS 115 Voice Technique I 2
MUS 116 Voice Technique II 2
MUS 120 Keyboard Fundamentals 1
MUS 121 Keyboard Fundamentals (Prereq: MUS 120) 1
MUS 160 Basic Music (Prereq: MUS 159) 3
MUS 162 Aural Comprehension (Prereq: MUS 159) 3
MUS 163 Aural Comprehension (Prereq: 162, "C" or better) 1
MUS 199 Applied Voice (4 semesters, 2 hrs. ea.) (Prereq: MUS 120, MUS 160) 8
MUS 220 Keyboard Musicianship (Prereq: MUS 121, "C" or better) 1
MUS 395 Performance Development and Technique 3

REQUwED COURSES IN THEATRE . . . . . 32 hrs.
THEA 141 Improvisation 3
THEA 142 Acting I 3
THEA 372 Music Theatre History Script Analysis I 3
THEA 373 Music Theatre History Script Analysis II 3
THEA 400 Special Topics in Theatre 1

ELECTIVES . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 7 hrs.
Seven hours from courses in the Department of Dance, the School of Music, and the Department of Theatre, with the consent of the Director of Music Theatre Performance.

Baccalaureate Writing Requirement
Students who have chosen the Music Theatre Performance BFA degree program will satisfy the Baccalaureate Writing Requirement by successfully completing THEA 372 Music Theatre History Script Analysis II.

ADDITIONAL REQUIREMENTS
A student must complete all the General Education Distribution Program requirements as outlined in this catalog. Within these specifications, it is recommended that the student take two semesters of the foreign languages: FREN 100, 101 and GER 100, 101. Note: Evaluation of THEA 496 credits: Two of the three evaluators must be either faculty/staff of Western Michigan University or full-time professional staff of the presenting theatre.

Theatre Courses (THEA)
A list of approved General Education courses can be found earlier in this catalog.

THEA 100 Introduction to Theatre 3 hrs.
Considered theatre as a part of the individual's cultural heritage and liberal arts background. Students attend theatre performances and have opportunities to participate in University Theatre. (Lab fee required for play attendance.)

THEA 105 Introduction to African-American Theatre 3 hrs.
A survey/lecture course from an 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.

THEA 120 Stagecraft I 3 hrs.
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. (Lab fee required for materials.)

THEA 131 Drafting and Color Media 3 hrs.
A methods course for beginning students in lighting, costume, scenic design, and technical production providing instruction and practice in the special language of the theatre and in the use of various color media for design renderings and scale models.
THEA 132 Period Styles of Design 3 hrs. 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.

THEA 141 Improvisation 3 hrs. Techniques of improvisational performing. This course includes spontaneous and planned exercises to evoke and inspire the actor’s capacity for inventive imagination and sense of ensemble.

THEA 142 Acting I 3 hrs. Study and practice of the basic principles of acting. Prerequisite: THEA 141.

THEA 148 Direct Encounter with the Arts 4 hrs. 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 respond to papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross listed with DANCE 148, MUS 148, ART 148. May be taken only once from College of Fine Arts Departments. (Lab fee required)

THEA 170 Script Analysis 3 hrs. The study of selected plays from the standpoint of the theatre artist. Emphasis on thorough examination of the play script preparatory to production.

THEA 190 Summer Theatre 3 hrs. Theatre majors may receive credit for participating in a full season of summer theatre in the production or production areas. Students must submit a summer theatre application to the Department Chair. Repeatablable for credit up to six hours. Prerequisite: Application approved by Department Chair.

THEA 220 Stagecraft II 3 hrs. 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. Prerequisite: THEA 120. (Lab fee required for materials.)

THEA 230 Stage Makeup 3 hrs. Study and practice of the basic principles and techniques of stage makeup.

THEA 232 Scenic Design 3 hrs. 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. Prerequisites: THEA 120 and 170.

THEA 241 Voice and Movement 3 hrs. Development and training of the actor’s vocal and physical instrument for theatrical performance. Prerequisite: THEA 245.

THEA 244 Theatre in Education 3 hrs. This class gives students the opportunity to explore the field of Theatre in Education from a performance/production perspective. During the first half of the class, students will work through structured improvisation to create an interactive performance program designed as an instructional strategy to supplement a specified public school curriculum content area. The performance program will then tour to public school audiences. Prerequisites: THEA 141 and 142.

THEA 245 Acting II 3 hrs. This course integrates theories and practices of improvisation, Acting I, and Voice and Movement in the process of role study and development. Prerequisites: THEA 141 and 142.

THEA 260 Arts Management 3 hrs. A survey of procedures for Arts Management, including ticket office accounting, promotion, marketing, funding and audience development. Prerequisite: Consent of instructor.

THEA 272 Musical Theatre History and Script Analysis I 3 hrs. An historical overview of the development of musical theatre from its earliest beginnings to 1943. Representative scripts will be analyzed within their historical context. Prerequisite: THEA 120.

THEA 290 Theatre Practicum 1–8 hrs. 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). (Lab fee required.)

THEA 331 Costume Design 3 hrs. A course in the design of theatrical costumes and accessories expressed through color rendering and including an overview of the history of the costume. Prerequisites: THEA 120 and 170.

THEA 332 Lighting and Sound Design 3 hrs. 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. Prerequisites: THEA 120 and 170.

THEA 342 Acting III 3 hrs. The application of role study and analysis to character development in the preparation and performance of scenes from full-length plays. Prerequisite: THEA 241 and 245.

THEA 344 Period Styles of Acting 3 hrs. Study and practice of acting in plays from selected major periods of theatre activity prior to the twentieth century. Topics may include Greek, commedia dell’arte, Shakespeare, Moliere, Restoration, and examples from eighteenth and nineteenth century drama. Prerequisite: THEA 342.

THEA 351 Directing I 3 hrs. Functions of the play director as teacher, interpreter, coordinator, and collaborator. Focus is upon principles and problems of directing on the prosenium stage. Prerequisites: THEA 141, THEA 142, THEA 170, and junior standing.

THEA 352 Directing II 3 hrs. A continuation of THEA 351. Focus is upon the principles and problems of directing for the non-prosenium stage and expansion of directional approaches to production. Students prepare and direct scenes and one short play using non-prosenium staging. Prerequisite: THEA 351.

THEA 370 Theatre History I 3 hrs. 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. Prerequisite: ENGL 252.

THEA 371 Theatre History II 3 hrs. Survey of theatre history from 1642 to the twentieth century. Playwrights, acting styles, theatre production, theatre architecture and audience taste are studied. Prerequisite: THEA 370.

THEA 372 Musical Theatre History and Script Analysis II 3 hrs. 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. Prerequisite: THEA 272.

THEA 390 Professional Theatre Internship 2–6 hrs. 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. Prerequisite: Consent of the Internship Coordinator.

THEA 400 Special Topics in Theatre 1–3 hrs. An investigation of topics of special interest related to theatre. Repeatablable 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.

THEA 431 Advanced Design 3 hrs. A course for advanced students in the design of scenery, costumes, properties, and/or lighting; the professional drafting of those designs for technical production; and the preparation of the designer’s resume and portfolio. Prerequisites: THEA 131, 132, and one of the following: THEA 232 or 331 or 332.

THEA 432 Computer-Aided Theatre Design 3 hrs. An introduction to the application of computer hardware and software to design for the theatre, including instruction in the use of computer programs in CAD, color imaging, and 3-D modeling. Lab fee required for printing materials. Prerequisites: THEA 131, 132, and one of the following: THEA 232 or 331 or 332.

THEA 441 Acting Studio 3 hrs. An advanced course in the art of acting with emphasis on the individual needs of the student actor. May be repeated for a maximum of 6 credit hours, only 3 of which are applicable toward the major. Prerequisites: THEA 342 and 344.

THEA 443 Acting for the Camera 3 hrs. The study and practice of principles of acting as applied to film and television. Prerequisites: THEA 342 and 344.
THEA 470 Development of Theater Art
3 hrs.
A survey of the development of twentieth century theatre art and its relationship to concurrent developments in other arts and world politics. Prerequisite: THEA 371.

THEA 471 Methods of Teaching Theatre
3 hrs.
Approaches to teaching theatre in secondary schools. Emphasis on curriculum planning, syllabi, lesson plans, texts, relationship between theatre classes and co-curricular productions. Prerequisites: THEA 244, 361, and 564 and ED 301 and 302.

THEA 490 Individualized Study in Theatre
Variable
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. Not designed to replace other theatre courses. A maximum of six semester hours may be accumulated, though the student may register for a maximum of three credits each time. Projects may involve study and research in an area of special interest, special performances or other creative activities. Prerequisite: Consent of performance or tech/design area, departmental advisor, and departmental chair.

THEA 564 Drama in Education
3 hrs.
Study of the principles, materials and techniques of using informal drama as a classroom activity in elementary grades. Emphasizes theoretical and practical application through the planning and teaching of drama experiences. Lab fee required. Prerequisites: EED admission; ART, DANC, MUS, or THEA 148; ART 200; ED 230; DANC 290; MUS 240; consent of instructor.
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 Occupational Therapy or Nursing; Bachelor of Arts or Science in Speech Pathology and Audiology; Bachelor of Social Work; Bachelor of Arts in Travel Instruction; Master of Science in Medicine in Physician Assistant; 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 Blind Rehabilitation 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 Blind Rehabilitation and the Department of Educational Studies).

The School of Community Health Services in the College of Health and Human Services also provides programs in Holistic Health Care at the graduate level, Alcohol and Drug Abuse at the undergraduate and graduate levels, and Gerontology at the undergraduate and graduate levels. The Department of Occupational Therapy offers a program in hippotherapy at the graduate level, and the Department of Physician Assistant offers a program in clinical trials administration at the graduate level, with courses available for election by undergraduate students.

### Mission

The College of Health and Human Services holds as its mission the education of health and human services professionals of the highest quality. The college strives to prepare undergraduate and graduate professionals recruited from the wide spectrum of our society who will provide leadership in effective professional practice, education, and research through their:

- **knowledge, skills, and attitudes**
- **ethical and cultural sensitivity**
- **dedication to service to their clients and the community**
- **spirit of interdisciplinary collaboration**
- **commitment to evidence-based practice and lifelong learning**
- **respect for the whole person**

The vision of the College is to achieve local, national, and international recognition for:

- **excellence of our graduates**, evidenced through their abilities to respond effectively to clients’ and patients’ needs and to achieve measurable life-significant outcomes
- **foresight and relevance of our professional curricula in the environment of a student-centered research university**, including responsiveness to major societal changes and technological advances
- **inclusiveness, a respect for diversity, and sensitivity to individual differences**
- **contributions to the knowledge base through research and publications by our faculty and students**
- **establishment of mutually enriching partnerships with community service providers**
- **contributions to interdisciplinary, collaborative practices in teaching and learning, research, and community service**

### 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 departments or program directors 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.
The Department of Blind Rehabilitation offers graduate-level, professional education programs in orientation and mobility, rehabilitation teaching, rehabilitation counseling (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. In addition, the department provides direct services to students on campus who have severe visual impairments and, in cooperation with the Michigan Commission for the Blind, provides training to visually impaired individuals within the community.

TRAVEL INSTRUCTION MAJOR

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. Students who choose this major and interdisciplinary minor will satisfy the baccalaureate-level writing requirement by completing satisfactorily ENGL 305 Practical Writing. 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—30 credit hours

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<tr>
<td>BLRH 300</td>
<td>Application of Travel Instruction for Persons with Cognitive Impairments</td>
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<td>BLRH 302</td>
<td>Ambulatory, Communication, and Information Aids for Travel</td>
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<td>BLRH 394</td>
<td>Foundations of Travel Instruction</td>
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<td>BLRH 395</td>
<td>Methods of Independent Travel for People with Disabilities</td>
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<td>BLRH 396</td>
<td>Practicum in Independent Travel</td>
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<td>Small &quot;N&quot; Research Design</td>
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<td>BLRH 412</td>
<td>Internship in Independent Travel Instruction</td>
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<td>BLRH 577</td>
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<td>BLRH 586</td>
<td>Job Analysis and Job Counseling</td>
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<td>Psychosocial Aspects of Disability</td>
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<td>Medical and Functional Aspects of Disability</td>
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Interdisciplinary Minor—19 credit hours

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<td>ENGL 305</td>
<td>Practical Writing</td>
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<tr>
<td>OT 225</td>
<td>Growth, Development, and Aging</td>
<td>3</td>
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<tr>
<td>SPED 530</td>
<td>Introduction to Special Education</td>
<td>3</td>
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<tr>
<td>SPED 540</td>
<td>Introduction to Mental Retardation</td>
<td>3</td>
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<tr>
<td>SPP 200</td>
<td>Communication Disorders and Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Blind Rehabilitation Courses (BLRH)

A list of approved General Education courses can be found earlier in this catalog.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BLRH 300</td>
<td>Application of Travel Instruction for Persons with Cognitive Impairments</td>
<td>2</td>
</tr>
<tr>
<td>BLRH 301</td>
<td>Visual Impairment and Blindness: An Overview</td>
<td>2</td>
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<tr>
<td>BLRH 302</td>
<td>Ambulatory, Communication, and Information Aids for Travel</td>
<td>2</td>
</tr>
<tr>
<td>BLRH 304</td>
<td>Job Analysis and Job Counseling</td>
<td>2</td>
</tr>
<tr>
<td>BLRH 305</td>
<td>Introduction to Adults with Disabilities</td>
<td>2</td>
</tr>
<tr>
<td>BLRH 501</td>
<td>Foundations of Rehabilitation Counseling</td>
<td>3</td>
</tr>
<tr>
<td>BLRH 577</td>
<td>Services for People with Disabilities</td>
<td>2</td>
</tr>
<tr>
<td>BLRH 586</td>
<td>Job Analysis and Job Counseling</td>
<td>2</td>
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<tr>
<td>BLRH 588</td>
<td>Psychosocial Aspects of Disability</td>
<td>2</td>
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<tr>
<td>BLRH 589</td>
<td>Medical and Functional Aspects of Disability</td>
<td>2</td>
</tr>
<tr>
<td>CCEP 520</td>
<td>Foundations of Rehabilitation Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>

Admission to Travel Instruction program.

BLRH 300 Application of Travel Instruction for Persons with Cognitive Impairments 2 hrs.
This course is intended to provide an understanding of the specific needs relating to travel for individuals who are cognitively impaired. The focus is on how to best serve this population, how to design an appropriate individualized travel instruction program, and how to effectively implement such a program. Prerequisite: Admission to Travel Instruction program.

BLRH 301 Visual Impairment and Blindness: An Overview 2 hrs.
The purpose of this course is to provide basic information to students and workers in the health and human service professions so that they will be able to work more effectively with blind individuals. It is also intended for students who may be interested in entering a career in blind rehabilitation and would like to further explore their interest. An overview of visual impairment will be provided with both theoretical and practical components. Prerequisite(s): Admission to Travel Instruction program.

BLRH 302 Ambulatory, Communication, and Information Aids for Travel 2 hrs.
This course will provide knowledge of ambulatory, communication, and information devices that assist independent travel for persons with disabilities. It will provide information about and practice with the use of different types of canes, walkers, wheelchairs, scooters, communication boards, and information such as GPS (global positioning system), Internet maps, talking maps, talking signs, and geographic information systems. Prerequisite: Admission to Travel Instruction program.

BLRH 305 Introduction to Adults with Disabilities 3 hrs.
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 work 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.

BLRH 394 Foundations of Travel Instruction 3 hrs.
This course is designed to provide the theoretical underpinnings for the evaluation and provision of travel instruction for persons with disabilities. It examines the development of services, the sensory motor requirements, and individual development, concepts relating to travel, analysis of the built environment, the systems of transportation available to persons with disabilities, and the professional information needed to provide quality services. Prerequisite: Admission to Travel Instruction program.

BLRH 395 Methods of Independent Travel for People with Disabilities 3 hrs.
This course is the heart of travel instruction. The knowledge provided prepares the practitioner to assess, teach, and monitor travel instruction for persons with disabilities other than blindness. Content in this area is taught through a combination of didactic lecture and experiential practice in the use of equipment and procedures. Prerequisite: Admission to Travel Instruction program.

BLRH 396 Practicum in Independent Travel 2 hrs.
This course will provide students the opportunity to observe travel instruction at an agency or school and to teach travel instruction to a consumer under the direction of an experienced supervisor. It is the purpose of the practicum to prepare students for more extensive training and responsibilities that will take place in BLRH 412 internship in Travel Instruction.

BLRH 401 Small "N" Research Design 3 hrs.
This course explores standard group research design, single subject and small numbers design. The emphasis is placed upon providing students with a working knowledge of an experimental methodology for demonstrating control in social/behavioral research where more traditional experimental control group paradigms are not feasible or desirable. This approach is based on an experimental methodology for demonstrating control with single or small numbers of subjects which includes design, internal replication, measurement, reliability, and visual or statistical analysis.

BLRH 412 Internship in Independent Travel 4 hrs.
Students will be provided with the opportunity to observe travel instruction at an agency or school and to teach travel instruction to consumers who are cognitively impaired and to consumers who are physically impaired. Outcomes of this course include the ability to develop assessment, planning, and teaching skills. Graded on a Credit/No Credit basis. Prerequisites: Completion, with a grade of "C" or better, of BLRH 396 Practicum in Travel Instruction.

A list of approved General Education courses can be found earlier in this catalog.
and an overview of other communication methods available to the visually impaired.

BLRH 584 Computer Technology in Rehabilitation
3 hrs.
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.

BLRH 586 Job Analysis and Job Placement
2 hrs.
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.

BLRH 588 Psychosocial Aspects of Disability
2 hrs.
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.

BLRH 589 Medical and Functional Aspects of Disability
2 hr.
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, hearing, speech and hearing, cardiovascular, mental and emotional disabilities; and other select disabilities. Emphasis is placed upon cumulative effects of concomitant disabilities with additional concomitant disabilities with additional emphasis on visual impairment.

BLRH 590 Physiology and Function of the Eye
2 hrs.
The anatomy, structure, and function of the eye. Various eye diseases and malfunctions and their measurement are presented. An overview of all types of eye conditions and eye prostheses.

BLRH 591 Braille and Other Tactual Communication Systems
2 hrs.
Provides students with a basic knowledge of the braille literary code—reading and writing, and an overview of other communication methods available to the visually impaired.

BLRH 592 Introduction to the Education of Visually Impaired Children
2 hrs.
An overview of the education of visually handicapped children. An introduction to the literature, history, principles, practices, and problems in the field, including curricular and methodological adaptations of various educational programs.

BLRH 594 Principles of Orientation and Mobility
3 hrs.
An examination and application of the fundamental principles underlying the acquisition of sensory information by severely visually impaired individuals.

BLRH 596 Introduction to Electronic Travel Aids
1 hr.
Systematic instruction in use of fundamental electronic travel aids and overview of major electronic devices. Prerequisite: BLRH 584.

BLRH 597 Principles of Low Vision
2 hrs.
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 lowvision services are stressed. The concepts are explored that deal with 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. Prerequisite: Approval of advisor.

BLRH 599 Gerontology
2 hrs.
The course offers an overview of the characteristics, circumstances, and needs of the aging population of the United States and explores the types of services available to meet their needs. The course will focus upon the demography of the aged, the physiological changes and chronic diseases of aging, the social and economic aspects of aging, the psychological changes which come with age, and a review of the community resources which serve the aged.
and others. The six courses which comprise the 18-hour minor are ADA 320 Legal and Illegal Drugs; ADA 325 Substance Abuse Diagnosis and Treatment Planning; ADA 326 Substance Abuse Treatment Process; CECP 483 Treating Diverse Clients in Employee Assistance Programs; PSY 462 Individual Group and Family Treatment; and SWRK 420 Ethical Issues in Substance Abuse Services.

### Alcohol and Drug Abuse Courses (ADA)

A list of approved General Education courses can be found earlier in this catalog.

**ADA 225 Drug Use: Personal and Social Impact**

3 hrs. 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.

**ADA 320 Legal and Illegal Drugs**

3 hrs. To increase understanding of substance abuse; alcohol and other drug use is examined 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. Open only to substance abuse minors.

**ADA 325 Substance Abuse Diagnosis and Treatment Planning**

3 hrs. This course addresses the diagnostic categories for abuse and dependency across the spectrum of drugs of abuse. Emphasis is placed on individual-specific diagnosis and individual-specific treatment plans. Open only to substance abuse minors.

**ADA 326 Substance Abuse Treatment Processes**

3 hrs. This course focuses on the continuum of care for substance abusers. Modalities of prevention, casefinding, detoxification, inpatient treatment, residential treatment, therapeutic communities, day care, intensive outpatient treatment, outpatient treatment, and aftercare are presented both in theory and practice areas. Open only to substance abuse minors.

**ADA 520 Family and Addiction**

3 hrs. 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.

**ADA 525 Women and Substance Abuse Treatment**

3 hrs. This course provides knowledge on gender specific treatment of substance abusers. This includes physiological aspects of women, as well as cultural aspects and methods to enhance the treatment of women substance abusers.

**ADA 530 Clinical Theory in Substance Abuse Services**

1-4 hrs. This course covers selected theories which form the foundation for Substance Abuse Services practice in specific areas. Students are expected to master the content as a basis for building foundation knowledge for applied practice. The specific topics are announced with each semester offering.

**ADA 535 Drug Testing**

3 hrs. This course explores the theory and practice of drug testing and its applications in both clinical practice and employment settings. The spectrum of testing ranges from field dexterity to gas chromatography. Federal requirements are reviewed for application in both clinical and work settings.

**ADA 537 Constructive Confrontation and Referral in Substance Abuse Services**

3 hrs. 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.

**ADA 540 Current Issues in Alcohol and Drug Abuse**

1 hr. This course, taught in seminar, reviews basic and applied research advances in prevention and treatment of substance abuse. Emphasis is on bridging research advances to practice areas. The focus of the course is research published in the previous year.

**ADA 541 Group Home Treatment**

1-6 hrs. This course reviews custodial, milieu, and function aspects of group home treatment. Theories and practices are presented with emphasis on long-term treatment outcomes.

**ADA 545 Alcohol, Drugs and Aging**

3 hrs. The problems of alcohol, medication, and legal and illegal drug use, misuse and abuse among older persons will be discussed. Prevention, intervention, and treatment will be considered. This course is cross-listed with GRN 545.

**ADA 560 Clinical Practice in Selected Substance Abuse Services Areas**

1-4 hrs. This course covers variable topics in clinical substance abuse services practice. It is a skills development course which helps students to become proficient in specific techniques and procedures related to client service. The specific areas are announced with each semester.

**ADA 565 Alcohol, Drug Abuse, and Violence**

3 hrs. This course provides the student with knowledge of the multiple relationships of substance abuse and violence. Specific focus are the relationships of substance abuse and domestic violence, child abuse, and other assaultive behaviors.

**ADA 567 Legal Offenders and Substance Abuse**

3 hrs. This course provides the student with knowledge on the theories associating substance abuse with criminal and civil offenses. Specific focus is the treatment strategies and techniques related to the offending population and long-term outcomes of decreased recidivism.

**ADA 570 Field Education: Substance Abuse**

1-6 hrs. 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. Graded on a credit/no credit basis. **Prerequisite:** Consent of instructor.

**ADA 580 Substance Abuse Prevention**

3 hrs. This course explores the multiple theories and techniques used in the prevention of substance abuse. The history and evolution of prevention is presented, as well as cognitive, affective, and behavioral strategies.

**ADA 585 Student Assistance Programs**

3 hrs. This course provides students with knowledge of the theories and practices of student assistance programs. The course focuses on objective indicators of student involvement with drugs, intervention strategies, referrals, and follow-up.

**ADA 590 Applied Alcohol and Drug Dependence Recovery Techniques**

3 hrs. This course provides the student with knowledge of self-help groups and formal relapse prevention strategies. Application of relapse prevention strategies is integrated into multiple aspects of the continuum of care.

**ADA 598 Readings in Substance Abuse Services**

1-4 hrs. Individualized, independent study and reading 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. **Prerequisite:** Consent of instructor and program advisor.

**Community Health Services Courses (CHS)**

**CHS 530 Seminar in Community Health Services**

1-4 hrs. This course focuses on emerging issues relevant to the certificate programs in the School of Community Health Services.

**CHS 598 Readings in Community Health Services**

1-4 hrs. This course is arranged on an individual basis to provide students an opportunity to pursue independently the study of inter-disciplinary areas of interest. **Prerequisite:** Consent of instructor.

**Employee Assistance Courses (EAP)**

**EAP 220 Introduction to EAPs: EAP Structure and Process in the Work Setting**

3 hrs. This course is offered on a self-instructional basis. Content focuses on the organization of business and industry (both public and private); the organization of labor and labor unions; variations in labor-management relations across organizational types; discipline in union and non-union settings; grievances and arbitration; collective bargaining; historical overview of health and human services at the workplace; laws/regulations regarding workers' compensation, EEO, health and safety, and affirmative action; employee benefits and health financing; career counseling, retirement counseling, and other human services in the workplace structure, and EAP.

**EAP 318 EAP Assessment Interviewing**

3 hrs. 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 220.
EAP 319 EAP Administration 3 hrs. This course is designed to provide an overview of the operational responsibilities within the various program models. Through student examination, manual preparation, selected readings, oral presentation, and classroom participation it is intended for the total experience to provide an understanding of the requirements of the management and administration of an Employee Assistance Program. Major emphasis is placed on understanding current management trends in business and those that have been adopted to the EAP profession. An examination of policies, procedures, and actual practices are highlighted in this course. Prerequisite: EAP 220.

EAP 420 EAP Consultation 3 hrs. This course is designed to provide a classroom and contained group and individual experience, where the student can learn about the role of the consultant while using basic skills that the profession demands. Students participate in small and large group experiences as well as individually tailored exercises, that are aimed at giving them a flavor of the consultant's practice. Major emphasis is placed on written and oral communication skills. This course fulfills the University's Baccalaureate Writing Requirement. Prerequisite: EAP 220.

EAP 470 EAP Field Placement I 6 hrs. 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.

EAP 471 EAP Field Placement II 6 hrs. 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 470.

GERONTOLOGY PROGRAM
Donna Wennench, Advisor for Graduate Certificate Program Room B-329 Elwood Hall
Jeanine Bartholomew, Advisor for coordinate major and undergraduate minor B-121 Henry Hall

Gerontology, the study of the aging process and of old age, is offered as a multidisciplinary minor at Western Michigan University. Gerontology includes the study of aging through a disciplinary perspective, as well as the medical field known as geriatrics. Interest in gerontology has burgeoned in the United States with the recognition that currently our population includes more than 30,000,000 persons beyond age 65—and that this population segment is growing. Universities have responded through research and teaching to increase an understanding of the older portion of our population and to provide trained personnel to work with older persons.

Gerontology Coordinate Major
The major consists of thirty credit hours. Twenty-three or twenty-four hours are required:

**REQUISITE COURSES**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>GRN 470</td>
<td>Introduction to Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>GRN 490</td>
<td>Field Education in Gerontology</td>
<td>1-4</td>
</tr>
<tr>
<td>BIOS 240</td>
<td>Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BLRH 301</td>
<td>Visual Impairment</td>
<td>3</td>
</tr>
<tr>
<td>OT 470</td>
<td>Functioning of the Older Adult</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 334</td>
<td>Biomedical Ethics</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 534</td>
<td>Moral and Philosophical Foundations of Health Care</td>
<td>3</td>
</tr>
<tr>
<td>SPPA 552</td>
<td>Community Problems of the Aged</td>
<td>3</td>
</tr>
<tr>
<td>SWRK 464</td>
<td>Problem Solving in Gerontology</td>
<td>3</td>
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The remaining of the 30-hour requirement will be acquired through elective courses chosen from a list of approved courses available in the Gerontology Program Office.

**Gerontology Minor**

The minor in gerontology is well designed to supplement formal training in other fields, for example sociology, psychology, social work, occupational therapy, exercise science, blind rehabilitation, speech pathology, and others. It cannot, however, be used for teacher certification. The minor in Gerontology can lead not only to vocational interests, but can also prepare one for graduate and professional work, enrich one's awareness of the society in which one lives, and promote thoughtful personal planning of one's own middle and later years.

The minor consists of twenty-one or more hours. Sixteen hours are required:

**REQUISITE COURSES**

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<tr>
<td>SWRK 464</td>
<td>Problem Solving in Gerontology</td>
<td>3</td>
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The remainder of the twenty-one hour requirement will be acquired through elective courses chosen from a list of approved courses available in the Gerontology Program Office.

**Gerontology Courses (GRN)**

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<td>GRN 470</td>
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<td>3 hrs.</td>
</tr>
<tr>
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<td>SWRK 464</td>
<td>Problem Solving in Gerontology</td>
<td>3 hrs.</td>
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</table>

The purpose of this course is to help students gain an understanding of dementia as both a social and medical problem. Dementia is a complex illness and often misunderstood by the general public. This course focuses on social, psychological, and epidemiological issues related to dementia together with the problems of diagnosis and treatment. Alzheimer's Disease, the most common cause of dementia, will receive specific attention. The purpose of this course is to help students gain an understanding of dementia as both a social and medical problem.

**COMMUNITY HEALTH SERVICES**

GRN 521 Women and Aging 3 hrs. An examination of the impact of aging on women, with special emphasis on the diverse experiences, challenges and social and economic conditions of older women. The course will explore the statuses and roles of women in an aging society. Topics to be covered include the economics and politics of aging, health status of women, women as caregivers and retirees. The plight of minority older women will be addressed.

GRN 525 Religion and Aging 3 hrs. A survey of the views of and attitudes toward the aging process and older people held by the world's major religions. Particular attention will be paid to the relation of religious views and social policy in the U.S.

GRN 530 Special Topics in Gerontology 1-4 hrs. Variable topic, variable credit course for consideration of current and special interests in gerontology. Specific topics, number of credit hours and prerequisites, if any, will be announced each time the course is offered. May be repeated for credit with different topics.

GRN 543 Survey of Geriatric Medicine 3 hrs. This course provides an overview and survey of the care of the elderly patient from a medical perspective. The issues of medical problems, long-term care, nursing, rehabilitation, and the social considerations will be broadly discussed. In addition, the interaction of all of the issues of elderly care will be analyzed.

GRN 544 Aging and Mental Health 3 hrs. Survey of mental health and mental health treatment problems of older adults. Topics include the causes of major mental illnesses in old age, depression and dementias. Consideration will be given to etiologies, current therapies and treatments as well as barriers to treatment in this population.

GRN 545 Alcohol, Drugs, and Aging 3 hrs. The problems of alcohol, medication, and legal and illegal drug use, misuse and abuse among older persons will be discussed. Prevention, intervention and treatment will be considered. This course is cross-listed with ADA 545.

GRN 547 Alzheimer's Disease and Other Dementias 3 hrs. Dementia is a complex illness and often misunderstood by the general public. This course focuses on social, psychological, and epidemiological issues related to dementia together with the problems of diagnosis and treatment. Alzheimer's Disease, the most common cause of dementia, will receive specific attention. The purpose of this course is to help students gain an understanding of dementia as both a social and medical problem.

GRN 598 Readings in Gerontology 1-4 hrs. Individualized, independent study and reading 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. Prerequisite: Consent of instructor and program advisor.
Health and Human Services Courses (HHS)

HHS 110 Introduction to Health and Human Services
3 hrs.
This course provides an overview of the issues, philosophies, political ideologies, economic theories, and American values which have an impact on health and human service delivery. In addition, students will be introduced to the historical development, areas of services, and models of service delivery which are part of health and human services. The course will also provide students with the opportunity of learning about potential careers in the various professions within the field.

HHS 461 Information Systems for Health Care Professionals: Medical Informatics
3 hrs.
This course is intended to assist the health care professional become a more effective care provider and manager through training in the appropriate uses of Medical Informatics. Some of the topics that will be covered include: finding medical information; bibliographic and full-text databases, 'expert systems'; national networks; acquiring and using office practice systems; patient teaching and decision making; evaluating the usability of new technologies; and telemedicine.

HHS 511 The Health System and Its Environment
3 hrs.
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 the health services as well as the processes of operation 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.

HHS 512 Principles of Health Finance
3 hrs.
This course is an examination of the principles of finance as may be applied to health care management. The course will provide a basis for understanding the financial management function in a health care administration environment and on the use of financial information in health care management and decision making. Prerequisite: ECON 517 or equivalent.

HHS 513 Special Studies in Health Care Organization and Delivery
Variable Credit
This course deals with intensive analysis of the organization, design, and delivery of health care services in specialized areas. The specialized areas cover long-term mental health, and mental retardation services, as well as group medical practice.

HHS 514 Basic Principles and Organization of Health Planning
3 hrs.
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 structure arrangements for carrying out planning in the health arena both at the macro and micro levels.

HHS 515 Administrative Functions in the Health Care Setting
3 hrs.
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.

HHS 530 Clinical Theory for Health and Human Services
1-4 hrs.
This course covers selected theories which form the foundation for health and human service practice in specialized areas. Students are expected to master the content as a basis for building foundational knowledge for clinical practice. Theory of environmental health, systems theory for the health setting, theories of substance abuse for nursing and medical practice, and community health theory are among the possible topic of study. The specific topics are announced each semester.

HHS 535 Pharmacology for Health Professionals
3 hrs.
This course focuses on basic principles in pharmacology and pharmacotherapeutics. Principles necessary for a general understanding of the medical management of acute and chronic disease states will be highlighted. Discussion will center on classes of drugs with pharmacology, side effects, and contraindications identified. Case studies may be utilized to emphasize commonly encountered patient care scenarios. Prerequisite: One year of college general chemistry or one year of health professions chemistry.

HHS 560 Clinical Practice in Selected Health and Human Service Areas
1-4 hrs.
This course covers variable topics in clinical health and human service practice. It is a skills and development course which helps students to become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biofeedback, clinical practice in genetic counseling, the role of the health team in clinical practice, the patient and clinical laboratory services, basic clinical skills for the substance abuse setting, and community health education practice are among the possible areas of study. The specific areas are announced each semester.

HHS 569 AIDS/HIV: Perspective on an Epidemic
3 hrs.
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). The course will be team taught by faculty and others in a variety of fields.

HHS 570 Field Education in Health and Human Services
1-6 hrs.
This registration is designed to give the student a total learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in the health and human service area. Credit/no credit only. By permission of instructor.

HHS 596 Directed Independent Study in Health and Human Services
1-6 hrs.
Individualized independent study (reading or research) under guidance of faculty member. Initiation for planning topic for investigation and seeking the appropriate faculty member comes from the student, with consultation from the advisor. Prerequisite: Consent of instructor and Program Advisor.

Holistic Health Care Courses (HOL)

HOL 100 Choices in Living
3 hrs.
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.

HOL 300 Issues, Practices, and Ethics in Holistic Health Care
3 hrs.
This course is a general survey of holistic issues, practices, and ethics. Students will complete an assessment of the values and attitudes which underpin their current health practice; examine values, beliefs, and ethics about the current health and health care models. They will explore and critically evaluate a variety of holistic health care services and their applications. Students will be expected to incorporate new information and skills into their personal and professional lives. The format for the course will be a combination of lectures, experiential activities, and audio/video presentation. Attendance and active participation are essential to meaningful learning in this course.

HOL 530 Special Topics in Holistic Health
1-4 hrs.
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.

HOL 531 Introduction to Holistic Health
3 hrs.
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 Holistic Health Care. Prerequisite: Senior or graduate status.

HOL 532 Holistic Approaches to Relationships
3 hrs.
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.

HOL 533 Holism and Community
3 hrs.
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.
HOL 534 Holistic Health and Spirituality 3 hrs.
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.

HOL 535 Holistic Approaches to Stress 3 hrs.
This course will focus on the nature, sources and symptoms of stress, and provide a holistic approach for the management of stress. The relationship between stress and personality, lifestyle, health and illness will be explored. In addition, the reasons for management of professional and organizational "burn-out" will be presented.

HOL 536 Counseling Skills for Health Professionals 3 hrs.
This course is designed to provide basic information on the counseling process and techniques as they apply to health care settings. This course is designed for health care professionals in allied health professions and not for majors in counselor education and counseling psychology or social work.

HOL 555 Holistic Perspectives on Successful Aging 3 hrs.
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 slow the progression of 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.

Prerequisite: Senior or graduate level status.

HOL 570 Field Education in Holistic Health 1-6 hrs.
This registration is designed to give the student a total learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in the health and human service area. Credit/no credit only. Prerequisite: Consent of instructor.

HOL 598 Readings in Holistic Health 1-4 hrs.
This course provides individualized, independent study and reading under guidance of a faculty member. Initiative for planning topic for investigation and seeking of written applications required. Students may repeat this course a maximum of three times. Consent of instructor required.

BRONSON SCHOOL OF NURSING

Marie F. Gates, Director
Joyce Anderson
Alberta Bee
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 the future. The faculty believe that the long-standing social contract between nurses 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 Western Michigan University Bronson School of Nursing is accredited by the National League for Nursing Accrediting Commission, 61 Broadway, New York, New York 10006, 1-800-669-9656. Graduates of the program will be eligible to sit for the NCLEX-RN. NLNAC is also a resource for all nurses seeking endorsement from the American Nurses’ Association. 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.

Admission to Prenursing Curriculum

The WMU applications of high school students who indicate nursing as their field of interest, and who satisfy the minimum admission considerations for the Prenursing Curriculum will be forwarded to the Bronson School of Nursing. A final selection will be made by the Bronson School of Nursing. These students will be admitted to the Prenursing Curriculum and will begin the program of studies in the fall semester of the freshman year.

Current WMU students, transfer students, and second degree students may be admitted to the Prenursing curriculum on a room available basis. Interested students should make an appointment with the Bronson School of Nursing student advisor for application information.

Minimal eligibility requirements include: a cumulative college and nursing course prerequisite g.p.a. of 2.5, completion and evaluation of written application, validation of writing skills and documentation of health related work or community experience.

BRONSON SCHOOL OF NURSING 249

THE UNDERGRADUATE PROFESSIONAL PROGRAM

This program, with two curriculum tracks, leads to the completion of a Bachelor of Science degree with a major in nursing.

A Prelicensure Track is offered for individuals who do not hold a Registered Nurse license. Sixty-three credit hours of the 127 credit-hour curriculum will consist of liberal arts and science courses, 52 credits of nursing courses, and 12 credits of courses in an area of concentration. This curriculum is designed for Registered Nurses and will be completed in 127 credit hours. The RN Progression Track has been specifically designed for Registered Nurses. In this track, the curriculum will consist of 35-42 credits in liberal arts and science courses, 23 credits in nursing, and 12 credits in an area of concentration.

The RN Progression Track includes articulated credits for prior learning.

Prelicensure Track

ADMISSION REQUIREMENTS

Prelicensure students must complete the following courses with a grade of "C" or above, achieve a minimum cumulative grade point average of 2.5 or above, and submit the formal application to be considered for admission to the Professional Nursing curriculum. Students will complete the application as part of the course requirements for NUR 102.

BIOS 100 Introduction to Human Biology and Anatomy 4 hrs.

CHEM 151, 152 Chemistry for Health Professionals I, II 4 hrs.

CHEM 153, 154 Chemistry for Health Professionals I, II 4 hrs.

NUR 102 Introduction to the Profession of Nursing 2 hrs.

PSY 100 General Psychology 3 hrs.

SOC 200 Principles of Sociology 3 hrs.

U.S. Culture and Issues (Area III General Education) 3 hrs.

College-level writing/Proficiency 1, 2 2 hrs.

CURRICULUM REQUIREMENTS—127 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 more than two nursing courses may be repeated without review and approval by the Student Affairs Committee. Further, students may only repeat such courses once following the initial enrollment. This standard of appeal this policy or any others in the nursing curriculum must follow the University's General Education) 3 hrs.

College-level writing/Proficiency 1, 2 2 hrs.

U.S. Culture and Issues (Area III General Education) 3 hrs.

Selection criteria for admission will include individual, prerequisite grades, cumulative grade point average (minimum 2.5), completion and professional appearance of the application form, a scored essay, and availability of space in nursing courses.

CUMULATIVE REQUIREMENTS—127 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 more than two nursing courses may be repeated without review and approval by the Student Affairs Committee. Further, students may only repeat such courses once following the initial enrollment. This standard of appeal this policy or any others in the nursing curriculum must follow the University's General Academic Appeals Procedure.

Should a student fail to pass satisfactorily a nursing course at the end of a second enrollment when she will be dropped from the...
program. Students who wish to continue in the program must appeal to the School of Nursing Student Affairs Committee. Students whose cumulative grade point average falls below 2.0 will also be placed on probation and removed from the program of studies. These students will not be allowed to progress in the nursing course work until the grade point average is raised to 2.0 or above and re-admission has been approved by the Student Affairs Committee. Following approval, return to the program is contingent upon availability of space in nursing courses. Students who return to the program must comply with all School of Nursing policies in effect at that time. Students who wish to appeal decisions rendered by the Bronson School of Nursing Student Affairs Committee can do so following the University's General Academic Procedure.

Supporting Courses—63 hours
BIO 191 Introduction to Human Biology and Anatomy ... 4
BIO 232 Microbiology and Infectious Diseases ... 4
BIO 240 Human Physiology ... 4
CHEM 151, 152 Chemistry for Health Professionals I, II ... 4
CHEM 153, 154 Chemistry for Health Professionals I, II ... 4
Approved computer usage course ... 3
College-level writing course (Proficiency I) ... 3/4
General Education Area I (Fine Arts) ... 3
General Education Area II (Humanities) ... 3
General Education Area III (U.S. Cultures and Issues) ... 3
General Education Area IV (Other Cultures and Civilizations) ... 3
HHS 461 Informatics ... 3
HHS 535 Pharmacology for Health Professionals ... 3
OT 225 Growth, Development, and Aging ... 3
PHIL 334 Biomedical Ethics ... 4
PSY 100 General Psychology ... 3
SOC 200 Principles of Sociology ... 3
SOC 320 Introduction to Social Psychology or
SOC 320 Introduction to Social Psychology OR
SOC 390 Marriage and Family Relations OR
SOC 479 Female/Male Interaction ... 3
STAT 366 Introduction to Statistics ... 3

Concentration or Academic Minor—minimum of 12 hours
The faculty believe that it is important that students be given the opportunity to explore personal areas of interest which complement their career in nursing. This may be achieved in one of two ways. The first option is an area of concentration. With the approval of a nursing faculty advisor, students will select four courses (12 credit hours) from a specific area of concentration. Nursing students may also choose to design an area of concentration. Nine of the credit hours must be selected from the 300-500 level of course work. The remaining three credits may be selected from the 200-level. One-hundred-level courses may not be counted toward an area of concentration. Courses required in the curriculum or selected to meet general education or proficiency requirements cannot be counted toward an area of concentration. (E.G. SOC 200: Principles of Sociology is required in the nursing curriculum. Students will not be allowed to count this course as part of the concentration.)

The second option for nursing students is an academic minor. Since minors are more credits-higher education than areas of concentration, students will be allowed to count required courses in the curriculum toward a minor. Examples of academic minors that students might pursue include women's studies, philosophy, biological sciences, and sociology. Whether students elect to complete an area of concentration or a minor, it must be done with the approval of the nursing advisor.

Nursing—52 hours
NUR 102 Introduction to the Profession of Nursing ... 2
NUR 202 Nurses' Role in Primary Health Care I ... 6
NUR 203 Nurses' Role in Primary Health Care II ... 6
NUR 306 Nurses' Role in Facilitating Health and Self-Care I ... 9
NUR 307 Nurses' Role in Facilitating Health and Self-Care II ... 9
NUR 410 Nurses' Role in Prevention, Treatment, and Control of Health Problems I ... 10
NUR 411 Nurses' Role in Prevention, Treatment, and Control of Health Problems II ... 10

Baccalaureate Level Writing Requirement
Students enrolled in the Prelicensure Track of the nursing curriculum will satisfy the Baccalaureate Level Writing Requirement by successfully completing NUR 307: Nurses' Role in Facilitating Self-Care II.

RN Progression Track
ADMISSION REQUIREMENTS
To be considered for the RN Progression Track, applicants must have achieved a 2.5 cumulative grade point average (on a four-point scale) from the associate degree or diploma program from which they graduated and hold a current Michigan Registered Nurse license. Furthermore, prior to entering the nursing sequence of courses, Registered Nurses must complete the following general education/support course work.

Fine Arts (Area I General Education) . . . 3 hrs.
Humanities (Area II General Education) . . . 3 hrs.
Approved computer usage course . . . 3 hrs.

While enrolled in the prerequisite course work, students must schedule an appointment with the nursing advisor. At this time, academic progress in the program of study will be reviewed and the decision will be made to grant or deny admission to the professional nursing curriculum. Admission to this Professional Nursing curriculum is determined by the successful completion of all prerequisite course work. Availability of space in nursing courses may affect the student's rate of completion of the nursing sequence as the courses will be filled on a first come, first served basis.

At the beginning of the first nursing course, the student will be asked to present the following:

1. a current Michigan Registered Nurse license
2. proof of employment as a Registered Nurse for a minimum of six months
3. current cardiopulmonary resuscitation certification
4. immunization records

Academic Credit Transferred from Associate Degree or Diploma Program
Registered Nurse students who are admitted to the Prelicensure curriculum will be awarded articulated credits determined by credits allowed for diploma or associate degree course work. The remaining twenty-nine credits will be held in "escrow" until the first nursing course in the RN Progression Track of study has been completed with a grade of "C" or above.

Graduates of community college associate degree and diploma programs will be awarded credit on a course-by-course basis in accordance with University policies for prior general education, science, and electives. Twenty-nine hours of credit for prior nursing study and clinical experience will be held in escrow until the first nursing course in the RN Progression Track of study has been completed with a grade of "C" or better.

CURRICULUM REQUIREMENTS FOR ASSOCIATE DEGREE GRADUATES AND DIPLOMA GRADUATES

Supporting Courses
Approved computer usage course ... 3
General Education Area I (Fine Arts) ... 3
General Education Area II (Humanities) ... 3
General Education Area III (U.S. Cultures and Issues) ... 3
General Education Area IV (Other Cultures and Civilizations) ... 3
HHS 461 Informatics ... 3
PHIL 334 Biomedical Ethics ... 4
SOC 320 Introduction to Social Psychology or
SOC 390 Marriage and Family Relations OR
SOC 320 Introduction to Social Psychology OR
SOC 390 Marriage and Family Relations OR
SOC 479 Female/Male Interaction ... 3
STAT 366 Introduction to Statistics ... 3

Nursing—23 hours
NUR 204 Nurses' Role in Primary Health Care (RN) ... 6
NUR 308 Nurses' Role in Facilitating Health and Self-Care (RN) ... 8
NUR 412 Nurses' Role in Prevention, Treatment, and Control of Health Problems (RN) ... 8
NUR 430 Special Topics in Nursing ... 1

*In addition to the courses listed above, diploma graduates must also complete the following course: College-level writing course or elective ... 3/4
SOC 200 Principles of Sociology ... 3

Baccalaureate Level Writing Requirement
Students enrolled in the Registered Nurse Progression Track of the nursing curriculum will satisfy this requirement through the completion of NUR 308 Nurses' Role in Facilitating Self-Care (RN).

Nursing Courses (NUR)
NUR 102 Introduction to the Profession of Nursing
2 hrs.

This course will introduce students to the health care system and nursing's role and responsibilities within the system. Students will explore the nursing code of ethics, licensure issues, and the functions and purposes of nursing's national and international organizations. Prerequisite: Admission to the Prelicensure curriculum.

NUR 202 Nurses' Role in Primary Health Care I
6 hrs.

Students will be introduced to the concept of Primary Health Care as defined by the World Health Organization. The primary focus will be on nursing process, health assessment, healthy communication, and caring. Nursing practice will involve groups and individuals across the life span who are experiencing common health problems. Prerequisite: Admission to the Professional Nursing curriculum and BIO 240.
NUR 203 Nurses' Role in Primary Health Care II
6 hrs.
A continuation of NUR 202, concepts of partnership, data sources, holism, and common illnesses/health issues will be introduced. Nursing practice will focus on clients who are experiencing developmental transitions as they relate to health status. Prerequisite: Completion of NUR 202 with a grade of "C" or better. Corequisite: HHS 535.

NUR 204 Nurses' Role in Primary Health Care (RN)
6 hrs.
The major foci of this course, in addition to primary health care, will include: a review of nursing process, healthy communication, and self-development. The new concepts of partnership, caring, holism, and health and illness will be introduced. The laboratory component will include health assessment and interviewing techniques for health and wellness screening. Prerequisite: RN licensure and approval of School of Nursing.

NUR 306 Nurses' Role in Facilitating Health and Self-Care I
9 hrs.
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. Prerequisite: Completion of NUR 203 with a grade of "C" or better.

NUR 307 Nurses' Role in Facilitating Health and Self-Care II
9 hrs.
In this second semester of a two-course sequence, students will focus on the concepts of health care systems, nursing as a profession, nursing care 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. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum (i.e., prelicensure track). Prerequisites: Completion of NUR 306 with a grade of "C" or better; PHIL 334 Biomedical Ethics.

NUR 308 Nurses' Role in Facilitating Health and Self-Care (RN)
8 hrs.
This course places major emphasis on the concept of forming partnerships that facilitate health in families, populations, and communities. The laboratory component of this course will include comprehensive physical assessment of children and adults, information technology, group dynamics, and counseling techniques. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum (i.e., RN progression track). Prerequisites: RN licensure and completion of NUR 204 with a grade of "C" or better; PHIL 334 Biomedical Ethics.

NUR 410 Nurses' Role in Prevention, Treatment, and Control of Health Problems I
10 hrs.
This first course in a two-course sequence places major emphasis on the concepts of chronicity, nursing research, and at-risk populations. In the first semester the specific content will include: crisis interventions and mental health concepts with adolescents and young adults; the investigation of relationships between socio-economic status and the health of a community; and the use of automated data bases for epidemiologic and outcome assessment purposes. Clinical experiences will be provided in planned parenthood, government and private community-based health care agencies, the University health center, and mental health hospitals. Prerequisite: Completion of NUR 307 with a grade of "C" or better; HHS 461. NUR 411 Nurses' Role in Prevention, Treatment, and Control of Health Problems II 10 hrs.
This is the second course in a sequence of courses. The course content will focus on the etiology and control of major health problems; conflict resolution; organization, leadership and management; and nursing research. Nursing practice will be designed to continue the development of case management skills with groups and individuals in community and institutional settings. Prerequisites: Completion of NUR 410 with a grade of "C" or better; HHS 461; STAT 366.

NUR 412 Nurses' Role in Prevention, Treatment, and Control of Health Problems (RN) 8 hrs.
Course content will focus on the etiology and control of major health problems, conflict resolution, organization, leadership and management, and nursing research. Nursing practice will be designed to continue the development of case management skills with groups and individuals in community and institutional settings. Prerequisites: RN licensure and completion of NUR 308 with a grade of "C" or better; HHS 461 Informatics. Corequisite: MATH 366 Introduction to Statistics.

NUR 430 Special Topics in Nursing 1 hr.
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. This course may be repeated for credit. Prerequisite: Admission to the Professional Nursing curriculum.

OCCUPATIONAL THERAPY

The Occupational Therapy Program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1200. AOTA's phone number is (301) 652-AOTA. Graduates of the program will be eligible to sit for the national certification examination for the Occupational Therapist, Registered (OTR). A successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). Most states require licensure in order to practice, however, state licenses are usually based on the results of the NBCOT Examination.

THE PROFESSIONAL CURRICULUM

The undergraduate professional curriculum of occupational therapy is designed to prepare the student to treat clients with various disabilities and to be eligible for certification as an occupational therapist, following the successful completion of a Bachelor of Science degree.

The professional curriculum uses a holistic and integrated approach in developing those characteristics identified for the graduated student. Key to the educational philosophy of the department is the developmental sequencing of content and learning experiences related to professionalism, personal environment, and the occupational therapy process. The implementation of the philosophy into course design results in the inclusion of most learning objectives to prepare several courses in a simple to complex pattern. This design maximizes the development of clinical reasoning skills.

Students may be admitted to the University in the pre-occupational therapy curriculum, although this admission does not guarantee admission to the professional curriculum. Successful applicants will have established a maximum enrollment number for the professional course work in the occupational therapy program. The implementation of the philosophy into course design results in the inclusion of most learning objectives to prepare several courses in a simple to complex pattern. This design maximizes the development of clinical reasoning skills.

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admission. Imposed deadlines are strictly enforced. The pre-occupational therapy curriculum is designed for students considering occupational therapy as a professional choice.

Minimum criteria for admission consideration to the professional program includes:

1. Admission to Western Michigan University and completion of University general education requirements.
2. Junior status (at least 56 semester hours at the time of enrollment in the professional occupational therapy curriculum).
3. Completion of all Intellectual Skills Requirements.
4. Satisfactory completion of all prerequisite courses:
   - Human Growth and Development through the Life Span (OT 225)
   - A course in medical terminology (MDSC 301; course also on-line)
   - A course in, or demonstration of basic computer literacy skills (CS 105 or BIS 102)
   - A course in orientation to Occupational Therapy (OT 202; course also on-line)
   - A course in social/behavioral sciences
   - English composition (Proficiency 1)
   - Q-S for basic biological sciences, including human anatomy and physiology (BIOS 191 or BIOS 211 and 240)
5. All prerequisite course work must be completed before the first semester of the occupational therapy program. All prerequisite courses must be completed with a grade of "C" (2.00) or better.
6. Students are allowed to repeat only one course. For the course that is repeated, only one repeat is allowed.
7. If a pre-occupational therapy student is not admitted into the professional curriculum, the required prerequisites will apply toward the University general education requirements, Intellectual skills, and/or elective credits toward graduation.
8. Completion of department application form.

Specific criteria for selection are based upon:
1. Accumulative grade point average
2. Accrual of knowledge and experience as demonstrated by answers to narrative essays on the application form in the following areas:
   - Work and Volunteer Experience
   - Statement of Leadership Roles
   - Statement of Cultural/Ethnic Diversity and Competency
   - Statement of Research
3. Space available in the program.
4. The application deadline for fall semester admission is January 30, and September 1 for winter admission. Applications from diversity candidates are welcomed and encouraged. Contact the College of Health and Human Services advisor for information.
5. Every department shall provide students with systematic procedures to express their views on matters of program curriculum.

CURRICULUM REQUIREMENTS FOR THE BACHELOR OF SCIENCE

Minimum hours required for this curriculum

<table>
<thead>
<tr>
<th>Prerequisite Course</th>
<th>Minimum Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Education</td>
<td>37</td>
</tr>
<tr>
<td>2. General or Introductory Psychology</td>
<td>3</td>
</tr>
<tr>
<td>3. U.S. Cultures or Other Cultures (Gen. Ed. II or IV)</td>
<td>3</td>
</tr>
<tr>
<td>4. Behavioral Sciences (sociology, anthropology, psychology)</td>
<td>3</td>
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<tr>
<td>5. Basic Science in Biological Science</td>
<td>3</td>
</tr>
<tr>
<td>6. Normal Human Growth and Development (OT 225)</td>
<td>3</td>
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<tr>
<td>7. English Composition</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Professional Curriculum</th>
<th>Minimum Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 370 OT Process</td>
<td>4</td>
</tr>
<tr>
<td>OT 374 Disabling Conditions</td>
<td>4</td>
</tr>
<tr>
<td>OT 375 Applied Neurology and Behavior</td>
<td>6</td>
</tr>
<tr>
<td>OT 380 Introduction to Assessment: OT Process, Psychometrics, Theory</td>
<td>2</td>
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<tr>
<td>OT 381 OT Process, Therapy Practice I (Birth to 18 years)</td>
<td>6</td>
</tr>
<tr>
<td>OT 382 Occupational Therapy Practice II (19 years to Geriatric)</td>
<td>6</td>
</tr>
<tr>
<td>OT 471 Research in Occupational Therapy</td>
<td>2</td>
</tr>
<tr>
<td>OT 472 Occupational Analysis and Adaptation</td>
<td>3</td>
</tr>
<tr>
<td>OT 473 Assistive Technology in Occupational Therapy</td>
<td>2</td>
</tr>
<tr>
<td>OT 475 Occupational Therapy Praxium I</td>
<td>3</td>
</tr>
<tr>
<td>OT 480 Occupational Therapy Management</td>
<td>3</td>
</tr>
<tr>
<td>OT 481 Occupational Therapy in Work Settings</td>
<td>2</td>
</tr>
<tr>
<td>OT 482 Occupational Therapy Practicum II</td>
<td>3</td>
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<tr>
<td>OT 483 Capstone Experience in Occupational Therapy</td>
<td>1</td>
</tr>
<tr>
<td>OT 490 Fieldwork Level II</td>
<td>3-12</td>
</tr>
<tr>
<td>OT 491 Fieldwork Level II</td>
<td>3-12</td>
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</tbody>
</table>

Remediation and Continuance Policy

1. Students will complete all required departmental and all required prerequisite courses in the grade of "C" or better. Subsequent courses cannot be taken until prerequisites are completed successfully.
2. Students can repeat only one required prerequisite or departmental course, and that course only once, to attain a grade of "C" or better.
3. Students who fail to attain a grade of "C" or better in a professional course will be placed on departmental probation following the grade lower than "C".
4. Students who do not successfully complete departmental probation will not be permitted to continue in the program.
5. A second grade below a "C" will result in termination from the program. The student may appeal this decision by following the procedures outlined in the Student Rights and Responsibilities section of this catalog.
6. The department may refuse to permit a student to continue in the curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.

Baccalaureate Writing Requirement

Students who have completed the Occupational Therapy major will satisfy the Baccalaureate Writing Requirement by successfully completing OT 483 Capstone Experience in Occupational Therapy, 1 credit hour.

Field Work

Students are required to complete successfully four fieldwork experiences. The first two fieldwork experiences occur during the third and fourth semesters of the program. These Level I fieldwork experiences are completed with concurrent course work. The last two fieldwork experiences occur following completion of all program course work. These two full-time, twelve-week experiences occur in two different settings. One Level II fieldwork is required in a medical model and one in a community model.

To be eligible for fieldwork, students must have a cumulative grade point average of 2.00 or above, with no grades less than a "C" in required and prerequisite courses.

Fieldwork is graded on a scale similar to academic course work. Students are evaluated by clinical supervisors who assesses areas of performance, judgment, and attitude. Each of the three areas must be passed at minimum competency for entry level practice. To ensure continuity of application of academic concepts, all fieldwork must be completed within 24 months following completion of academic preparation.

An optional third fieldwork experience, if available, may be scheduled pending availability. It usually does not interfere with graduation dates or eligibility for the NBCOT examination.

Remediation and Continuance Policy

1. Successful completion of OT 381, 382, and 475 is a prerequisite for OT 482.
2. Students who receive a failing grade in fieldwork I (OT 475, 482) or level II (OT 490, 491) are subject to academic policy for remediation and continuance, and will repeat the experience in a similar setting.
3. Successful completion of OT 482 and all professional and prerequisite course work is required for OT 490.
4. Successful completion of all undergraduate course work, including corresponding courses required for graduation, is required for enrollment in OT 491.
5. Students who fail fieldwork, or who are asked to withdraw, are subject to review in accordance with the departmental remediation and continuance policy. The student may appeal this decision by following the procedures outlined in the Student Rights and Responsibilities section of this catalog.
Occupational Therapy Courses (OT)

NOTE: Materials fees are required for some courses.

OT 202 Orientation to Occupational Therapy 2 hrs.
Orientation to the profession of occupational therapy. Will include the history of the profession, current professional roles, issues and trends in the field.

OT 225 Growth, Development, and Aging 3 hrs. Fall, Winter
A study of physical, mental, emotional, and social patterns of growth, development, and aging. Aspects to be given special emphasis for the occupational therapy student be motor development, physiology of aging, growth patterns, and functional development in any of the above aspects. Prerequisite: Pre-OT or nursing.

OT 336 Independent Practicum 2 hrs.
Participation in a health service 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: OT major.

OT 370 Occupational Therapy Process 4 hrs.
This course relates the occupational therapy service delivery model and scientific inquiry to practice and emphasizes written, oral, and interpersonal aspects of professional communication used in occupational therapy. The course provides an opportunity for the development of beginning competency in process and performance. Prerequisite: Admission to the professional Occupational Therapy program. Corequisites: OT 374, 375.

OT 374 Disabling Conditions 4 hrs.
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 370, 375.

OT 375 Applied Neurology and Kinesiology 6 hrs.
An applied study of human neurologic, neuro-muscular, neuro-motor, and sensorimotor function. Emphasis will be placed on development of normal occupational performance, assessment of the performance components, and conditions that affect occupation. This course will have four hours of lecture per week (two hours twice a week) and two hours of scheduled lab per week (additional hours online or CD ROM learning activities are expected). Corequisites: OT 370, 374.

OT 380 Introduction to Assessment: OT Process, Psychometrics, Theory 2 hrs.
This course provides investigation of occupational therapy process and its relationship to development of assessment tools. The student will discover the process by which assessments are developed, the evolution of assessments over time, and necessary revisions in standardization. The student will develop the ability to analyze an assessment using statistical information such as validity and reliability. Computer-based assessments, standardized tests, functional and informal assessments will be critiqued and applied to professional practice. Sensorimotor, cognitive, psychosocial, and environmental assessments will be applied to a variety of client groups. Prerequisites: OT 370, 374, 375. Corequisites: OT 381, 382.

OT 381 Occupational Therapy Practice I (Birth to 18 Years) 6 hrs.
Using a problem-based learning approach, 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 age 18. Graded on a Credit/No Credit basis. Prerequisites: OT 370, 374, 375. Corequisites: OT 380, 382.

OT 382 Occupational Therapy Practice II (19 Years to Geriatrics) 6 hrs.
Using a problem-based learning approach, 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 mid-life and older adults. Graded on a Credit/No Credit basis. Prerequisites: OT 370, 374, 375. Corequisites: OT 380, 381.

OT 436 Independent Study in Occupational Therapy 2-4 hrs.
Designed to allow outstanding students to work independently under faculty supervision. Consent of department chair.

OT 470 Functioning of the Older Adult 3 hrs. Fall, Winter
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 471 Research in Occupational Therapy 2 hrs.
This course examines methodologies of research useful to occupational therapy, critically analyzes research literature of the profession, and makes research based clinical decisions. Prerequisites: OT 380, 381, and 382. Corequisites: OT 475, 472, and 473.

OT 472 Occupational Analysis and Adaptation 3 hrs.
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 380, 381, and 382. Corequisites: OT 475, 472, and 473.

OT 473 Assistive Technology in Occupational Therapy 2 hrs.
This course offers an examination of the role of the occupational therapist in the provision of technology as aids to activities of daily living. The student learns to design, evaluate, and select assistive technology that is effective and safe, to assist in self-care, work, and play/recreation and leisure. Prerequisites: OT 380, 381, and 382. Corequisites: OT 475, 472, and 473.

OT 475 Occupational Therapy Practicum I 3 hrs.
This course is designed for students to administer and interpret occupational therapy evaluations of clients in community-based services. Treatment recommendations will be made considering the interrelationships between occupational therapy performance components, occupational performance areas, and performance contexts. Prerequisites: OT 380, 381, and 382. Corequisites: OT 471, 472, and 473.

OT 480 Occupational Therapy Management 3 hrs.
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. Prerequisites: OT 475, 471, 472, 473, and senior status. Corequisites: OT 481, 482, and 483.

OT 481 Occupational Therapy in Work Settings 2 hrs.
This course introduces students to occupational therapy evaluation and treatment in the work setting. Students will understand, through lecture and lab experiences, how to analyze job tasks (job site analysis), how to evaluate individual capacities for various jobs (functional capacity evaluations), and write job descriptions using ADA (Americans with Disabilities Act) standards (essential and non-essential job functions). Prerequisites: OT 475, 471, 472, 473, and Corequisites: OT 480, 482, and 483.

OT 482 Occupational Therapy Practicum II 3 hrs.
This course is designed to provide indepth 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 the patient's progress related to the treatment plan. This course requires extensive writing. Prerequisites: OT 475, 471, 472, and 473. Corequisites: OT 480, 481, and 483.

OT 483 Capstone Experience in Occupational Therapy 1 hr.
This course will result in demonstration of integration of knowledge and technical competencies required for occupational therapy clinical practice. Students will prepare a portfolio of professional skills and knowledge and present a project incorporating implementation of the occupational therapy process. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: OT 475, 471, 472, and 473. Corequisites: OT 480, 481, and 482.

OT 490 Field Work Level II 3-12 hrs.
A three-month affiliation in hospitals or community agencies providing the student experience in designated areas of occupational therapy. Departmental consent only. Prerequisite: Completion of all basic occupational therapy courses and prerequisite courses.

OT 491 Field Work Level II 3-12 hrs.
A three-month affiliation in hospitals or community agencies providing the student experience in designated areas of occupational therapy. Prerequisite: Completion of all academic course work required for graduation.

OT 492 Fieldwork Level II 2-3 hrs.
An optional three-month affiliation in hospitals or agencies providing the student experience in designated areas of occupational therapy. Prerequisites: OT 490, OT 491.
OT 530 Sensory Integration and The Child
3 hrs.
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 475 or concurrent; or OTR, RPT, or consent.

OT 597 Studies in Occupational Therapy
2-4 hrs.
Examines selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit. Prerequisites: Advanced OT major or departmental permission.

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**PHYSICIAN ASSISTANT**

James Van Rhee, Chair
Sharrill Busboom
William H. Fenn
Barbara Grinwis
Eric Vangsnes

The Department of Physician Assistant offers a Master of Science in Physician Assistant and a graduate certificate program in Clinical Trials Administration. Please see the 2000-2002 Graduate Catalog for more information about these programs and the graduate courses offered by the department.

Most of the department's courses are open to graduate students only, but the following courses are open to qualified undergraduates.

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**Clinical Trials Administration Courses (CTA)**

**CTA 500 Introduction to Drug and Device Development**
3 hrs.
This course introduces the student to the pharmaceutical and medical device industry and the process of drug and device development. Drug Development Phases I-IV are discussed. Preclinical (animal) research, regulatory requirements, are reviewed along with the content of the Investigational New Drug Application (INDA), the New Drug Application (NDA), Pre-Market Approval (PMA), and the Marketing Authorization Application (international). The roles of the Investigator, Study Coordinator, Sponsor, and Monitor are discussed. Students are exposed to the skills necessary to function as a mid-level research employee.

**CTA 510 Clinical Pharmacology in Drug Development**
3 hrs.
This course provides an overview of pharmacology, highlighting pharmacodynamics and pharmacokinetics, both of which are necessary to understand new drug discovery and development. A review of selected therapeutic areas will be reviewed, including oncology, cardiovascular, central nervous system, and anti-infectives.

**CTA 520 Clinical Trial Design and Statistical Concepts**
3 hrs.
The course is designed to allow the student to develop an understanding of the use and importance of statistics in drug development. This course will teach the fundamental statistical concepts used in the design, analysis and regulatory review of clinical studies and drug dossiers. It will provide an understanding of the basic statistical theory used in the interpretation of clinical trial efficacy and safety results. It will give the student an understanding of the statistical requirements applied by regulatory agencies in their review processes.

**CTA 530 Clinical Study Administration I**
3 hrs.
This course covers the planning, development, implementation and management of clinical trials. Topics include regulations, protocol development, case report form design, clinical data management, operation, writing and conducting informed consent, Institutional Review Boards, contracting, budget development, selection and evaluation of research sites and activities required for implementation of a clinical trial. Prerequisite: CTA 500.

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**CTA 540 Clinical Study Administration II**
3 hrs.
The course builds on the content of Clinical Study Administration I and presents the steps necessary to initiate, monitor, and close clinical trials within the context of Food and Drug Administration (FDA) regulations, Canadian Health Protection Branch regulations, and International Conference on Harmonization guidelines for Good Clinical Practices. Topics include: study monitoring, source document review, drug and device distribution and accounting, data correction and management, adverse event reporting, auditing and preparing for FDA inspection, Data review and summarization and final study reports. Prerequisite: CTA 530.

**CTA 550 Ethical and Legal Issues in Clinical Research**
3 hrs.
Generally, biomedical professionals are expected to learn the high standards of their chosen profession by example and experience. In the area of clinical trials that involve human volunteers, the assimilation of ethical standards cannot be left to chance. Personnel involved in clinical trials must balance the dual goals of scientific merit and ethical acceptability. Ethical principles (respect for autonomy, non-maleficence, beneficence, justice), and other ethical concerns (privacy, confidentiality, compassion, relationships among patients and professionals) are studied and applied to contemporary problems in medicine and clinical research. This course is designed to be practical, incorporating the use of case studies that illustrate problems arising in the design and conduct of research trials.
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 professional practice, is available in the Graduate Catalog.

THE UNDERGRADUATE PROFESSIONAL PROGRAM

Bachelor of Social Work

Minimum Hours Required for Graduation: 122 hrs.

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 function of individuals, groups, families, organizations, and communities.

The B.S.W. 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.

Students enrolled in the undergraduate social work curriculum are required to complete a major consisting of 32 hours, a guided interdisciplinary minor of 22–24 hours, and a minimum of 60–62 hours. As part of the program, students complete a 400-hour internship in a social work agency.

Social Work majors can enroll in the social work major. 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 210 Social Work Services and Professional Roles and have a minimum of 45 credit hours, 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 January 15, May 15, and October 1 of each year. Selection of students to be admitted to the major occurs after review of all applications by the Consecutive and First-Year 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 candidates are based upon:

- Competitive overall grade point average
- General and social work related employment
- 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 410/411) in a human service agency. Field education and the courses taken concurrently, SWRK 401 and 402, 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 Field Education Coordinator. The timing of each student's field education is determined upon admission to the major during the program placement interview, at least one semester prior to the scheduled start of field education. Students will receive the Field Placement Application, which is due according to the time frame established for each field cohort by the Field Education Coordinator. Failure to complete the application process according to the established deadline may result in delaying the start of field education.

Field education consists of three required components: A three-day communication laboratory, on-campus seminars, and 400 hours of work at the agency where the student is placed. Each student works with a field supervisor at the agency and a faculty liaison at the University. Communication lab is conducted on campus by the faculty liaison and is intended to help orient students to their placement, to identify overall expectations for professional performance, and to increase general understanding of the field education program. Extensive safety training is included during this time to ensure adequacy of students' knowledge base regarding safety issues. Students attend an integrated on-campus seminar as a part of the field experience. Seminars are facilitated by the faculty liaison and meet 12 hours in SWRK 410 and 14 hours in SWRK 411. The hours devoted to Communication Lab and to the seminars are not considered part of the total 400 on-site field hours. During the actual field hours at the agency, students work with a professional, their field supervisor, 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 a Credit/No Credit basis.

Curriculum Requirements

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Social Work major will satisfy the Baccalaureate Writing Requirement by successfully completing ENGL 305 Practical Writing.

GENERAL EDUCATION REQUIREMENTS ................. 37 hrs.

REQUIREMENTS FOR THE SOCIAL WORK MAJOR ........ 122 hrs.

SWRK 210 Social Work Services and Professional Roles ........ 3

SWRK 300 Social Welfare as a Social Institution ........ 3

SWRK 333 Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice ........ 3

SWRK 350 Human Behavior and the Social Environment ........ 3

SWRK 351 Social Work Concepts in Group, Community and Organization Behavior ........ 3

SWRK 400 Social Work Practice: The Problem Solving Process ........ 3

SWRK 401 Social Work Practice: Intervention and Evaluation ........ 3

SWRK 402 Social Work Practice: Policy Analysis and Organizational Context ........ 3

SWRK 410* Field Experience and Seminar I ........ 4

SWRK 411* Field Experience and Seminar II ........ 4

*Completed field applications are due at least 15 weeks prior to the semester in which field work is to be taken.

REQUIRED RESEARCH COMPONENT .................. 6 hrs.

SOC 282 Methods of Data Collection ........ 3

SOC 283 Methods of Data Analysis ........ 3

REQUIRED GUIDED INTERDISCIPLINARY MINOR ........ 22–24 hrs.

Includes:

COM 170 Interpersonal Communication I ........ 3
ENGL 305 Practical Writing ........ 4
ECON 107 Economic Issues in the U.S. Today ........ 3
Any one of the following:

BIOS 112 Principles of Biology ........ 3
SCI 133 Issues in Social Biology ........ 4
Any one of the following:

PSCI 202 State and Local Government ........ 4
PSCI 300 Urban Politics ........ 3
Any one of the following:

PSY 100 General Psychology ........ 3
PSY 160 Child Psychology ........ 3
PSY 260 Abnormal Psychology ........ 3
Any one of the following:

SOC 210 Modern Social Problems ........ 3
SOC 300 Sociological Theory ........ 3
SOC 352 Introduction to Social Gerontology ........ 3
Students are encouraged to elect additional social work practice areas: anthropology, sociology, or women's studies. The following social work courses are also available as electives for undergraduate students.

- **SWRK 464 Problem Solving in Gerontology**
- **SWRK 512 Social Policy and Service Delivery in Selected Problem Areas**
- **SWRK 562 Community Organization in Urban Areas**
- **SWRK 564 Special Studies in Social Welfare Practice**
- **SWRK 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas**
- **SWRK 598 Readings in Social Work**

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 interdisciplinary minor. Transfer students note 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 governing social workers and their professional relationships with those they serve, with their colleagues, with their employing agency, and with the community. Further details on this policy and procedure may be obtained from the School of Social Work undergraduate coordinator.

**SOCIAL WORK MINOR**

15 credit hours

**REQUIREMENTS**

- **SWRK 210 Social Work Services and Professional Roles**
- **SWRK 300 Social Welfare as a Social Institution**

Plus:

Three of the following social work courses:

- SWRK 333, 350, 351, 464, any 500-level social work course.

**Social Work Courses (SWRK)**

A list of approved General Education courses can be found earlier in this catalog.

**SWRK 210 Social Work Services and Professional Roles**

3 hrs.

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. Prerequisite: Sophomore status or consent of instructor.

**SWRK 300 Social Welfare as a Social Institution**

3 hrs.

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 gender, sexual orientation, and social class upon social policy and service delivery. Prerequisite: SWRK 210 or concurrent enrollment.

**SWRK 333 Introduction to Culture, Ethnicity, and Institutionalized Inequality in Social Work Practice**

3 hrs.

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: Consent of instructor.

**SWRK 350 Human Behavior and the Social Environment**

3 hrs.

Human growth and behavior are studied across the life span and in 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 210 and junior status.

**SWRK 351 Social Work Concepts in Group, Community and Organizational Behavior**

3 hrs.

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 210, SWRK 350, and junior status.

**SWRK 400 Social Work Practice: The Problem Solving Process**

3 hrs.

This is the first of three practice courses. Students are prepared for the beginning phase of the helping process and develop interviewing, listening, relationship building, and assessment skills. The problem solving model is presented with an emphasis on systems theory and the ecological perspective. Students learn about individual, family, and group practice, and in working with individuals, families, and groups, and in working with individuals, families, and groups. Students are encouraged to elect additional social work practice areas: anthropology, sociology, or women's studies. The following social work courses are also available as electives for undergraduate students.

**SWRK 401 Social Work Practice: Intervention and Evaluation**

3 hrs.

This is the second of three practice courses. Students learn practice theories and intervention strategies for use with individuals, families, and groups, and in working with individuals, families, and groups. Students are prepared for the beginning phase of the helping process and develop interviewing, listening, relationship building, and assessment skills. The problem solving model is presented with an emphasis on systems theory and the ecological perspective. Students learn about individual, family, and group practice, and in working with individuals, families, and groups, and in working with individuals, families, and groups.

**SWRK 402 Social Work Practice: Policy Analysis and Organizational Context**

3 hrs.

This course combines conceptual analysis and training in practice skills. It focuses on the effects of social policy and organizational context on social work practice. It examines the basic process of policy development and the relationship between policy, ideology, and values. It pays particular attention to the impact of social policy on human service organizations, analyzing the effects of specific policies on workers, clients, and organizational structure and goals. It helps students develop skills for effective functioning in the organizational environment including organizational change and utilization of organizational resources for effective service delivery. Prerequisites: Senior status, SWRK 401, concurrent enrollment in SWRK 411.

**SWRK 410 Field Experience and Seminar I**

4 hrs.

This is the first of two field practice courses that entails two hundred (200) hours in a human service agency. Students apply knowledge and develop skills in conducting interviews, problem identification, data collection, problem assessment, and goal formulation with client systems in the context of social work values. Students integrate self-awareness and appreciation of diversity into professional practice and develop a working knowledge of the agency’s functions, structure, processes, and its service provider role within the community. Graded on a Credit/No Credit basis. Prerequisites: Senior status, Social Work Major status, consent of the Coordinator of Field Education, completion of SWRK 400, and concurrent enrollment in SWRK 401. Completed practice must be at least 15 weeks prior to the semester of field education.

**SWRK 411 Field Experience and Seminar II**

4 hrs.

This is the second of two practicum courses that entails two hundred (200) hours in a human service agency. Students further integrate and apply social work knowledge, skills, and values in their field practicum, including the problem-solving process, interviewing, use of self, and understanding of...
families, groups, and organizations contribute to the functioning of communities. Students will examine major contributions communities make to the domain of human development and functioning. The course addresses the rich heritage of social movements' accomplishments in American history; the theories exploring how social movements begin, endure, and effectively influence society; and how social movements have impacted critical issues in our nation's history. Students will learn elements of strategy to mobilize successful nonviolent social movements. The unique and specific contributions social workers make to social movements are explored.

SWRK 502 Community Organization in Urban Areas

3 hrs.

Social welfare planning and social action methods are studied as approaches for preventing and resolving aspects of social problems. Emphasis is placed on the organizing of neighborhood and consumer groups in order to increase social interaction and improve social conditions. Prerequisite: Consent of instructor.

SWRK 564 Special Studies in Social Welfare Practice

1-4 hrs.

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.

SWRK 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas

1-4 hrs.

The 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 credits) for different assignments associated with the service or problem area. Specific topics will be announced each semester. Prerequisite: Open only to senior undergraduates and graduate students.

SWRK 560 Social Work with Communities

3 hrs.

This course involves an examination of major theoretical and conceptual tenets of community practice from a social work perspective. It also involves a practical integration of theoretical and conceptual knowledge of community practice through assignments which will focus on communities that are available through field placements or other arrangements. Students will examine the contributions communities make to the functioning of individuals, families, groups, and organizations, as well as how individuals, families, groups, and organizations contribute to the functioning of communities. Students will integrate into an understanding of community practice social work's historical and contemporary emphasis on "empowerment" and the person-environment interface (i.e. interaction among biological, cultural, social, psychological, political, and economic aspects of human development and functioning). Prerequisite: Undergraduate senior status.

SWRK 561 Social Workers and Social Movements

3 hrs.

This course aims at helping social workers understand how social movements operate and how they can effectively and uniquely contribute to the just goals of social movements. The course addresses the rich heritage of social movements' accomplishments in American history; the theories exploring how social movements begin, endure, and effectively influence society; and how social movements have impacted critical issues in our nation's history. Students will learn elements of strategy to mobilize successful nonviolent social movements. The unique and specific contributions social workers make to social movements are explored.

SWRK 464 Problem Solving in Gerontology

3 hrs.

This course provides the student with information about social welfare programs, both institutional and non-institutional, which are available to our aged population. The student is introduced to different approaches to service delivery and interventive problem solving techniques utilized by professional social workers in working with minority and majority aged population. Open to social work students and students from related professional disciplines with consent of instructor.

SWRK 512 Social Policy and Service Delivery in Selected Problem Areas

3 hrs.

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. Prerequisite: Open only to senior undergraduates and graduate students.

SPEECH PATHOLOGY AND AUDIOLOGY CURRICULUM

ADMISSION

Students who desire to major in speech pathology and audiology will be admitted into the Pre-Speech Pathology and Audiology curriculum at the time of admission to the University. This status, however, does not assure admission to the departmental major. The selection of students to be admitted to a speech pathology and audiology major occurs after review of all applicants by a departmental faculty committee.

Further information regarding requirements and procedures for admission to the departmental major may be obtained by contacting the department directly.

Transfer Students

It is recommended that transfer students enroll at Western at the beginning of the first semester of the sophomore year. Those 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

John M. Hanley, Chair
Harold L. Bate
Jan Bedrosian
Susan K. Carlson
Michael J. Clark
Teresa Crompton
Sandra Glista
James M. Hillenbrand
Kathryn Hillenbrand
Yvette Hyter
Bharti Katbamna
Gary D. Lawson
Nichola W. Nelson
Karen S. Seelig
Adelia VanMeter
Heidi Voglery

Communication is the most complex aspect of human behavior. Impairments in the process of communication—speech, language, and hearing—leave myriad problems in their wake. Speech pathology and audiology is the area of professional specialization that has developed out of concern for persons with disorders of communication.

The basic educational mission of the Department of Speech Pathology and Audiology is to prepare professional personnel who will be maximally effective in the delivery of diagnostic, rehabilitative, and preventive services to individuals handicapped by speech, language, and hearing impairments.

The undergraduate program is preprofessional in nature and is designed to prepare students for graduate professional education in speech and language pathology or audiology. Because the bachelor's degree does not qualify the recipient for employment, students must plan for enrollment in a master's degree program in order to complete their professional preparation. Admission to a graduate program typically requires a grade point average of "B" or higher in the undergraduate major as well as in undergraduate course work (overall GPA). Completion of the undergraduate major in speech pathology and audiology does not guarantee a student's admission into WMU's or any other school's graduate program. Information about this department's master's degree program can be found in the WMU Graduate Catalog.

Prerequisites:

- Completion of the undergraduate program in speech and language pathology typically requires a grade point average of "B" or higher in the undergraduate major as well as in undergraduate course work (overall GPA).
- Completion of the undergraduate major in speech pathology and audiology does not guarantee a student's admission into WMU's or any other school's graduate program.
SPEECH PATHOLOGY AND AUDIOLOGY MAJOR

A major in speech pathology and audiology consists of a minimum of 35 to 37 hours in speech pathology and audiology plus additional course work specified by the department. These additional requirements include courses taken in general education, supporting courses outside the department, and an academic minor. Each student is responsible for obtaining information on degree requirements and for taking the steps necessary to meet those requirements. Students interested in a major in speech pathology and audiology should contact the department office in the Speech and Hearing Center on the East Campus for an appointment with an undergraduate advisor. Because the sequencing of courses included in this major is critically important, students must seek academic advising from the department on an early and regular basis. Students who fail to do so may be dropped from enrollment in departmental courses.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Speech Pathology and Audiology major will satisfy the Baccalaureate Writing Requirement by successfully completing SPPA 458 Special Studies in Communication Disorders.

Teacher Certification Track

Students who seek careers as teacher of the speech and language impaired in the public schools in Michigan (or in other states which require teacher certification for such employment) must (in addition to earning a master's degree in speech-language pathology) arrange to complete a professional education minor which is required for the Provisional Teaching Certificate. Two options for earning teaching certification are offered. The majority of students are encouraged to complete a minor in elementary education which leads to recommendation for the Elementary Provisional Teaching Certificate. Other students or post baccalaureate practicing Speech-Language Pathologists may earn Secondary Provisional Teaching Certification by completing a minimum 20-hour minor in an approved teaching area as well as required professional education course work. Specific requirements and approval for these minors are obtained from the Education Advising and Admissions Office, 2504 Sangren Hall. Students must meet the admission requirements of the Education Advising and Admissions Office, 2504 Sangren Hall. Completion of the following requirements, together with completion of the curricular requirements described below, and completion of a master's degree program in speech pathology and audiology (with major emphasis in speech pathology, and including a graduate level six credit hour internship in speech-language pathology) will result in recommendation of the student for the appropriate level of Provisional Teaching Certification. Simultaneously, the master's degree recipient in this track is approved for employment in Michigan as a "Teacher of Speech and Language Impaired" and typically also will have completed the academic and practicum experiences required for employment in other clinical settings as well. Although Michigan does not require Teacher Certification for audiologists employed in the public schools, other states may require such certification. A graduate emphasis in audiology does not satisfy Teacher Certification requirements.

Non-Teacher Certification Track

Students who seek careers in settings other than the schools (for example, in hospitals, community agencies, and rehabilitation centers) or who are preparing for doctoral study are not required to complete the requirements for teaching certification outlined above. Students in this case are required to complete an academic minor in an area such as social work, computer science, physics, psychology, gerontology or another related discipline. Assistance in selecting an appropriate minor is available through the departmental undergraduate advisor. Completion of the curricular requirements described below, together with the completion of a master's degree program in speech pathology and 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 and language pathology or audiology) pursued in graduate school.

SPEECH AND HEARING PROCESSES MINOR

The departmental minor in speech and hearing processes requires a minimum of fifteen hours of credit in speech pathology and audiology course work. Work in consultation with a departmental advisor, students may design a minor option in areas such as speech-language-hearing science, audiology, speech-language-hearing disorders, or other individually tailored sequences complementary to the student's educational and vocational objectives. The only undergraduate courses specifically excluded from consideration in a minor sequence are SPPA 400 and SPPA 401, both of which are clinical practicum registrations available only to departmental majors. Minor slips are required.

Speech Pathology and Audiology Courses (SPPA)

A list of approved General Education courses can be found earlier in this catalog.

SPPA 200 Communication Disorders and Sciences 3 hrs.

This introductory course provides a broad overview of the acoustical, anatomical, biological, environmental, linguistic, physiological, and psychosocial bases of human communication and the ways in which it may be disordered. The impact of scientific investigation, teaching, 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.

SPPA 203 Normal Language Acquisition 3 hrs.

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.

Prerequisite: Consent of instructor or LANG 105 and PSY 100. Majors must take concurrently with SPPA 204 and SPPA 207.

SPPA 204 Phonetics 3 hrs.

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 transcriber of speech behavior. Prerequisite: Consent of instructor or LANG 105 and BIOS 112. Majors must take concurrently with SPPA 203 and SPPA 207.

SPPA 205 Speech Anatomy and Physiology 3 hrs.

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 involved, including neurology. Prerequisites: Consent of instructor or SPPA 203; SPPA 204; PHY 107 and 108; MATH 114. Majors must take concurrently with SPPA 206.

SPPA 206 Hearing Science 3 hrs.

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. Prerequisites: SPPA 203; SPPA 204; PHY 107 and 108; MATH 114; or by consent of instructor. Majors must take concurrently with SPPA 205.

SPPA 207 Clinical Laboratory 2 hrs.

This course introduces the student to various 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. Must be concurrently taken with SPPA 203 and 204.

SPPA 260 Linguistic Development of the Child 2 hrs.

This course focuses on the communication development of the child, birth through 12 years. The acquisition of language and other communication modes are viewed from a psycholinguistic orientation. Application to the teaching of the language arts is emphasized. Must be taken concurrently with ILAM/ED 260. Required for the Integrated Language Arts Minor.

SPPA 351 Phonemic Disorders 2 hrs.

A detailed study of the nature of phonemic disorders; orientation to clinical management. Prerequisite: SPPA 204.

SPPA 353 Fluency Disorders 2 hrs.

A detailed study of the nature of fluency disorders; orientation to clinical management. Prerequisite: SPPA 204 and SPPA 403.

SPPA 354 Language Disorders in Children 3 hrs.

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 203.

SPPA 358 Disorders of Hearing: Identification and Measurement 3 hrs.

An introduction to the measurement of hearing and the field of audiology. The course includes an introduction to aural pathologies. Prerequisite: Consent of instructor or SPPA 206.

SPPA 359 Audiologic Assessment and Decision Making 3 hrs.
SPPA 400 Practicum in Speech Pathology and Audiology I
2 hrs.
Clinical experience in the management of speech, language, and/or hearing disorders. Prior departmental approval required.

SPPA 401 Practicum in Speech Pathology and Audiology II
2 hrs.
Clinical experience in the management of speech, language, and/or hearing disorders. 
Prerequisite: SPPA 400.

SPPA 403 Speech Science
3 hrs.
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. Prerequisite: Consent of instructor or SPPA 205 and SPPA 206.

SPPA 456 Rehabilitative Audiology
3 hrs.
Principles and clinical management of communication problems associated with auditory impairment.

SPPA 459 Special Studies in Communication Disorders
3 hrs.
A survey of neuropathologies and structural deviations which result in communication disorders, including infantile cerebral palsy and cleft palate. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Consent of instructor.

SPPA 552 Communication Problems of the Aged
3 hrs.
This course is designed to acquaint the student with receptive and expressive communication problems common to older adults. Emphasis is on the clinical management of characteristic organic speech disorders and impaired auditory functions associated with aging.

SPPA 554 Speech and Hearing Therapy in the Schools
2 hrs.
Study of clinical work with speech, language, and hearing disordered children in the school setting.

SPPA 556 Rehabilitative Audiology
3 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment.

SPPA 595 Oral Language Development and Dysfunction
2 hrs.
This course is designed to provide the student preparing to be a classroom or special teacher with information about the nature of oral language, its development, and conditions associated with dysfunction. Does not apply toward a major in speech pathology and audiology.

SPPA 597 Topics in Speech Pathology and Audiology
1–4 hrs.
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.
DIVISION OF CONTINUING EDUCATION

Alan Walker
Vice Provost of Academic Affairs for Continuing Education

Margaret Bernhard
Director of Academic Programming and Outreach

Nancy Cretsinger
Director, Budget, Finance, and Administration

The Division of Continuing Education extends the University's educational resources throughout Michigan and beyond by partnering with academic departments to deliver undergraduate and graduate degree and certificate programs and non-credit conferences and workshops. These programs are delivered through regional centers and other locations in a time, place, and format oriented toward the needs of the adult, part-time learner. Continuing Education also provides alternative delivery methods, such as compressed video, on-line courses, and traditional self-instruction through the Department of Distance Education. Six regional centers (Battle Creek, Grand Rapids, Lansing, Muskegon, St. Joseph/Benton Harbor, and Traverse City), one regional site (Holland), Kalamazoo and Statewide Programs, Distance Education, and Conferences and Seminars comprise the University's extension organization.

Through Continuing Education, five colleges provide the full program or course work for 20 master's degrees, five graduate certificates, three doctoral degrees, and five undergraduate degree programs off-campus. Click on www.wmich.edu/conted/ to view academic offerings in each regional center.

Kalamazoo and Statewide Programs

Kalamazoo and Statewide Programs provides undergraduate and graduate courses in a variety of formats, including weekends, field experience classes and two-week summer intensive programs. Courses may be applied to degrees or certificates or can be taken for personal or professional development. In addition, the office extends the University's resources to students and organizations on the east side of the state. For more information, call (616) 387-4167 or click on www.wmich.edu/kzoo Director: Ms. Natalie Morton.

Distance Education

The Department of Distance Education offers an increasingly broad spectrum of courses and programs via multiple distance learning methods and techniques. WMU utilizes synchronous and asynchronous methodologies with courses delivered by compressed video, videotape, on-line, and correspondence instruction. The department is continually developing new programming to deliver courses to students at a distance using the latest technologies.

Western Michigan University offers courses by compressed video interactive television (CVIT) and videotape/group discussion through Group Learning of the Department of Distance Education. In this program, students may access the Colleges of Arts and Sciences, Education, Engineering and Applied Sciences, and Health and Human Services. Courses are offered during the evening or on the weekend to many key sites around Michigan. Group Learning provides the flexibility and convenience that adult working professionals require. For more information, call (616) 387-4216.

Self-Instruction courses are also available. The Department of Distance Education offers over 100 undergraduate credit courses using a variety of media. Courses are developed by University faculty. Registration and completion dates are flexible but under most circumstances, students have up to a year to complete the course. These credit courses may be applied to an undergraduate degree, subject to limitations defined by the University, college, or department in which the student is studying. Information may be obtained by calling (616) 387-4195.

Conferences and Seminars

The Office of Conferences and Seminars provides professional program development and management of conferences and non-credit seminars in cooperation with University departments, professional groups, and community organizations. In addition to program development, management includes registration, fiscal services, marketing, AV and teleconferencing, speaker and exhibit coordination and all other logistics. Programs can take place anywhere in the U.S. For more information, call (616) 387-4174 or click on www.wmich.edu/conferences Director: Ms. Janet Karpus.

Regional Centers and Regional Sites

The Division's administrative offices are located in Ellsworth Hall on Western's main campus in Kalamazoo. Regional centers and regional sites are located as follows:

Battle Creek Kendall Center
Kendall Center
Mr. Anthony De Rose, Director
50 W. Jackson
Battle Creek, MI 49017-3505
(616) 965-5390

Grand Rapids Regional Centers
Dr. James Schultz, Director
Beltline Regional Center
2333 East Beltline, S.E.
Grand Rapids, MI 49546-5936
(616) 771-9470

The Graduate Center
200 Ionia Avenue, S.W.
Grand Rapids, MI 49503
(616) 771-4100

Holland Regional Site at Hope College
B-05 100 E. 8th St.
Holland, MI 49423
(616) 392-1143

Lansing Regional Center
Mr. Gus H. Breymann, Director
6105 W. Saint Joseph Hwy., Suite 205
Lansing, MI 48917
(517) 327-1490

Muskegon Regional Center
Muskegon Center for Higher Education
Ms. Deborah N. Newsom, Director
221 S. Quarterline Road
Muskegon, MI 49442-1742
(231) 777-0500

Southwest Regional Center
Mr. Leonard SeaWood, Director
2510 Lakeview Avenue St.
Joseph, MI 49085-1872
(616) 983-1968

Traverse University Center
Ms. Mary Swartz, Director
220 Dendrinos Dr., Suite 200-S
Traverse City, MI 49684
(231) 995-1788

STUDENT PLANNED CURRICULUM

Gerry Schma, Advisor

The Student Planned Curriculum (STC) provides students the opportunity to pursue educational goals which cannot readily be accommodated in other University curricula. The usual major/minor requirements are suspended within this program. Instead the individual student, working with an assigned advisor, selects coursework related to the student's academic and educational goals. Thus, the student enjoys considerable freedom and flexibility in designing such a program. Aside from the University's General Education and Intellectual Skills requirements, the major consists entirely of elective courses which must be sufficient in number to meet general degree requirements. Students completing this major are eligible to receive either the B.A. or B.S. degree depending upon the particular configuration of course work selected.

The primary uses of the STC fall into three categories: 1) as a preparation for graduate or professional study; 2) as a way to pursue employment possibilities in areas where no conventional curricula exist; and 3) as a convenient way to obtain a broad interdisciplinary undergraduate education without particular concern for career possibilities. Non-traditional students are often especially attracted to it for this latter reason. Any undergraduate student in good academic standing, with 75 or fewer semester
hours earned, is eligible to enter the STC providing they meet program requirements. Those applying for admission into the curriculum are expected to complete a written statement outlining educational goals as well as the proposed course of study. Once the student has outlined a proposed course of study, the student is required to review the course selections with a faculty member of advisor in the department(s) offering a majority of the proposed courses. The department members will advise the student regarding the course selections. Once a department has provided guidance, the STC advisor oversees the ongoing student progress.

GENERAL UNIVERSITY STUDIES

General University Studies is a baccalaureate degree program offered through the Division of Continuing Education. This degree is available for those students with technical and/or community college background who wish to return to college to complete the requirements for a bachelor's degree. Upon completion, students receive either the Bachelor of Arts or the Bachelor of Science degree, depending upon the subject matter content of the program. Specific course requirements vary with the selected area of concentration. All programs must be planned with an academic advisor for the area of concentration. Arrangements for consultation with an advisor will be provided at the student's convenience. Inquiries about the General University Studies programs may be directed to any of the Division's offices.

ADMISSION

The General University Studies Curriculum programs are designed for students who have a transferable associate's degree or junior status (56 hours), who are in good academic standing. Exceptions will be considered under special circumstances. The admission process is continuous. Applications may be submitted at any time during the calendar year. The University's terms begin in September (Fall), January (Winter), May (Spring) and June (Summer). To be admitted to this program, students should complete the admission steps at least two months prior to the start of classes. To apply for admission, the student must:

1. Complete an admission application for a degree program and submit with the application fee ($25.00) to the WMU Office of Admissions and Orientation.
2. Request official transcripts to be sent to the WMU Office of Admissions and Orientation from all previously attended post-secondary institutions.
3. Submit evidence of meeting any additional admission requirement for a GUS program described below.

When admission has been granted, the Office of Admissions and Orientation will prepare a credit evaluation which will enable the advisor to prepare a program outline prior to the first registration.

GENERAL REQUIREMENTS

The general requirements for a bachelor's degree in the General University Studies curriculum include the following:

1. Complete at least 122 hours of credit, with a minimum of 60 hours of academic work from an accredited four-year degree-granting institution. At least 30 hours of credit must be taken through Western Michigan University, including the WMU residency requirement.

2. Completion of a planned area of concentration with a minimum of 45 semester hours of credit. Some work may include credit completed in the first two years of the student's preparation or credit given for non-accredited training or experience.
3. Complete the General Education requirement for a minimum of 37 semester hours of credit. This work can include credits earned in the planned area of concentration.
4. Completion of the University's Computer Usage, Intellectual Skills, and Baccalaureate-level Writing requirements.

PROGRAM AREAS

Health Studies

Gerry Schma, Advisor

This program is intended for allied health professionals including registered nurses (R.N.), registered dental assistants (R.D.A.), dental hygienists, radiology technologists, respiratory therapists, histotechnologists, cytotechnologists, certified medical assistants, paramedics, and medical laboratory technicians. If who have achieved licensure or registry in their health profession and wish to earn a Bachelor of Science degree. Areas of concentration in health studies require a minimum of 45 semester hours and represent the student's opportunity to further develop individual objectives. A major feature of the Health Studies program is that it is highly individualized and may be, to a large extent, self-directed. An advisor will assist the student in selecting appropriate courses and in preparing a program of study to accomplish the student's educational goals.

Occupational Education Studies

Natalie Morton, Advisor

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 processes all recommendations for certification and advises students seeking additional teaching endorsements.

ADMISSION REQUIREMENTS

In addition to the regular General University Studies 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 at the time of application:

1. Complete ED 250 Human Development 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 Section.

When admission has been granted, the Office of Admissions and Orientation will prepare a credit evaluation which will enable the advisor to prepare a program outline prior to the first registration.
The Graduate College offers a wide variety of programs leading to the master's, specialist, and doctoral degrees.

The Master of Arts is awarded in numerous programs in the following general categories within the College of Education: Career and Technical Education, Counseling Psychology, Counselor Education, Education and Professional Development, Educational Leadership, Educational Technology, Family and Consumer Sciences, Physical Education, and Special Education.

A number of other programs at Western also lead to the Master of Arts: Anthropology, Art, Chemistry, Communication, Comparative Religion, Economics, English, Geography, History, Mathematics, Mathematics Education, Medieval Studies, Orientation and Mobility, Philosophy, Physics, Political Science, Psychology, Rehabilitation Teaching, Science Education, Sociology, Spanish, Speech Pathology and Audiology, Teaching of Geography, and Teaching of Music.

The University also offers the Master of Science in Accountancy, Applied Mathematics, Biological Sciences, Biostatistics, Business, Computational Mathematics, Computer Science, Construction Management, Earth Science, Engineering (Computer, Electrical, Industrial, and Mechanical), Engineering Management, Geology, Manufacturing Engineering, Materials Science and Engineering, Medicine, Occupational Therapy, Operations Research, Paper and Imaging Science and Engineering, and Statistics, as well as the Master of Business Administration, Master of Development Administration, Master of Fine Arts (in Art and in Creative Writing), Master of Music, Master of Public Administration, and Master of Social Work. In addition, dual Master of Arts programs (leading to two master's degrees) are available in Counselor Education/Rehabilitation Teaching and in Special Education/Orientation and Mobility.

Programs leading to the Specialist in Education are offered in Educational Leadership and in School Psychology.


The Doctor of Education is offered in Educational Leadership and in Special Education.

Please refer to The Graduate College Catalog, 2000–2002 for further information on these programs, as well as on admission and graduation requirements.
INTERNATIONAL PROGRAMS

OFFICE OF INTERNATIONAL AFFAIRS
Howard J. Dooley
Executive Director of International Affairs

Richard Pippen
Twining Programs Administrative Officer

W. Wilson Woods
Director of Operations

Ellsworth Hall, Second Floor, B-Wing
(616) 387-3951
FAX (616) 387-3962
Website: http://www.wmich.edu/oia

The Office of International Affairs provides administration and coordination for a broad array of programs comprising the international relations of Western Michigan University, which is committed to being a globally engaged academic institution. Responsibilities and activities of the office include:

- Negotiation and oversight of linkages between WMU and colleges and universities in other countries, including programs for faculty and student exchanges.
- Development and management of transnational educational partnerships such as "twinning programs" and offshore degree offerings.
- Review of international contracts.
- Recruitment and support of qualified international students to WMU.
- Provision of an English as a Second Language training program.
- Support services for visiting international scholars.
- Development and conduct of international training programs for individuals and groups from abroad.
- Assistance with applications for international fellowships for faculty and students.

The Office of International Affairs collaborates with the Diether H. Haenicke Institute for International and Area Studies in promoting and coordinating the international outreach of the University, sponsorship of conferences and symposia on globalization and internationalization, and representation of WMU at international education organizations at the state, national, and international levels.

The Office of International Affairs also supervises the units responsible for serving the needs of international students: The Office of International Student Services, which handles the admission and special circumstances of foreign students, and the Career English Language Center for International Students (CELCIS), which provides intensive English instruction for foreign students seeking admission to U.S. institutions of higher learning.

OFFICE OF INTERNATIONAL STUDENT SERVICES
Jolene Jackson, Director
Ellsworth Hall, Fourth Floor, A-Wing
(616) 387-5865
FAX (616) 387-5899
Website: http://www.wmich.edu/iss

The Office of International Student Services 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. While at the University, international students are encouraged to participate in academic and social activities as their interests and time allow.

International students interested in seeking admission to Western Michigan University should contact the Office of International Student Services for application forms and instructions. See the catalog sections describing Admission Procedures and Admission Requirements for more complete information.

Request additional information or application materials by mail from:
Office of International Student Services
A411 Ellsworth Hall
Western Michigan University
Kalamazoo, MI 49008-5176 USA

Application materials also are available at the above FAX number or may be downloaded from the office's website.

CAREER ENGLISH LANGUAGE CENTER FOR INTERNATIONAL STUDENTS (CELCIS)
Laura Latulippe, Director
Ellsworth Hall, Ground Floor, B-Wing
(616) 387-4803
FAX: (616) 387-4806
Website: http://www.wmich.edu/oia/celsic

The Career English Language Center for International Students (CELCIS) provides intensive language instruction for prospective students who may require it for regular admission to the University.

Students in the CELCIS program holding the F-1 visa must be enrolled full-time (twenty hours of classroom instruction per week). Resident aliens and students holding the F-2 visa may attend CELCIS part-time. Classes at various levels include: Speaking and Listening, Comprehension, Grammar, Academic Reading and Vocabulary Building, Academic Writing, and Research Paper Writing. Extracurricular activities include a monthly social hour, conversation partners, home visits, and various social, sport, and cultural programs.

There are four CELCIS terms per year: two 15-week terms (Fall and Winter) and two 7-week terms (Spring and Summer). University Testing and Evaluation Services offers the institutional TOEFL at the end of each term. The Certificate of Eligibility for a visa (Form 1-20 or IAF-66) is issued by CELCIS for admission to the CELCIS program. Admission to CELCIS, however, does not imply admission to the University for academic study.

For further information and application forms, contact
Career English Language Center for International Students
B0021 Ellsworth Hall
Western Michigan University
Kalamazoo, MI 49008-5162 USA

Application and informational materials also are available at the FAX number above or may be downloaded from the office's website.

INSTITUTION-TO-INSTITUTION LINKAGES

The Office of International Affairs negotiates and manages formal linkages with educational institutions abroad. These institutional affiliations involve direct operational ties, arrived at through mutual agreement and providing mutual benefit. These formal contracts have facilitated faculty and student exchanges, teaching and research opportunities for professors and students, visiting scholar programs, reciprocal scholarships for students, and the development of library resources. The University assigns a high priority to establishing academic cooperation agreements that involve mutual collaboration and benefits and institutionalize a "Western Michigan connection" with the world.

Western Michigan University's oldest partnerships are with the Free University of Berlin, Germany, and Keio University, Tokyo, Japan, with which exchanges have been conducted since the early 1960s.

Current Linkage Partners

AFRICA
- Addis Ababa University, Addis Ababa, Ethiopia
- Obafemi Awolowo University, Ile-Ife, Nigeria

AMERICAS
- Autonomous University of Queretaro, Queretaro, Mexico

ASIA
- Beijing Language and Culture University, Beijing, People's Republic of China
- Hong Kong Baptist University, Hong Kong, Special Administrative Region, People's Republic of China
- Christ College, Bangalore, India
- Hindustan College, Chennai (Madras), India

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- Hong Kong Baptist University, Hong Kong, Special Administrative Region, People's Republic of China
- Christ College, Bangalore, India
- Hindustan College, Chennai (Madras), India
Twinning Programs

WMU's involvement in international education relies heavily upon the "twinning program" concept. Originally developed by the Office of International Affairs in 1987 as a form of technical assistance for the creation of a private college in Malaysia, "twinning" authorizes an international partner institution to authorize an international partner institution to WMU curricula. Courses offered abroad are titles, numbers, texts, examinations and other delivery of the University's academic programs outside the United States through partnerships with schools and agencies abroad. In

Singapore, a full MBA program is offered in partnership with the Haworth College of Business at the Center for American Education. The program is delivered by WMU faculty who travel to Southeast Asia to teach courses including accountancy, business policy and ethics, finance and management, information technology, marketing, and intercultural communication. The degree can be completed entirely on-site in approximately fifteen months. A pre-MBA curriculum is also offered on-site in South India through a "twinning" program.

International Training and Development Projects

Western Michigan University has a long record of international development assistance. For example, between 1963 and 1968 a team from WMU College of Engineering and Applied Sciences assisted in the creation of Ibadan Polytechnic College in Ibadan, Nigeria, under contract with the United States Agency for International Development (USAID). The Office of International Affairs is an active provider of training projects to foundations and government and private agencies including the United States Information Agency (USIA), Department of State, American Councils for International Exchange (ACIE), International Research and Exchanges Board (IREX), Partners in International Training (PIET), the Kellogg Foundation and the Sasakiwa Foundation.

FULLBRIGHT CAMPUS OFFICE

The Office of International Affairs is the official campus liaison office with the Council for the International Exchange of Scholars (CIES) and the Institute of International Education (IIE). Information about Fulbright Scholar-in-Residence Grants, Visiting Fulbright Scholars and Occasional Lecturers, Teacher Exchange Programs, and Fulbright Grants for Graduate Study Abroad are made available to faculty members and students. WMU faculty members have been awarded Fulbright grants to Argentina, Australia, Belgium, Botswana, the Czech Republic, El Salvador, Finland, France, Germany, Honduras, India, Japan, Latvia, Norway, Peru, the Philippines, Romania, Russia, Spain, Sweden, Taiwan, Uruguay and Zimbabwe. WMU students have long competed successfully for Fulbright Grants for Graduate Study Abroad; awards have included grants for study in economics in Colombia, a teaching assistantship in Germany, archaeology in Italy, and theatre in Australia and England. The Office of International Affairs handles arrangements for Visiting Fulbright Scholars from abroad. Recently WMU has hosted scholars from Algeria, China, Denmark, Egypt, Hungary, India, Jamaica, Kenya, Korea, Latvia, Pakistan, Romania, Turkey, and the United Kingdom.

PEACE CORPS

Western Michigan University is the fourth largest source of Peace Corps volunteers among all colleges and universities in Michigan, according to a report published by the Peace Corps. Since the Peace Corps' founding in 1961, more than 400 WMU graduates have served as volunteers. The Office of International Affairs assists in informational and recruiting activities.

LIAISON WITH INTERNATIONAL EDUCATION ORGANIZATIONS

The Office of International Affairs maintains contact with international administrators and
study abroad advisors at other universities, embassies, consulates, and consultants on international education. The office also maintains affiliation with appropriate national and state organizations such as the Association of International Education Administrators, the International Education Association, the Council on International Educational Exchange, the Association of College Registrars and Admissions Officers, NAFSA, the Association of International Educators, and the European Association for International Education.

Directly and through constituent units of the University, the Office of International Affairs builds linkages with organizations engaged in providing international services to U.S.-based and foreign clients. It also distributes information about international programs, activities, and opportunities to Western Michigan University to other institutions, agencies, and government units located in the United States and abroad.

DIETHER H. HAENICKE INSTITUTE FOR INTERNATIONAL AND AREA STUDIES

Ronald Davis
Assistant Provost and Director
Ellsworth Hall, Second Floor, B-Wing
(616) 387–3985
FAX (616) 387–3962
Web site: http://www.wmich.edu/hcenter

The Diether H. Haenicke Institute for International and Area Studies fosters and supports globalization and internationalization of the academic environment at Western Michigan University. Specific activities and responsibilities include:

Curriculum Development The Institute collaborates with colleges, departments, and other interdisciplinary programs to develop and enhance international and area studies programs, as well as other undergraduate and graduate curricular programs strong in global and international content and focus. It offers occasional interdisciplinary courses in support of these programs.

Faculty Research and Development The Institute provides supplementary support, in the form of travel grants, research stipends, general program support, and other awards to assist faculty involved in global, international, or area studies research, course development, or professional travel to sites outside the United States.

Internationalization of the Academic Environment The Institute hosts conferences and visiting scholars, participates in collaboration with departments and colleges, and works with university units and faculty on development of grant proposals and other projects focusing on global or international activities. A particular emphasis is on collaboration with other interdisciplinary institutes and centers at Western Michigan University.

Outreach The Institute is intended to become a resource and information center on globalization and internationalization for the WMU community and for the region’s school systems, organizations, and citizens. It also fosters international consortia for international projects.

Study Abroad The Institute administers the WMU Study Abroad programs, including maintenance of existing sites and development of additional venues, and coordinates the program with curricular development.

The Haenicke Institute collaborates extensively with the Office of International Affairs in promoting and coordinating the international outreach of the university, sponsorship of conferences and symposia on globalization and internationalization, and representation of WMU at international education organizations at the state, national and international levels.

CENTER FOR AFRICAN DEVELOPMENT POLICY STUDIES

Sisay Asefa, Director
Ellsworth Hall, Second Floor, B-Wing
(616) 387–1945
FAX (616) 387–3962
The Center for African Development Policy Research (CADPR), housed in the Diether H. Haenicke Institute for International and Area Studies, acts as a research, conference, exchange and publication center for scholarship focusing on various dimensions of African economic development and its social and cultural consequences. Specific objectives and activities include:

- Support of academic activities and programs that contribute to understanding the development and environmental problems of African in the form of seminars, workshops, conferences, and discussion or working paper series;
- Coordinating and facilitating short term research and training programs and seminars in collaboration with WMU academic departments and African institutions of higher education and research, in order to promote economic development and business opportunities in Africa;
- Facilitation of academic linkages and exchange visits of scholars between WMU and institutions of higher education and research in Africa, as well as similar entities in other locations concerned with African problems and issues; and
- Development of a Web-based clearinghouse for African studies, which will serve as an information center for WMU faculty and students, visiting scholars and other contributors, focused on international development in general and African development in particular, and a center for publication of research.

STUDY ABROAD

Dr. Sabine C. Klahr, Director
Ellsworth Hall, Second Floor, B-Wing

Web site: http://www.wmich.edu/studyabroad

WMU students are finding it increasingly beneficial to incorporate study abroad into their curricula of study. In today’s interdependent world, more careers than ever before demand global awareness and cross-cultural sensitivity which can best be obtained through time spent living and studying abroad. Many programs are language-based; that is, they are designed for students with some foreign language skills or provide opportunities for intensive language study. There are also many study abroad programs that provide instruction in English, including in areas where the native language is not English. WMU students have many study abroad programs available to them. The WMU Office of Study Abroad provides extensive logistical and informational support to students. This is true both at the stage of a student’s investigation of opportunities as well as at the point where the student actually goes abroad. WMU sponsors a number of its own programs, especially in the social sciences, humanities (including language), and business. WMU will also accept credit from many of the thousands of programs operated by other universities and consortia all over the world.

There are virtually no barriers for WMU students to study abroad! WMU students may receive credit for all courses completed abroad with pre-approval from their academic advisors and the Office of Study Abroad. The cost for a study abroad program can be less than comparable to expenses students pay for a semester at WMU. Many affordable opportunities exist. Students with financial aid can use their awards for study abroad and a number of scholarships are available. WMU students enroll at WMU while studying abroad and do not have to re-enroll upon their return.

WMU students usually study abroad during their sophomore, junior, or senior year. Many students find that the spring or summer term of their junior or senior year is the most satisfactory time to study abroad. To ensure adequate preparation, it is useful to begin planning for study abroad six to twelve months before the intended semester(s) abroad. WMU students may study abroad for a spring or summer term, one semester, or the full academic year. Students who study abroad for an entire academic year have the most meaningful cultural immersion experience. Many students, however, will find a strong semester program to be attractive and very educational. Any experience abroad is beneficial; however, most participants report that the longer the stay, the greater the benefits.

Please note: All students who participate in activities abroad for which WMU academic credit is assigned or is an option, or non-credit activities abroad supervised by WMU faculty, are required to register with the Office of Study Abroad and carry appropriate insurance as determined by that office, and should participate in orientation services offered by the Office of Study Abroad. Consult a Study Abroad advisor for more information.

The steps to follow for students planning to study abroad are as follows:

1. LAUNCH SESSION
   - Call 387-5890 to schedule a Study Abroad Launch Session. A Launch Session is an informational meeting with a Peer Advisor who will discuss available programs, show you how to find the program that is right for you, and answer your questions. The session is a good place for students to explore the options for study abroad.

2. RESEARCH
   - Visit the Study Abroad Reference Room to research programs and develop a list of possible program choices.

3. PROGRAM APPROVAL
   - Choose your top 1–3 programs. Call 387-5890 or stop by the Study Abroad Office for program approval.

4. APPLY!

5. GET COURSE APPROVALS — BLUE SHEET
   - Once you've been accepted into your program, notify the Study Abroad Office and pick up a pre-approval “Blue” sheet. Get course approvals on the “Blue” sheet by the advisor in each department from which you want credit.

ENGINEERING, BUSINESS, HEALTH SCIENCES, EDUCATION, OR THE ARTS

WMU encourages students to seek out opportunities for study abroad. The WMU Office of Study Abroad provides extensive logistical and informational support to students. This is true both at the stage of a student’s investigation of opportunities as well as at the point where the student actually goes abroad. WMU sponsors a number of its own programs, especially in the social sciences, humanities (including language), and business. WMU will also accept credit from many of the thousands of programs operated by other universities and consortia all over the world.
6. FINANCIAL AID
If you receive financial aid, bring the completed Budget Worksheet to your meeting with the Director or Coordinator of Study Abroad to prepare a “Green Sheet.” Then meet with Carol Black in Financial Aid.

7. HEALTH & INSURANCE
Attend a Health and Safety Orientation session at Sindecuse Health Center. Find out what immunizations are suggested for the country where you will study abroad. If your study abroad program does not provide health insurance, WMU insurance is required. Call Cindy Clegg for the details and information.

8. TICKETS, PASSPORT & VISAS
Get your tickets and passport in preparation for departure. Be sure to allow enough time since it takes at least a month to get a passport and two weeks for passport processing. Apply for a student visa if your program requires it.

9. INTERNATIONAL STUDENT ID
You may want to buy an International Student Identity Card and/or a Youth Hostel card at the Study Abroad Office.

10. PRE-DEPARTURE MEETING WITH THE DIRECTOR OR COORDINATOR OF STUDY ABROAD
Schedule a pre-departure meeting with the Study Abroad Coordinator to prepare a Green Sheet and receive clearance.

11. EXPLORE THE WORLD!
For a smooth transition upon your return, attend the Re-Entry Reunion offered once every fall and winter, fill out an evaluation, and follow up with Study Abroad to ensure that your transcript has been received and paperwork is complete.

WMU PROGRAMS ABROAD

Following are descriptions of programs established and administered by WMU. However, students are not limited to these programs. WMU students can choose from literally thousands of programs. They may also directly enroll in any accredited foreign institution with prior approval of the Office of Study Abroad.

Africa

SOUTH AFRICA
The University of Cape Town, located at the base of Devil’s Tower on the southern tip of the African continent, is one of Africa’s finest universities. Students study in English with South African students and can opt for study outside of Africa. The University of Cape Town offers the opportunity to study African language and culture, economics, and commerce in Seta, Afich, in the Kansai region. A minimum of two years of Japanese is required. Full academic year program.

WMU offers a six-week summer program, and is located in a beautiful base of Devil’s Tower on the southern tip of the African continent, one of Africa’s finest universities. Students study in English with South African students and can opt for study outside of Africa. The University of Cape Town offers the opportunity to study African language and culture, economics, and commerce in Seta, Afich, in the Kansai region. A minimum of two years of Japanese is required. Full academic year program.

NAIROBI, KENYA
The University of Nairobi offers the opportunity to study in Kenya. The university is located in the capital city of Nairobi, and is the site of WMU's study abroad program in Kenya. Participants study business and economics in English with Kenyan students.

GERMANY

GERMANY (EXCHANGE PROGRAMS)

The University of Paderborn offers the opportunity to study in Germany for an academic year in this modern university in north-central Germany with particular strengths in engineering and science, and to study International Business in English combined with intensive German. The latter program is offered during the winter semester only.

ITALY

Studio Art Centers International (SACI), Florence offers studio arts, Italian language, and liberal arts courses. Studio art classes include drawing, painting, etching, lithography, sculpture, photography, film production, ceramics, fabric design, weaving, jewelry, serigraphy, printmaking, graphic and interior design. Summer term with a WMU art professor who coordinates the program for WMU students and teaches at SACI during the summer.

NETHERLANDS

NETHERLANDS (EXCHANGE PROGRAM)

The Haarlem Business School offers the opportunity to study international business management in the historic city of Haarlem, just east of Amsterdam. Courses are taught in
English with the option to study Dutch or other languages. Semester or academic year options.

NORWAY (EXCHANGE PROGRAM)
The Norwegian School of Management offers business administration, management, and marketing in Norway's capital of Oslo. Courses are taught in English. Semester and academic year options.

RUSSIA
Saratov State University, in the city of Saratov, on the lower Volga River in south-central Russia, is the site of WMU's study abroad program in Russia. Participants study in Russian language courses and may take courses in culture and current events. Fall semester.

SPAIN
The University of Burgos, in the historic city of Burgos, located halfway between Madrid and the French border, is the site of WMU's study abroad program in Spain. The cradle of Castille, the city and province of Burgos preserve countless castles, cathedrals, and palaces that provide evidence of Burgos's glorious past. Participants study intensive language and culture courses, and may select regular university courses in the arts, business, economics, humanities or social sciences. Business students also have the opportunity to set up an internship in Burgos. At least second-year college-level Spanish proficiency is required. Fall semester.

SWEDEN (EXCHANGE PROGRAM)
Växjö University is one of Sweden's most international universities. Located in southern Sweden, courses in English are available to business, education, political science, sociology and economics students. Intensive Swedish is also available. Semester and academic year options.

The Stockholm Institute of Education is one of the finest teaching and research institutions in Europe in the field of education. Students from the College of Education can study in English language courses in Stockholm during the winter semester.

UNITED KINGDOM
The WMU Cambridge Summer Seminar, offered bi-annually in odd-numbered years, offers 3-4 weeks of study in British literature, history, and culture; Shakespeare; and art history while in residence at the famous University of Cambridge.

WMU Summer in Scotland is a bi-annual (even number years) program with a focus on Scottish history and literature.

Central and South America

MEXICO
Universidad Autónoma de Querétaro, in the colonial city of Querétaro, northeast of Mexico City, is the site of WMU's study abroad program in Mexico. Participants take a course in Spanish language and culture and other courses of their choice with Mexican students in the Colleges of Sociologia (humanities and social sciences) or Business. Intermediate to advanced Spanish skills are required. Winter semester or academic year.

Business students can study Mexican business at the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM) in Monterrey, Mexico. This program usually takes place in the spring semester.

Belize
Tropical Biology in Belize is offered roughly every year or two in the Spring or Summer. Students spend two weeks in both an inland and a marine location studying wet, montane, coniferous, and mangrove forests; tropical savanna; and streams and rivers. In some years the Tropical Biology program may be held in other locations.

Other Locations

INTERNATIONAL BUSINESS STUDY TOURS
Study tours in international business sponsored by the Haworth College of Business are offered nearly every spring or summer and involve lectures, corporate visits, and cultural excursions. Locations vary from year to year; previous sites include Hong Kong and Shanghai, China; Querétaro, Mexico; and Singapore and Kuala Lumpur, Malaysia.

SPRING AND SUMMER SHORT-TERM PROGRAMS ABROAD
In addition to these programs, Western Michigan University sponsors a variety of overseas courses and study tours in spring and summer designed for students, teachers, alumni/ae, and friends of the University. Programs are led by WMU faculty. Sites of past programs include China, Peru, Czech Republic, and Nepal/Tibet.

Since Western Michigan University's study abroad offerings are subject to change, interested students are urged to contact the Office of Study Abroad or check the Web site at http://www.wmich.edu/studyabroad for up-to-date information.
STUDENT RIGHTS AND RESPONSIBILITIES

General University Policies
In addition to the several policy statements included below, the University’s general academic policies may be found on Western Michigan University’s website: Fl www.wmich.edu/sub/u-policies.html/

Student Rights

BASIC RIGHTS
1. Students have the right to free inquiry, expression, and association.
2. Students should be free from discrimination and harassment based on race, sex, sexual orientation, age, color, national origin, religion, disability, marital status, or family 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
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.
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.
Forger
y 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 improperly attribute it.
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 intentionally, knowingly, or carelessly presenting the work of another as one's own (i.e., without proper acknowledgment of the source). The sole exception to the requirement of acknowledging sources is when the ideas, information, etc., are common knowledge.
Instructors should provide clarification about the nature of plagiarism.

Clarification
1. Direct Quotation: Every direct quotation must be identified by quotation marks or appropriate indentation and must be properly acknowledged, in the text by citation or in a footnote or endnote.
2. Paraphrase: Prompt acknowledgment is required when material from another source is paraphrased or summarized, in whole or in part, in one’s own words. To acknowledge a paraphrase properly, one might state: “To paraphrase Locke’s comment, ...” and then conclude with a footnote or endnote identifying the exact reference.
3. Borrowed facts: Information gained in reading or research which is not common knowledge must be acknowledged.
4. Common knowledge: Common knowledge includes generally known facts such as the names of leaders of prominent nations, basic scientific laws, etc. Materials which add only to a general understanding of the subject may be acknowledged in the bibliography and need not be footnoted or endnoted.
5. Footnotes, endnotes, and in-text citations: One footnote, endnote, or in-text citation is required when a number of connected sentences are drawn from one source. When direct quotations are used, however, quotation marks must be inserted and acknowledgment made. Similarly, when a passage is paraphrased, acknowledgment is required.
Faculty members are responsible for identifying any specific style/format requirement for the course. Examples include but are not limited to American Psychological
SCHOLARSHIP

STUDENT RIGHTS AND RESPONSIBILITIES 269

CONDUCT IN RESEARCH

Research and creative activities occur in a variety of settings at the University, including classroom, laboratories, research and 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 at the 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

1. Fabrication of Data: Deliberate invention or knowingly helping or attempting to help another to commit an act of academic dishonesty.

2. Falsification of Data: Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

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 work in the verbal, visual, literary and dramatic arts.

4. Abuse of Confidentiality: Taking or releasing the ideas or data of others which were given to one 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: 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 biohazards. 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. They are approved 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 Judicial Affairs (OSJA). If you have questions about these policies, please consult with the instructor to ascertain the instructor's responsibility resulting from a hearing. The hearing process requires that the student is found responsible for academic dishonesty. An Academic Integrity Committee makes no decisions regarding the penalties and/or grades to be imposed, either by the instructor or by the OSJA.

4. If a finding of "responsible" has been made: A finding of "responsible" occurs when a student admits responsibility to the OSJA, or when one is a juror.

If the student denies responsibility: The student may appeal a finding of responsibility resulting from a hearing. The hearing process requires that the student is found responsible for academic dishonesty. An Academic Integrity Committee makes no decisions regarding the penalties and/or grades to be imposed, either by the instructor or by the OSJA.

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

6. If a finding of "responsible" has been made: A finding of "responsible" occurs when a student admits responsibility to the OSJA, or when one is a juror.

7. Failure to Report Fraud: Concealing or otherwise failing to report known misconduct or breaches of research or artistic ethics.

8. While a case is pending, the case is considered pending until one of two events occurs: (1) the student admits responsibility or (2) the hearing process is completed. While a case is pending, the
Course Grade and Program Dismissal 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 or when a student wants to appeal a decision to dismiss a student from an academic program for reasons other than charges of violations of academic honesty and/or conduct in research policies.

1. Informal appeal with instructor: A student is encouraged to begin the appeal process by meeting with the instructor who assigned the grade or the person(s) who made the program dismissal decision. Such meetings often help students understand the grading practices of instructors and often lead to resolution of differences.

2. Written appeal and conference with the academic unit chair/director: A student must submit a letter requesting an appeal to the academic unit chair/director. This letter must be received by the academic unit chair/director within ninety calendar days of the last day of the semester or session in which the grade was recorded on a student’s record, or in the case of a program dismissal, within ninety calendar days of the day the written notification of program dismissal was sent to the student. The letter must identify the basis of the appeal and must state in detail why the student believes that grade or program dismissal decision should be changed. The following bases of appeal are accepted:
   A. Grades were calculated or the program dismissal decision was made in a manner inconsistent with 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. A grade appeal cannot be made in response to a grade penalty assessed as a result of the student’s admission of academic dishonesty. Again, this finding will have been made through the procedures provided in the academic honesty policy.

   Following a conference with the student, the chair/director may or may not recommend to the instructor that the instructor re-evaluate the student’s work in the course. The chair/director cannot change the student’s grade without the student’s written agreement.

   Note: Grade appeals or other complaints based on charges of discrimination or sexual harassment should be taken to the affirmative action or other office, pursuant to other University policies and procedures.

3. Appeal to committee: If the matter involves a program dismissal, if the chair/director has granted that a basis of student appeal (A, B, C, or D above) may exist and the student is not satisfied that the instructor has substantively evaluated the student’s work, the student may appeal to a grade and program dismissal appeals committee. This appeal must be initiated within thirty calendar days of the instructor’s unfavorable decision (reached by the means described in step 2). If the student has requested a meeting with the academic unit chair/director and has not been granted such a meeting within sixty calendar days of the chair/director’s receipt of the student’s request, the student may then initiate an appeal to a grade and program dismissal appeals committee.

   The student will initiate an appeal through the Office of the University Ombudsman. When the Ombudsman receives the appeal, the Ombudsman will schedule a meeting of a grade and program dismissal appeals committee using the methods determined by the Professional Concerns Committee of the Faculty Senate. The Committee will consist of three members drawn from a panel of faculty established for this purpose. A grade and program dismissal appeals committee can effectuate a grade change or a reversal of a program dismissal decision by majority vote.

   The panel from which the three-member grade and program dismissal appeals committee is drawn will be made up of five faculty members from each college, who will be appointed to this panel for two-year staggered terms by the Professional Concerns Committee of the Faculty Senate. The Committee will consist of three members drawn from a panel of faculty established for this purpose. A grade and program dismissal appeals committee can effectuate a grade change or a reversal of a program dismissal decision by majority vote.

   The Family Educational Rights and Privacy Act

   The Family Educational Rights and Privacy Act of 1974 is a Federal law which states that (a) a written institutional policy must be established and (b) a statement of adopted procedures covering the privacy rights of students must be made available. The law provides that the institution will maintain the confidentiality of student education.

   Western Michigan University accords all the rights under the law to students who are declared independent. No one outside the institution shall have access to, or knowledge of, the student’s educational records without the written consent of the student, except to personnel within the institution, to officials of other institutions in which students seek to enroll, to persons or organizations providing students financial aid, to accrediting agencies carrying out their accreditation function, to persons in compliance with a judicial order, and to persons in an emergency in order to protect the health or safety of students or other persons. All these exceptions are permitted under the Act.

   Within the Western Michigan University community, only those members, individually or collectively, acting in the students’ educational interests, are allowed access to student educational records. These members include faculty, administration, clerical and professional employees, and other persons who manage student record information (e.g., Office of the Registrar, Controller, Financial Aid, and the Office of Admissions and Orientation). At its discretion, the institution may provide Directory Information in accordance with the provisions of the Act to include: student name, address, telephone number, date and place of birth, curriculum and major field of study, dates
of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student, participation in officially recognized activities and sports, and weight and height of members of athletic teams. Students may withhold Directory Information by notifying the Registrar. Only records covered by the Act will be made available within forty-five days of the request. Students may have copies made of their records with certain exceptions, (e.g., a transcript of an original or source document which exists elsewhere). These copies are made at the students’ expense, at the prevailing rate of ten cents per page. Educational records do not include the records of instructional, administrative, and educational personnel, which are 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. Health records, however, may be reviewed by physicians of the students’ choosing.

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, or honors to which they have waived their rights of inspection and review; or 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. The institution is not required to permit students to inspect and review confidential letters and recommendations placed in files prior to January 1, 1975, provided those letters were collected under established policies of confidentiality and were used only for the purposes for which they were collected.

Students believe that their educational records contain information that is inaccurate or misleading, or is otherwise in violation of their privacy or other rights, may discuss their problems informally with the person in charge of the records involved. If the decisions are in favor of the students, the records will be corrected or amended in accordance with the decisions of the hearing officer. The statements will be placed in the educational records, maintained as part of the students’ records, and released whenever the records in question are disclosed. Revisions and clarifications will be published as experience with the law and institutional policy warrants.

**Western Michigan University Policy on Sexual Harassment and Sexism**

Western Michigan University is committed to an environment which encourages fair, humane, and beneficial treatment of all faculty, staff, and students. In accordance with that fundamental objective, the University has a continuing commitment to assure equal opportunity and to oppose discrimination because of race, color, sex, sexual orientation, age, religion, national origin, handicap, height, weight, or marital status. Therefore, in that same perspective, neither sexual harassment nor sexism will be tolerated at Western Michigan University. It is expected that each member of the University community will consider himself/herself responsible for the proper observance of this policy.

**DEFINITIONS**

**Sexual Harassment:** Sexual harassment is defined as unwelcome sexual conduct which is related to any condition of employment or evaluation of student performance. This definition is intended to include more than overt advances toward actual sexual relations. It applies as well to repeated or unwanted sex-related statements, unwelcome touching, sexually explicit comments, and/or graphics. All persons should be sensitive to situations that may affect or cause the recipient discomfort or humiliation or may display a condescending sex-based attitude towards a person. Sexual harassment is illegal both under state and federal law. In some cases, it may be subject also to prosecution under the criminal sexual conduct act. Conduct will be defined as sexual harassment when any three of the following conditions exist:

1. The sex-related situations are unwelcome by the recipient.
2. A specific or implied connection with employment or student status is involved.
3. The sexual harassment continues after the recipient has made it clear that the conduct is unwelcome.

*Note: In some cases of overt physical sexual conduct, as based upon sexual favors are not given, or promised reward in exchange for sexual favors, no notice that the conduct is unwelcome shall be necessary and a finding of sexual harassment may be based on a single occurrence.

**Sexism:** Sexism is defined as the perception and treatment of any person, not as an individual, but as a member of a category based on sex. Whether expressed in overt or subtle form such as sex-related jokes or materials, sexism in the classroom or workplace is unacceptable at the University, and any such action shall be the responsibility of the entire University community. Depending upon the seriousness of the misconduct, informal corrective action may be adequate.

**COMPLAINT PROCEDURE**

Sexual harassment and sexism constitute acts of misconduct. Therefore, whenever such acts are reported and confirmed, prompt, disciplinary action will be taken, up to and including discharge. However, to enable the University to act through these formal procedures, employees and students are encouraged to report such incidents.

Employees should report such conduct to the Director of Compensation and Employee Relations, 1275 Sebest Administration Building (387-8880). The Director of Compensation and Employee Relations and the Associate Vice President for Institutional Equity shall jointly establish appropriate procedures to implement this policy. The University will investigate thoroughly any complaints of alleged sexual harassment or sexism, and then report the results of such investigation to the President of the University.

If you hesitate to file a sexual harassment complaint for fear of retaliation, you need to know that:

For federal and state law, as well as University policies, protect any person who has filed a complaint of sexual harassment or sexism from being intimidated, threatened, coerced, discriminated against or any other form of retaliation.

Likewise, protection is afforded any person who testifies, assists or participates, in any manner, in an investigation resulting from a sexual harassment complaint.

Therefore, any individual so harassed, intimidated, or otherwise retaliated against may file a complaint alleging harassment, intimidation, or retaliation. Such complaint should be filed with the Office of Institutional Equity, Trimpe Bldg. (387-8880).

**President’s Statement on Racial and Ethnic Harmony**

Western Michigan University is firmly committed to the principles of racial equality and nondiscrimination. On its campus, students, faculty, and staff of many races and ethnic backgrounds live, work, and study together day by day in offices, classrooms, and residence halls. This racial and ethnic mix brings richness and diversity to the cultural, intellectual, and personal dimensions of campus life. The University benefits from this diversity and seeks to enhance it.

All members of the University are expected to contribute to an atmosphere of racial and ethnic harmony on campus, displaying tolerance for cultural differences and courtesy and civility in discourse with students, faculty, and staff of diverse racial and ethnic backgrounds. In this environment there is no room for any derogatory comments of a racial nature. The University is committed to the principles of racial equality and nondiscrimination. On its campus, students, faculty, and staff of many races and ethnic backgrounds live, work, and study together day by day in offices, classrooms, and residence halls. This racial and ethnic mix brings richness and diversity to the cultural, intellectual, and personal dimensions of campus life. The University benefits from this diversity and seeks to enhance it.

Most members of the campus community need not be reminded of the institutional position in this regard. The very few who need
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the admonition must realize that the University will take the strongest possible action, including dismissal, against those who through racist acts bring discord to this campus.

Discrimination: Complaints and Grievance Procedure
Western Michigan University, in accordance with the law, prohibits discrimination in the provision of all student instruction, activities, and programs. Discrimination based on race, color, religion, national origin, sex, sexual orientation, age, disability, height, weight, veteran status, family status, or marital status cannot be tolerated in the determination of eligibility, participation, or grading for any courses or program established for the benefit of students unless otherwise provided by law.

Students who have inquiries about the University's Anti-Discrimination Policy or about anti-discrimination laws, including Title IX and the Rehabilitation Act of 1973, or who have complaints of prohibited discrimination, may file their inquiries and complaints with the Affirmative Action Officer, 274 Walwood Hall (387-8858).

The Affirmative Action Officer will receive and investigate complaints of prohibited discrimination filed with him/her by students and may contact students in resolving their concerns. The complaint, an oral allegation or charge against the University, an employee(s), or agent, stating prohibited discrimination has occurred, must be filed with the Affirmative Action Officer or professor, instructor, or program director within fourteen (14) calendar days of events or knowledge of events giving rise to the complaint. A complaint must be filed by the student and discussed with the Affirmative Action Officer before any formal grievance can be initiated.

The Affirmative Action Officer will make reports and recommendations to the complaining students and to the academic dean or program director concerned. In the event the student's complaint is satisfactorily resolved, the student may file a formal written grievance. Formal written grievances protesting prohibited discrimination shall be filed in accordance with the Anti-Discrimination Grievance Procedure for Students.

A grievance is defined as a formal written allegation by a student(s) that there has been a violation of the University's Anti-Discrimination Policy or a discriminatory application of official University policies, procedures, rules, or regulations regarding student rights or privileges. Any student(s) who wants to file such grievance should contact the Affirmative Action Officer, 274 Walwood Hall (387-8858).

THE GRIEVANCE PROCEDURE

Step 1: Departmental Level
A formal grievance must be filed with the Affirmative Action Department no later than thirty (30) calendar days after the event or events being grievored took place. The Affirmative Action Department will then forward the grievance to the Step 1 representative, who will be the Department Head or any other person designated by the appropriate Vice President to respond to the grievance. The Step 1 representative must provide a written answer within fourteen (14) calendar days after receiving the formal grievance.

Step 2: Appeal to the Vice Presidential Level
If the grievance is not resolved at Step 1, the student may appeal to the appropriate Vice President within seven (7) calendar days after receiving the departmental representative's written answer. The student must file the appeal with the Affirmative Action Department, using an official University appeal form. The Affirmative Action Department will, in turn, notify the departmental representative and the appropriate Vice President of the student's appeal. The appropriate Vice President or his/her designee will then arrange a meeting with the grievant, his/her representative (if requested), and any other individuals who may help resolve the grievance. This hearing must be held within fourteen (14) calendar days after the appropriate Vice President or his/her designee hearing the appeal receives the grievance from the Affirmative Action Department.

Step 3: Appeals to the President Level
If the grievance has not been resolved at Step 2, it may be appealed to the University President. The Affirmative Action Department must receive the appeal within seven (7) calendar days after the grievant receives the Step 2 answer. The President, at his/her discretion, will handle the grievance personally or will designate a representative to conduct a hearing or investigation of the grievance, report findings, and recommend a decision. The President will make the final grievance decision and communicate it to the appropriate parties.

In addition to filing a grievance with the University's Affirmative Action Department, the student may file a complaint directly with the Office of Civil Rights, U.S. Department of Education, or pursue both avenues of complaint resolution.

Western Michigan University Student Code
A student who chooses to enroll at Western Michigan University assumes the obligation for conduct that is compatible with the University's mission as an educational institution. While students have the privilege to enroll at the University and become aware of, and to abide by the behavior standards of the University, ignorance of acceptable boundaries of student behavior as contained in the Student Code is not a basis for excusing inappropriate behavior.

Western Michigan University is an educational community that aspires to be purposeful, open, just, disciplined, caring, and celebrative. The Student Code and the Office of Student Judicial Affairs are tangible examples that illustrate commitment to these ideals. The Student Code describes the boundaries of acceptable student behavior and is approved by the Board of Trustees. The Office of Student Judicial Affairs interprets and enforces the Student Code.

The University disciplinary process is not analogous to, is not equivalent to, and does not conform to criminal law procedures. 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 disciplinary process shall be informal in nature so as to provide substantial justice and it shall not be bound by legal jargon, court-like procedures, or legal definitions, which are the province of the criminal courts.

The discipline of students in the educational community is a part of the teaching process and as such, involvement 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 judicial system is not only concerned with the individual student's welfare, but also the welfare of the University community. Any question about the procedures, rules, or policies, or any other concern not specifically covered by the Student Code shall be decided solely by the Dean of Students or his/her designee. Additionally, the Student Code provisions may be amended to apply to new and unanticipated situations which may arise.

Enrollment in the University does not imply a guarantee of University obligations to behave in a manner consistent with local, state, and federal law. Violation of local, state, and federal law while on University premises is a violation of the Student Code. 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. Many of the items of misconduct referred to in the Student Code may also constitute violations of local, state, and federal law.

While any violation of the Student Code is considered a serious matter, certain violations are considered to be of a particularly serious nature. These violations include acts of academic dishonesty, any acts that disrupt the functions of the University, and any acts that threaten the health or safety of any member of the University community or any other person. Student 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.

The complete text of the Western Michigan University Student Code is published in the Office of Student Judicial Affairs of the Division of Student Affairs and may be obtained from that Office or accessed on the University's website.
UNIVERSITY AND STUDENT SERVICES

Academic Skills Center
The Academic Skills Center provides support and offers opportunities for students to develop and enhance their academic success. The Center's main office is located at 1042 Moore Hall, telephone 387-4442. More detail is available on the Center's website: www.wmich.edu/asc

Two courses are offered through the Academic Skills Center: UNIV 101 Freshman Seminar and UNIV 102 Career Exploration and Decision Making. For more information, see the section of this catalog entitled "Degrees, Curricula, Majors, and Accreditation."

With two courses, these two courses, the programs of the Academic Skills Center are offered at no charge and carry no academic credit.

COLLEGE SUCCESS SEMINARS
The College Success Seminars provide a forum to allow students the opportunity to develop new or refine current skills that they may find useful in their academic and professional careers.

CONTENT TUTORING
Drop-in tutoring is available for selected courses. Through one-on-one or small group guidance, experienced and trained peers assist students in developing applicable study techniques and mastering course materials.

MATH SEMINAR
The Math Seminar reviews concepts covered on the math skills test. Students receive guided instruction and practice concepts such as fractions, ratios, percentages, area, and volume. In the final week of each series, students retake the math skills test.

SUPPLEMENTAL INSTRUCTION
Supplemental Instruction is a nationally recognized program to provide assistance in selected courses. The SI leaders offer three weekly review sessions that incorporate extensive group work, collaborative problem solving, learning strategies particular to that course, and strategies for test preparation. On the average, students who regularly participate in SI earn significantly higher grades that students who do not participate in SI.

STUDENT SUPPORT PROGRAM
The Student Support Program (SSP) is a federally funded Trio Program that helps first-generation college students complete baccalaureate degree programs. SSP is designed to assist eligible students in achieving their academic and personal goals by offering a variety of services tailored to meet their individual needs. The program is open to students who meet first-generation college status, income level, and/or disability eligibility requirements.

FOCUS PROGRAM
The Focus Program is a cooperative venture between Western Michigan University and two community colleges in the area (Kalamaazoo Valley Community College and Southwestern Michigan College). The program provides support for the select group of students at the community college and assists in their transfer and graduation from Western Michigan University. The program at Southwestern Michigan College receives funding through the King/Chevez/Parks initiative within the State of Michigan.

Athletics, Intercollegiate
The University is represented by men's teams in football, baseball, basketball, indoor and outdoor track, cross country, tennis, ice hockey, and soccer. Women's teams represent the University in basketball, cross country, golf, gymnastics, swimming, softball, tennis, indoor and outdoor track, soccer, and volleyball.

Athletics are governed by the Athletic Board, which adheres to the policies and principles established by the National Collegiate Athletic Association and Mid-American Conference. Western Michigan University is a member of the Mid-American Conference. Other members of the conference are Akron, Ball State, Bowling Green, Buffalo, Central Michigan, Eastern Michigan, Kent State, Marshall, Miami (Ohio), Northern Illinois, Ohio, and Toledo. The teams winning Mid-American Conference championships in men's and women's basketball, baseball, volleyball, softball, soccer, and tennis qualify automatically for the annual NCAA playoffs. The hockey team is a member of the Central Collegiate Hockey Association and the champion automatically qualifies for the annual NCAA Tournament.

Career and Student Employment Services
All students are urged to make use of the career education facilities of the University for assistance in deciding upon a major and minor, planning for realistic entry-level jobs, and visualizing a career path for the future.

Career counseling and advising are available in the offices of Career and Student Employment Referral Service, the University Counseling and Testing Center, and curriculum and departmental advisors. UNIV 109 Career and Development, is highly recommended for all students to assist in the decision-making process.

The Office of Career and Student Employment Services offers a full range of services to help develop skills, explore the world of work and obtain full-time employment upon graduation. Services include a career resource center, on-campus interviewing, part-time off-campus employment, work study programs, internship opportunities, weekly job opportunity bulletin, Web-based employment listings, maintenance and distribution of teaching credentials, computerized career guidance systems, career fairs, and workshops.

For more information or to schedule an appointment, call (616) 387-2745. The Office is located in A100 Eislworth Hall.

Children's Place Learning Center
The Children's Place Learning Center, located in the middle of campus at 2210 Wilbur, is open from 7:30 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 2-1/2 to 11 years old and toilet trained may be enrolled full-time, part-time, or hourly (maximum 10 hours per week). Breakfast, lunch, and snacks are included in the tuition and are provided by WMU's Dining Services Department. 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 developmentally appropriate activities which address each child's need for fun, creativity, active play, communication skills, problem solving, social interaction, rest and nutrition. The program is licensed by the State of Michigan. For more information and an application call (616) 387-2277.

Disabled Student Resources and Services
Disabled Student Resources and Services assists Western students who have documented disabilities as they seek effective accommodations, maximize their abilities and gain independence. DSRS offers advocacy, registration assistance, readers/stonies and other test accommodations, textbook taping accessibility information, handi-van transportation, adaptive equipment, and referral to other campus and community agencies.

The office location is 2210 Wilbur Street and can be reached by calling (616) 387-2116.

Housing
Western Michigan University students may live on or off campus. Two alternatives exist on-campus, Residence Halls and WMU Apartments, and both deliver tremendous value to their residents. The success rate in meeting the diverse needs of their residents is very high and improvements are constantly being made. For these reasons, students should carefully consider the benefits of on-campus housing when choosing where to live. The listed rental fees are complete. They include all utilities, cable TV, and in most
cases, many extra benefits not available off-campus.

Your residence hall application will be sent upon admission to Western Michigan University. An apartment application may be submitted before you officially admit to the University. The application date is the basis for assignment, and the probability of an assignment increases with early application. Admission to the University or submitting a university apartment application may be contract for a housing assignment does not guarantee a space will be available. Requests received after capacity are placed on a waiting list.

**WMU Residence Halls**

Twenty-two residence halls in locations close to every academic hall on campus attract over 5,500 students each academic year. These students represent a variety of different backgrounds, cultures, and academic interests. Most halls offer a variety of services and opportunities for students: reception desk with mail and message services, formal lounges, all-purpose rooms for meetings or studying, extensive fitness/exercise rooms, aerobics, saunas, television viewing areas, refrigerators, rental, paint-your-room program, free VCR use, and academic computer terminals. All rooms are provided with beds, desks, study chairs, dressers and closets.

Any student enrolled at WMU for at least one credit hour may live in a hall. Newly admitted students are automatically sent information (fall during the month of February; winter-in November; spring and/or summer-in March) detailing the residence hall offerings available for the semester or session they expect to be enrolled.

Many distinct hall environments are available and students are encouraged to indicate their preferred hall and roommates(s). Students will often prefer a specific hall because of location or assignment pattern (coed). These preferences are honored as space is available. A few halls are reserved exclusively for upper-class and honor students. Other halls attract students interested in health and wellness, extended quiet hours, or international culture.

Depending on the hall, men and women may be separated by suite or floor. Two separate halls are also reserved exclusively for each sex. In locations where coed assignments exist, separate bathroom and toilet facilities are provided. While most assignments are two students per room, single room assignments are available and some three- or four-person room assignments are made in the larger rooms.

The WMU housing staff are key players in coordinating the delivery of academic support services and programs to students living in residence halls. They are dedicated to supporting students in their academic and personal success.

Both undergraduate and graduate students are welcome in the halls. During the fall and winter semesters graduate and older students find Davis Hall of special interest. Students must be at least twenty-one or junior status to live in Davis Hall, French Hall and Zimmerman Hall are reserved for sophomores or students aged 21 and over. No hall is reserved exclusively for graduate students. There are room-only halls available to those who do not wish to participate in the WMU Dining Service options. At least one residence hall is open throughout the entire year, including periods of University closure. All other residence halls close between semesters and sessions, and residents who must remain in their own alternative housing arrangements during these periods. All residents are permitted to remain in their assigned rooms during the Thanksgiving and spring break recess periods.

The award-winning WMU Dining Service has an excellent reputation with an extensive menu developed in consultation with residents and a professional dietitian. All hall residents (except those living in the room-only hall) must choose between three available plans. Most residents select the Bronco Gold Dining Plan which provides all meals except Sunday evening. For residents of the larger environments every weekend the Bronco Brown Dining Plan, providing meals Monday through Friday, is also available. The popular Bronco ten meal per week plan (Monday-Sunday) is also available.

The WMU Dining Service is especially unique because students may eat as often as they wish, in a variety of locations. They are open and students are encouraged to visit the Office of Off-Campus Life, Room 3510, Faunce Student Services Building. Telephone: 616-387-2336; fax 616-387-2325; www.ocl.wmich.edu

**SORORITY/FRATERNITY HOUSING**

Most houses are privately owned and operated by various fraternity organizations for their members. For more information, contact the Office of Student Activities and Leadership Programs, at 387-2115 or visit the Office, 2420 Faunce Student Services Building.

**Office of Information Technology**

The Office of Information Technology encompasses a wide spectrum of computing and information technology services to supporting administrative computing functions on campus, the Office of Information Technology also services academic and educational computing needs at the University. This includes providing students with computer accounts with access to the Internet (for e-mail and World Wide Web), supporting open access computing facilities for student use, providing a wide variety of computing workshops, and supporting a computing Help Desk.

The Office of Information Technology is located on the third floor of the University Computing Center. Telephone, 387-5430. The website is www.wmich.edu/its

**International Students**

Western Michigan University is proud to enroll each year one of the largest communities of international students in the United States. Several offices offer services to international students, as well as opportunities for further international involvement. Additional information about these offices and their services is available in the "International Programs" section of this catalog.

The **Office of International Student Services** processes international student admissions applications and maintains liaison with international students during their residence at WMU.

The **Career English Language Center for International Students** (CILC) provides intensive English language instruction for international students who require it.

The **Office of International Affairs** annually hosts international exchange students and faculty from a number of countries.

The **Diether H. Haenicke Center for International and Area Studies** sponsors visiting lecturers and on-campus programs with global and international content.

The **Office of Study Abroad** offers a wide variety of programs of study at universities around the world, for which credit may be transferred back to WMU programs.

**The Martin Luther King, Jr. Academy**

The Martin Luther King, Jr. Academy is an academically focused and enrichment development program that has been in existence at WMU since 1968. Named in honor of the late Dr. King, this particular program has the distinction of being one of the forerunners of similar programs in colleges and universities throughout the United States.

Initially, the program was funded through a grant from the Kellogg Foundation and was able to provide scholarships as well as remedial help to its participants. "Project 73," the original name of the program, began in the fall of 1968 with sixty WMU freshmen coming from high schools throughout southwestern
CHAVEZ/ROSA PARKS COLLEGE DAY

education. Participating students are provided for a successful and relevant educational students at Western Michigan University. The and quality of life.

education to the potential of a college

PROGRAM

Tointroduce under-represented

Purpose:

• Attend bi-monthly meetings with DMA staff
• Attend Fall orientation program.

Division initiates and coordinates cultural

Division's activities are designed to define and promotes a supportive environment for

development for all

student learning and development activities.

Affiliation with student organizations that enhance professional development.

Introduction to career development programs and associated internships.

Participate in community involvement and volunteerism (service learning projects).

Attend a series of events featuring speakers that represent the growing multicultural community at WMU.

REQUIREMENTS FOR ACADEMY PARTICIPATION

• Must be a recipient of an Incentive Scholarship or Cultural Diversity Scholarship.

• Attend Fall orientation program.

• Attend bi-monthly meetings with DMA staff and peer leaders.

• Maintain a cumulative 2.0 g.p.a. or above.

Multicultural Affairs, The Division of

The Division of Multicultural Affairs, formerly known as the Division of Minority Affairs, promotes a supportive environment for racial/ethnic minority students by providing a range of services and programs that have a positive impact on their academic success and quality of life.

To enhance diversity in the community, the Division initiates and coordinates cultural programming and facilitates opportunities for learning and personal development for all students at Western Michigan University. The Division's activities are designed to define and positively impact to minority students' needs and impact their environment. By doing so, students are ensured the greatest opportunity for a successful and relevant educational experience.

Center for Pre-College Initiatives

MARTIN LUTHER KING/CEasar Chavez Parks College Day Program

Purpose: To introduce under-represented school-age students in post-secondary education to the potential of a college education. Participating students are provided with information and skills that adequately prepare them for college entry and ultimate success.

During an extended summer residential learning program, students have the opportunity to experience firsthand what it feels like to be a college student on the WMU campus.

TRIO Center

The TRIO Center in the Division of Multicultural Affairs administers three programs, as described below. The Center strives to make these programs exciting and relevant learning opportunities that enjoy a broad base of community support and rank among the finest TRIO programs in the nation.

The TRIO Center's comprehensive design allows WMU to provide programming that prepares high school students for college and college students for graduate school. Center staff members work to ensure that participants are successful at each stage of their academic careers.

UPWARD BOUND PROGRAM

Purpose: to prepare aspiring high school students for college. A variety of academic services and activities are offered throughout the academic year. In addition, a six-week, on-campus living/learning experience is offered during the summer.

UPWARD BOUND MATH AND SCIENCE PROGRAM

Purpose: to provide college preparation for high school students who have demonstrated considerable aptitude in math and/or science. A variety of academic services and activities are offered throughout the academic year. In addition, a six-week, on-campus living/learning experience is offered during the summer.

RONALD E. McNAIR POST-BACALOUREAT SCHOLARS PROGRAM

Purpose: To provide support to talented undergraduates who are low-income, first-generation, and ethnic minority college students with effective preparation for graduate school.

Off-Campus Life

The Office of Off-Campus Life has designed databases that students can use to find off-campus rental housing, roommates, and transportation. They can access the database from any on-campus computer or their own personal computer from any place in the world. The databases are currently on both the WMU VAX system and the World Wide Web.

For more information on the activities and services of this office contact our Web site: www.octl.wmich.edu or call (616) 387-2336; fax (616) 387-2325.

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 the Parking Services and purchase an appropriate fee. Information concerning parking regulations, parking permits, and parking violations can be obtained by visiting Parking Services located at 2507 West Michigan Ave. (at the corner of West Michigan and Knollwood) or by telephoning 387-4609 during normal University business hours.

Police

Located at 511 Monroe, 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 division, 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 safety and security within the University community. Information can be obtained by visiting the office, telephoning 387-5555 or 911 in an emergency.

Information concerning parking regulations, parking permits and parking violations can be obtained at the Parking Services located at 2507 West Michigan Avenue (at the corner of West Michigan and Knollwood) or by telephoning 387-4609 during normal University business hours.

Publications

Western Herald, WMU's student newspaper, is published every other Thursday by the Office of University Relations, which also produces WMU - the Western Michigan University Magazine in association with the Office of Alumni Relations. The magazine is published four times a year for alumni, donors, and other friends of the University.

Radio

WMUK is Western's full power stereo public radio broadcasting service, operating at 102.1 on the FM dial with a power of 50,000 watts and serves an area 80 miles in radius; this area includes most of the southwestern quarter of the state.

WMUK(FM) provides a cultural extension of the University through its broadcasts of campus, community, and area events. Through the satellite-linked National Public Radio network of stations, WMUK provides listeners with outstanding programming in the line and popular arts, news, and information from around the world. WMUK has built an enviable reputation in classical, bluegrass, and jazz music programming, as well as programming for Spanish-speaking audiences.

WMUK(FM) is a charter member of NPR, the National Public Radio network of over 500 non-commercial radio stations.

WIDR(FM), a 100-watt station operated by students, broadcasts on 89.1. Facilities of WIDR(FM) are located in the Faunce Student Services Building. WIDR(FM) is the University's unique opportunity for Western Michigan University students to gain experience in programming, promotion, and station operation.

Sincdecar Health Center

The Sincdecar Health Center is a student-oriented medical facility that exists to support and promote optimal health for the
University and Student Services

HIV TESTING
Anonymous HIV testing with the oral HIV antibody test (Orasure) is available to all students. For more information, call 387-4444.

SPORTS MEDICINE CLINIC
The Sports Medicine Clinic provides comprehensive diagnosis and treatment of bone and joint problems. Full physical therapy services are available. Consultations with orthopedists, sports medicine physicians, and a podiatrist are available.

PHYSICAL THERAPY SERVICES
The Center’s Sports Medicine Clinic offers the full spectrum of treatment modalities provided by certified physical therapists and athletic trainers. Orders from your home physician are honored.

NUTRITION COUNSELING
Appointments with a registered dietitian are available for weight management, eating disorders, sports nutrition, diabetic diet management, and more.

OFFICE OF HEALTH PROMOTION AND EDUCATION
The office of Health Promotion and Education, Sindecuse Health Center, offers a variety of interactive computer resources, information, programs and preventative health services designed to help students maintain and enhance their physical and emotional well-being. Services include an array of resources with a special emphasis on the following health concerns and skills:
- Healthy intimate relationships
- Healthy sexuality
- Computerized HIV Risk Assessment
- Anonymous HIV Counseling and Testing
- Coping With Stress
- Increasing Assertiveness and Positive Thinking
- Understanding and Managing Depression
- Meditation
- Nutrition
- Vegetarian Food Choices
- Eating Disorder Assessment and Treatment
- Healthy Weight Management
- Recovery from Nicotine Dependence
- Cholesterol Testing and Education
- CPR Certification
- Blood Pressure Assessment

All programs are offered at little or no charge as a Student Health Fee benefit. Information regarding services and resources is published each semester in an informational brochure which can be picked up from our office or mailed to you by request. Information is also available through the Western Michigan University World Wide Web Home Page under Health Resources and Services, Sindecuse Health Center.

APPOINTMENT INFORMATION
Students are encouraged to make appointments whenever possible to prevent unnecessary waiting. Students are also encouraged to choose a clinician with whom they feel comfortable and request this clinician when scheduling appointments. Appointments may be scheduled by calling 387-3263, 8:00 a.m. - 5:00 p.m., Monday through Friday. Allow about an hour for a preventive health and long lab tests or x-rays are required. Please cancel an appointment if unable to keep it. There is a charge for missed appointments.

SINDECUSE HEALTH CENTER HOURS
Nursing Appointments
Monday – Wednesday and Friday, 8:00 to 11:30 a.m. and 1:00 to 4:30 p.m., Thursday, 9:00 to 11:30 a.m. and 1:00 to 4:30 p.m.

Urgent Care Clinic
Monday - Friday, 8:00 a.m. to 5:00 p.m.; Saturday, 9:00 – 11:30 a.m. (except summer session and during break weeks).

PARKING
While visiting the Sindecuse Health Center, parking is available in one of the designated Health Center parking spaces in student Lot No. 40 in front of the Health Center. You may obtain a parking permit in the Lobby. Short-term parking is available in the semicircle drive while you receive your permit.

STUDENT HEALTH FEE
All Western Michigan University students enrolled for seven or more non-exempt credit hours per semester (four or more per session) are assessed a Student Health Fee as part of the enrollment fee. This entitles students to use all Health Center services (including those offered at the Sports Medicine Clinic). Students enrolled for fewer than seven credit hours per semester (or fewer than four per session), non-enrolled students, and spouses of WMU students may pay the Student Health Fee on their first professional visit of the semester/session and receive the same benefits or opt to pay visitor rates. Eligibility for use of the Health Center begins from the first day of the applicable semester/session for which the fee has been paid to the first day of classes of the next semester/session. Students remaining eligible to be seen at the Health Center for one semester or two sessions after graduation.

Fee schedules are available at the Sindecuse Health Center.

The Student Health Fee benefits apply only to services rendered in the Sindecuse Health Center. Visits to hospital emergency rooms, immediate care centers, medical specialists outside the Health Center, and transportation by ambulance are not covered by this fee. Lab, x-ray, and physical therapy services requested by clinicians outside the University can also be provided by the Health Center. Charges for Health Center services may be paid by cash, check, Master Card, Visa, Discover Card, debit card, or Bronco Card; however, we request that all fees under $1.00 be paid in cash. You may choose to show your health care costs against your student account. The University assesses a service charge for any costs that are not paid within sixty days. Any balance on your student account may impact your ability to register or obtain a transcript.

As a courtesy to you, the Health Center will assist in the billing of insurance to many of the major carriers, including Medicaid and Medicare. Charges will be placed on your University account and are your responsibility to pay. The insurance carrier will reimburse you directly.

OPTIONAL HOSPITAL, MEDICAL, AND SURGICAL INSURANCE
All students are urged to carry some form of health insurance that covers medical, surgical, and hospitalization expenses not covered by the Student Health Fee. You are encouraged to study the services included in any insurance policy you purchase. Be sure to carry the insurance identification card with you at all times.

If you are not presently covered by a major medical insurance program, consider the student insurance plan offered through Western. This plan is provided at reduced rates to students and their dependents. Brochures are available at the Health Center or by calling 387-3266.

MANDATORY HOSPITAL, MEDICAL, AND SURGICAL INSURANCE
All international students are required to carry health insurance if health care coverage is not provided by their sponsor. Students will be
automatically enrolled in the University-sponsored policy unless an approved alternate policy is chosen.

Non-sponsored international students must show proof of coverage and have alternate policies in place at the Health Center during the first two weeks of the semester/session. No refunds of insurance premiums can be given after that time. Call 387-3266 for guidelines on alternate policies.

The insurance coordinator at the Health Center is available to assist students weekdays from 8-11:30 a.m. Mondays, Tuesdays, and Fridays; 1-4:30 p.m. on Wednesdays; 9-11:30 a.m. on Thursdays; or by calling 387-3266.

IMPORTANT PHONE NUMBERS

Appointments 387-3290
Information 387-3287
Insurance Information 387-3266
Pharmacy 387-3301
Health Promotion/Health Info 387-3263
Sports Medicine Clinic 387-3248
HIV Antibody Testing 387-4-HIV

Speech, Language, and Hearing Services

The Van Riper Language, Speech, and Hearing Clinic, is a service program provided by the Department of Speech Pathology and Audiology for persons with communication disorders. It is located in the University Medical and Health Sciences Center, 1000 Oakland Drive. Students may take advantage of diagnostic and therapeutic services by contacting the Clinic for an appointment. Special fee arrangements are available for students. Telephone: 387-8047.

Student Activities and Leadership Programs

Mission

The mission of the Student Activities and Leadership Programs is to enhance student learning and personal development by engaging students in educationally purposeful academic and social activities. Student Activities has registered over 300 student organizations at WMU representing a diverse range of interests. We invite you to become a member of our community and are excited to be a part of your learning and personal development.

Over 75% of your time in college will be spent outside the classroom. The wide variety of student organizations at Western Michigan University offers you endless opportunities to enhance your classroom experience and to develop and enhance your leadership skills. Students who are involved in campus activities generally stay in school longer, are more satisfied with their college experience, and are more likely to graduate. Student Activities staff are here to inspire excellence in student leadership development and programs outside the classroom. Staff provide services and support to student organizations while allowing them the freedom to fulfill their purposes.

For more information, visit the website for Student Activities and Leadership Programs www.slap.wmich.edu or call the Office at (616) 387-2115.

Student Activities staff
- coordinate campus-wide events like Bronco Days, Bronco Bash, and Homecoming
- advise and provide support services for over 300 student organizations
- coordinate campus-wide leadership development programs
- provide leadership for lesbian, bisexual, and gay students and their allies
- support Kanley Memorial Chapel and religious activities
- provide leadership for women's resources and services
- support the WMU Parents Association

Categories of Student Organizations

• Academic and Professional
• Fine and Creative Arts
• Greek
• Media
• Cultural and International
• Faith and Spiritual
• Sports and Recreational
• Special Interest
• Honory

WMU Parents Association

The WMU Parents Association provides families of WMU students with a connection to their student's educational experience and to the University community. Established in 1958 as a not-for-profit entity, the Parents Association has over 1,200 members. The WMU Parents Association is dedicated to helping families understand the growth and development of their college student. In addition, the association coordinates Family Festival Weekend and other special events and tours for its members and their student(s) in the WMU and Kalamazoo communities.

Lesbian, Bisexual And Gay Student Services

The Lesbian, Bisexual and Gay Student Services office, a unit of Student Activities, provides resources, services, and programs to support WMU students, staff, and faculty who identify as lesbian, bisexual, or gay, or who question their sexual orientation. The office also educates the campus community on issues of sexual orientation as part of a larger effort to promote an affirmative and supportive environment at WMU for all students.

Faith and Spiritual Development

Faith and Spiritual Development, a satellite unit of Student Activities, is located in Western Michigan University's Kanley Memorial Chapel. The Chapel is designed to serve as a center for worship-oriented and action-oriented religious and spiritual activities. In addition, the Chapel provides office space for campus ministries.

Women's Resources and Services

Women's Resources and Services, another unit of Student Activities, provides educational programs, educational and informational materials, and personal assistance to students. Educational programs either focus on gender issues or address issues from a female perspective. A primary purpose of WRS is to provide students with opportunities to acquire skills and experience that will help them develop both personally and professionally. Inquiries may be made by stopping in or by calling the office, 3331 Ellsworth Hall, 387-2990.

• Special Interest
• Honory

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• The S.T.A.R. Program: Students Talking About Relationships
- Twenty-five to thirty female and male students who have completed in-depth training volunteer their time to present educational programs designed to increase understanding and help prevent acquaintance violence and relationship abuse/violence. Programs are presented in college and high school classrooms, residence halls, and for student organizations.
- Victim Assistance
- Students, or friends or parents of a student, coping with a sexual assault, an abusive relationship, or sexual harassment are provided confidential, individual support, information, referral, and other assistance as needed. Each semester WMU offers a free, confidential, professionally-facilitated support group for women students who have experienced sexual assault.
- Educational and informational Materials
- WRS maintains a resource library of books, reports, and scholarly articles on a variety of gender issues. Information on campus, community, and national resources of special interest to women is available in a referral manual and reference books in our library.

Student Volunteer Services

Student Volunteer Services (SVS) is dedicated to furthering the student community service movement on campus and to enhancing the traditional classroom education through experiential service-learning opportunities. The mission of the Student Volunteer Services is to foster awareness and understanding of the challenges facing our society and to encourage student involvement in addressing these needs through community service and social action.

Through SVS, students have access to volunteer opportunities in over 150 community and campus organizations. The SVS staff will assist you in determining where your interests and skills can be matched with community needs. Individual volunteer opportunities and one-time group projects are available in a variety of interest areas including: food/shelter, mental and physical health, friendship/role model, education, arts/culture, legal/government, environment/animal, business, and counseling. Individual volunteer opportunities typically require a two to four hour weekly time commitment; one-time group projects vary from three to eight hours.

Service projects coordinated by SVS include Alternative Spring Break, Alternative Winter Experience, Fall and Spring Into the Streets, MLK Discovery Day, and the Volunteer Opportunities Fair. Presentations are offered throughout the academic year and include information on service opportunities, organizational positions, and how to get involved. Students are encouraged to visit the SVS office located in the Lee Honors College. Telephone: 387-3230. Website: www.wmich.edu/studentvolunteerservices

Substance Abuse Services

University Substance Abuse Services, located in the Sincendez Health Center, provides an outpatient treatment and prevention program for Western Michigan University students concerned with their use, misuse, or abuse of alcohol and other mood-altering substances. Under the auspices of the University Counseling and Testing Center, Division of Student Affairs, the program offers information, assessment, training, and treatment through supportive therapy, referral and follow-up services to individuals and groups. Also offered are support groups to those students seriously interested in exploring their relationship with mood altering drugs (alcohol, marijuana, stimulants, narcotics, depressants and barbiturates) as well as groups for adult children of alcoholics.

University Substance Abuse Services is licensed by the state of Michigan Department of Public Health and is directed by a nationally certified substance abuse therapist and professor of counseling. All services are free, unless they are court ordered, and completely confidential as required by state and federal law. Students are encouraged to make an
**University Counseling and Testing Center**

Many important decisions and situations will confront students while they are at Western Michigan University. They will need to make decisions regarding courses, curricula, and career exploration. They may become involved in social and personal situations that leave them feeling confused and upset. In addition, it may be likely that the inherent stresses of university life will, at some time, interfere with academic achievement and personal growth. The University Counseling and Testing Center, located on the main floor of the Faunce Student Services Building, exists to help students deal effectively with such concerns.

The Center is staffed with professionally licensed counselors and psychologists and is accredited by the International Association of Counseling Services. Counseling and Testing Center services consist of the following:

1. **Personal Counseling** to assist individuals in better understanding themselves and the emotional conflicts that may interfere with their everyday life as students, to help them become more aware of alternative means of coping with conflicts, and to aid them in developing more satisfying and fulfilling lifestyles.

2. **Educational Counseling** to help students deal with conflicts concerning vocational planning and educational goals.

3. **Career Counseling and Testing** to provide students with the resources, skills, and experiences necessary for reasonable educational and career choices. Individual and group sessions are offered to (1) increase self-understanding, including insights into one's interests, values, abilities, and skills; (2) learn how to acquire information about careers; (3) review choices, make decisions, and establish plans of action; and (4) test the feasibility of individual plans by experiencing the reality of the working world.

4. **The Career Exploration/Media Center** contains a wide and varied selection of printed materials with an emphasis on self-understanding, career exploration and preparation, and informational communication, and job-related experiences. Included is a section of college and university catalogs, educational guides, and computer-aided guidance and information pertinent to career awareness. An extensive collection of professionally tested test material is also available for student/faculty review.

5. **Training and Internship Programs** for graduate students and interns from the Department of Counselor Education and Counseling Psychology, School of Social Work, and Department of Psychology are available. Includes the training experience as well as the supervision of treatment sessions, didactic presentations and professional growth opportunities.

6. **Standardized Testing** is conducted by the University Counseling and Testing Center. The following tests are regularly administered: ACT, LSAT, GRE, MCAT, TOEFL and academic skills exams are offered as needed. Standardized testing information is available at the Center.

7. **Test Scanning Services** (optical scanning) for classroom examination and research data analysis is provided to the University community and greater Kalamazoo area. Information about scanning services is available at the Center.

The Counseling and Testing Center is committed to the need for confidentiality in client/counselor communications. 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 Counseling and Testing Center Policy on Confidentiality may be obtained at the Center's reception desk.

Appointments may be requested by telephone (387-1850) or by stopping at the Counseling and Testing Center (2513 Faunce Student Services Building) reception desk between 8 a.m. and 5 p.m., Monday through Friday.

The Center attempts to service as many students as possible within staffing limitations.

**University Libraries**

The University Libraries consist of the Dwight B. Waldo Library, the Music and Dance Library, the Education Library, the Archives and Regional History Collections, and the Visual Resources Library. The main collection is housed in Waldo Library, which is named for the first president of the University. Built in 1959 and enlarged in 1967, a new 105,000 square foot addition and renovation of 145,000 square feet of existing space was completed in 1991 providing space for an entirely re-organized collection and 1,900 student study stations.

The total University Libraries' collection, which numbers over three million bibliographic items, includes books, periodicals, electronic data bases, music scores, sound recordings, maps, documents, and materials in microform. About 7,260 periodical and newspaper titles are continuously received.

Through the use of various approval and gathering plans—as a part of the acquisitions program—the library emphasizes building a strong core collection of current imprints in all the fields of study at the University.

The University Libraries is a depository for United States and Michigan government documents. Microprint editions of selected United Nations documents and official records are also available. A collection of about 1,750,000 microforms contains such items as the Human Relations Area File, the American Periodical Series, Early American Newspapers of the 18th and 19th centuries, Early English Books printed in Great Britain from 1475-1700, and the ERIC documents in educational research published by the Educational Resources Information Center).

Certain special collections are maintained by the library, and holdings have been especially strengthened in some subject areas to support University programs:

1. The Ann Kercher Memorial Collection is an extensive collection of materials on Africa south of the Sahara. Started in 1963, the collection grew to become a noteworthy addition to library resources.

2. Library holdings on southern Africa represent another area of special strength. Together with the Kercher African collection, they help support the University's commitment to international research.

3. The English Language and Literature Library is housed in the Rare Book Room, Waldo Library, consists of around 6,400 volumes of first and early editions of women's poetry, and serials, this branch contains a collection of 19,265 sound recordings, and excellent listening facilities.

The Education Library in Sangren Hall has some 688,000 bibliographic items and receives over 600 periodical and serial titles.

The University Libraries and Archives and Regional History Collections located in East Hall, is also a branch of the University Libraries. The Archives staff collects, preserves, and makes accessible records of the University. The Archives is a depository for official University records, publications, papers, and other information resources that document the history of the Western World, Oceana, Asia, Africa, and the Americas.

The Visual Resources Library contains over 100,000 slides of well known works of art such as paintings, sculpture, architecture, design, drawings, photographs, and illuminated manuscripts. The images represent artifacts of the Western World, Oceana, Asia, Africa, and the Americas.

The University Libraries have a large number of computer based services available to its users. The online catalog provides access to the University Libraries' collections by author, title, subject, and keyword. Over 100 databases are available through the OCLC FirstSearch system with additional resources available through the IAC reference Center Gold, and individually provided subject databases. The Libraries' web page (http://www.wmich.edu/library/) contains a listing of available databases and electronic resources. Terminals located in Waldo Library and its branches give the user access to these resources. Access is also available remotely from a home or office computer. Additional electronic indexes are provided on CD-ROM terminals located in reference areas.

General and specialized reference service is provided at the Central Reference Desk, the Science Reference Desk, and the Documents Department in Waldo Library. Reference collections of indexes, abstracts, dictionaries, encyclopedias, handbooks, bibliographies, and other sources, are
maintained in each of the libraries, and reference librarians offer personal assistance in finding the books, information, and other resources needed for class or research related problems.

Research materials which are not in the University Libraries' collections can usually be obtained from another library through interlibrary loan services located in the Resource Sharing Center of Waldo Library. The University Libraries participate in online interloan systems regionally, state-wide, nationally and internationally, and are also a member of a variety of multi-type library networks. They also hold membership in the Center for Diversifying Libraries, a multi-million item collection located in Chicago which operates as a cooperative library for less-used but important research materials. A network printing system in Waldo Library, the Education Library, and the Music and Dance Library permits patrons to send all their prints directly to a network printer. Copy cards are needed to print items from the network printer. Copy cards may be purchased at the Copy Center on the second floor of Waldo Library; the Education Library, and the Music and Dance Library.

Self-service photocopy machines are located throughout the library system. These machines operate with coins or copy cards and have enlarging and reduction capabilities. An attendant-operated copy service is located in the Copy Center in Waldo Library. Microform copiers are also available within the library system.

Students enrolled in off-campus classes are always welcome at the University Libraries, where they have the same privileges as any other Western student. Libraries continue to loan materials with their Continuing Education identification card and freely use library services. Selected library services are also available through arrangements with the Regional Centers in the localities where the classes are taught.

The major purpose of the University Libraries is to take an active role in the educational process at the University, and to provide facilities, materials, and an environment which will not only support the students' educational progress but also will encourage them to develop the habit of self-education.

University Ombudsman

The University Ombudsman is an intervention agent and impartial person who helps students, faculty and staff resolve academic and non-academic concerns. The Ombudsman: listens to you and discusses your question or concern; provides you with information that answers your question or helps you locate someone who can assist you; explains the University's policies and procedures and how they may affect you; follows up with you and others at the University to make sure your concern is resolved; and recommends changes in the institution that will make it more responsive to every member of the community. The basic principles of the University Ombudsman are independence, impartiality, confidentiality. The Ombudsman is authorized to make thorough investigations and has access to most University offices and records, reports and other documents. The University Ombudsman shall not be a party to any personal or confidential communication which is required to be kept confidential and will not release any information that they know or suspect to be false, misleading, or inappropriate.

The University Ombudsman is appointed by the Board of Trustees. The Ombudsman's office is located in 216 Bernhard Center. Telephone: 387-5300.

University Recreation

Student Recreation Center (616) 387-4REC

The Student Recreation Center (SRC) is a student-oriented, multi-use recreational/fitness facility programmed, staffed, and financed by Western Michigan University Students. Recreational, educational, and health promotion programs are provided for the benefit of all Western Michigan University students, faculty, staff, spouses, emeriti and alumni facility members. The facility includes an 8,000 square foot fitness/weight room with over 100 pieces of state-of-the-art equipment, a recreation area, an expanded swim pool and saunas, a 45' climbing wall, indoor jogging track, basketball courts, volleyball/badminton courts, indoor tennis courts, 10 racquetball courts, aerobics rooms, multipurpose gyms, fitness testing laboratory, and much more.

The Student Recreation Center is equipped with a state-of-the-art electronic security system to help protect the student-funded facility from vandalism and to ensure that all users are properly authorized. Only ID cards belonging to individuals who have paid the facility fees may be used to take advantage of programs and services.

Informal Recreation

Informal recreation provides 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, indoor and outdoor running, and wallyball. Equipment for various activities may be checked out with a valid ID card from Equipment Issue located in the Student Recreation Center.

Outdoor Recreation

The University Recreation system also includes a lighted, 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 ID card from the Student Recreation Center.

Intramural Sports

Intramural Sports are available to students, faculty staff 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, badminton and much more. Intramurals provide opportunities for individuals to participate in sports experiences that will help them develop team building and leadership skills. These experiences permit participants to set goals, relate to others, participate in physical activity, and enrich their lives. Opportunities for leadership are available for students who wish to officiate contests.

Fitness Programs

Fitness classes are available for individuals interested in improving their health and physical development through safe and effective exercise programs. A variety of instructor-led classes are offered, including back care, water exercise, high/low aerobics, step aerobics, stretch and tone classes and those which promote a body/mind connection such as Tai Chi and yoga.

Fitness Weight Room

Located in the Student Recreation Center, the 8,000 square foot Fitness/Weight Room contains a full line of variable resistance weight machines and free weights, computerized exercise bicycles, stair climbers, rowers, and ski machines. Student Exercise Specialists are available to instruct on the use of the equipment and to provide exercise training guidelines to meet personal goals.

Phytstyles

Phytstyles is a fitness testing program designed exclusively for Western Michigan University students. The program offers a wide range of fitness testing and individual exercise program development for students who wish to develop and maintain healthy levels of physical fitness. The testing package includes measures of cardiovascular endurance, muscular strength and endurance, and cardiovascular endurance. A consultation is available to obtain personal exercise recommendations and guidelines based on current levels of physical fitness and personal goals.

Climbing Wall

The WMU Climbing Wall is designed to challenge and teach participants about the unique sport of indoor climbing. The wall is a top-rope system where climbers are harnessed in for safety. SRC members who wish to climb the wall must complete the URPF Climbing Clinic. Through the clinic participants learn how to harness in for safety and bailing techniques. Come feel the excitement of scaling a 45 foot wall.

Special Events

URPF regularly conducts one or two special events each semester, such as National Girls and Women's Sports Day, Spike Fest Volleyball Tournament, Jump Rope For Heart, Workout for Hope, Schick Three Player Basketball Tournament, and the Turkey Trot Two Mile Run/Walk Race. These events may coincide with other University events or reflect a seasonal holiday theme. Games, activities, and contests are offered in an informal, festive atmosphere designed to provide interaction among the participants. For more information on services and specific days and times of programs, University Recreation publishes a schedule brochure three times per year.

Veterans' Assistance

The Office of the Registrar on the third floor of the Administration Building certifies veterans under the G.I. Bill and its extensions. The Veterans' Certification Officer will assist any person who seeks certification to the G.I. Bill under any applicable program. Students who wish to receive V.A. benefits must annually file a "V.A. Certification Information Card" outlining plans for enrollment for the current academic year and declaring personal responsibility for regular attendance during that year. Students are certified on the basis of attendance and academic progress toward degree goals. 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. The Veterans' Certification Officer may reach you in the Office of the Registrar at (616) 387-4115.

Writing Center

The Writing Center is part of the Center for Academic Support Programs. It provides writing assistance for students, faculty, staff, and other members of the WMU community.
The Writing Center exists for all WMU students (graduate and undergraduate) who choose to work on their writing. Because writing is such a complex act, students often concentrate on particular aspects of writing with each visit. They may work with a tutor on organization or focus; they may want to hone their style or find new ways to come up with topics or ideas for development; they may also work on the conventions of English.

To accommodate the needs of many students, the Writing Center offers three types of appointments. Most popular is the drop-in appointment, which allows students to see a tutor immediately. Students may also choose to schedule appointments in advance or set up a regular weekly appointment with the same tutor. Students may choose to have a report sent to their instructors detailing their visit. The Writing Center tutors are glad to work with students on their papers; however, they will not copyedit or proofread papers for educational purposes.

The Writing Center also provides workshops on writing with sources and on proofreading techniques, and offers writing-related computer software. For answers to quick questions about writing, call the Writers’ Hotline at 387-4615 or send e-mail to writing-center@wmich.edu.

The Writing Center is located in Room 1039 Moore Hall; telephone 387-4615.
ANNUAL SECURITY REPORT

October 1, 2000
Department of Public Safety

Western Michigan University is concerned about the safety and well-being of its students, faculty, staff, and visitors, and is committed to providing a safe and secure environment. Because no campus is isolated from crime, Western Michigan University has put into place a series of policies and procedures that are designed to ensure that every possible precautionary measure is taken to protect persons on campus. Although we have been fortunate in not experiencing a significant number of serious crimes, it would not be honest to state that such incidents have not taken place. We have taken numbers to enhance security in our buildings and on our grounds. Additionally, we wish to publicize all members of the University community with the facts about the policies and programs that are designed to increase safety and reduce crime.

THE DEPARTMENT OF PUBLIC SAFETY

The Department of Public Safety is located at 511 Monroe, just off the 1300 block of West Michigan Avenue, and is open 24 hours a day, providing around-the-clock protection and services to the University community. Officers are on duty 24 hours a day, 7 days a week, 365 days a year. The Department is responsible for law enforcement, security, and emergency response on campus.

Police officers are certified through the State of Michigan, receive their police authority from the Sheriff of Kalamazoo County, and have arrest powers throughout the county. The Department enforces federal, state, and local statutes and University regulations. The Department is one of five public safety answering points of the county-wide 911 system. The Department is also one of the signatories of the county-wide police mutual aid agreement and works closely with the other police agencies in Kalamazoo County while investigating campus crime.

Student, faculty, staff, and visitors are encouraged to report all crime, emergencies, and suspicious situations to the University Police. Reports may be made in person, by telephone, by emergency police phones, or by the police call box system. All reports of crime, emergencies, and suspicious situations are immediately investigated by a sworn police officer. See appendix A for the WMU DPS Sexual Assault Victim Guarantee.

The University's telephone system supports both 911 and 123 as emergency numbers that automatically ring in the police radio room. There are over 75 emergency police phones on the outside of various campus buildings and in the two parking structures. These phones automatically call the police radio room when the red button is pushed. Police call boxes mounted in parking lots and near heavily traveled sidewalks provide immediate radio contact with the police radio room. The non-emergency telephone number for the Department is 387-5555; from on-campus phones dial 7-5555.

The Department manages the student watch program and the student vehicle escort service. The student watch program consists of pairs of students walking the campus from 6:00 p.m. to 2:00 a.m. 7 days a week during fall and winter semesters. These students wear highly visible vests and are equipped with portable radios. They watch for and report crime, emergencies, and suspicious situations to the police dispatcher. These students also provide walking escorts on campus.

The student vehicle escort service consists of up to three vehicles driven by radio equipped students working from 6:00 p.m. to 6:00 a.m. 7 days a week during fall and winter semesters. These students provide rides between parking lots and residence halls. When not providing escorts, these students patrol the campus looking for crime, emergencies, and suspicious situations.

The Department coordinates the locking and unlocking of all on-residence hall buildings on campus. Most buildings are closed and locked by 10:00 p.m. Monday through Thursday, by 5:00 p.m. Friday, and all weekend. Police patrols check locked buildings to make sure they are secure. Problems with building security are immediately reported to maintenance personnel who respond and make repairs.

CRIME REPORTING

Numerous efforts are made to advise members of the University community on a timely basis about campus crime and crime-related problems. These efforts include the following:

1. Annual Report: A comprehensive annual report of crime-related information is compiled, published, and distributed. This annual report is available to anyone upon request.

2. Student Newspaper: The student newspaper, Western Herald, publishes a summary of criminal incidents in every edition. This summary is prepared by student reporters who have access to police crime reports. The summary includes up to three years of crime history.

3. Special Alerts: If circumstances warrant it, special printed crime alerts can be distributed to members of the campus community.


CRIME STATISTICS

The following on-campus crimes were reported to the University Police:

<table>
<thead>
<tr>
<th>Crime</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murder</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sex Offenses</td>
<td>11</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Robbery</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Aggravated Assault</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Burglary</td>
<td>10</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Motor Vehicle Theft</td>
<td>5</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Arson</td>
<td>117</td>
<td>113</td>
<td>113</td>
</tr>
</tbody>
</table>

The following on-campus arrests were made by the University Police:

<table>
<thead>
<tr>
<th>Crime</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquor Law Violations</td>
<td>404</td>
<td>440</td>
<td>623</td>
</tr>
<tr>
<td>Drug Law Violations</td>
<td>29</td>
<td>46</td>
<td>50</td>
</tr>
<tr>
<td>Weapons Possession</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

CRIME PREVENTION

We feel that almost every crime committed on campus is preventable. As part of the University's educational mission, the Department of Public Safety attempts to teach members of the campus community how to reduce their chances of suffering from a violation of their property or themselves. For this reason, the Department has several officers trained in crime prevention techniques. The University's crime prevention program is based upon the dual concepts of eliminating or minimizing criminal opportunities, whenever possible, and encouraging students, faculty, and staff to be responsible for their own security and the security of others.

In addition to the student watch program, the parking lot escort service, and emergency telephone system, the following crime prevention projects and programs exist:

1. Printed Crime Prevention Material: Printed crime prevention brochures, posters, and handouts related to theft and personal security are widely distributed at crime prevention presentations and at various locations throughout campus.

2. Enhanced Telephone System: All on-campus telephone calls made to the Department of Public Safety's business number (387-5555) or the emergency number (911) display the number of the originating telephone instrument. This enables the police dispatcher to determine the location of the call to insure Public Safety's knowledge of the origin of an emergency call even if the caller is unable to communicate verbally. The same is true for the police radio system.

3. Alarm Systems: A sophisticated alarm monitoring system, located in the Department of Public Safety, monitors a comprehensive network of security, fire, and panic alarm systems.

4. Crime Prevention Programs: In 1999 the Department of Public Safety presented 105 crime prevention programs and Women's Resources and Services presented 45 programs to such campus groups as freshman orientation, resident and
RESIDENCE HALL SECURITY

All interior residence hall doors to the living areas are locked 24 hours a day. Non-residents are not permitted to enter residence halls. Residence halls exterior doors are locked 24 hours a day, and students are expected to enter only through the front door. The residence hall staff locks the front doors from 10:00 p.m. to 7:00 a.m. on weekdays and from 8:00 p.m. to 7:00 a.m. on weekends. During the night when the front door is locked, a night security staff member stationed near the door monitors all persons coming through the door. Non-residents must sign a guest log and are not permitted to proceed unless accompanied by a resident host. Keys to the front door (for entry during the period when the door is locked) and to their own rooms are provided to residents at the time of check-in and must not be loaned to anyone. The remaining emergency locks can be opened by key.

Each residence hall room has an excellent door lock and an effective lock changing procedure is in place. All resident rooms located on the ground floor and those on roof levels are furnished with windows that prevent the window from being opened from the outside. Student room doors leading to the corridor are equipped with a chain lock. In halls with student bathrooms adjacent to the student room, the room side of the bathroom door is equipped with a lock.

Residence halls are staffed by a professional hall director who lives in the hall and several upper-class assistant directors and resident advisors who live on the floors. Someone is always available to assist residents in responding to or reporting crime.

MAINTENANCE OF CAMPUS FACILITIES

The physical plant department maintains University buildings and grounds with a concern for safety and security. It inspects campus facilities with a strict procedure that promptly makes repairs affecting safety and security, and responds immediately to reports of potential safety and security hazards, such as broken windows and locked doors.

Public safety staff (including student watch and escort service employees) reside in staff halls and, building coordinators daily collect and report maintenance needs concerning lighting and building security to the physical plant.

The University campus is well lighted, and further lighting improvements are being made when needed or if building and parking lots are renovated. University landscape service staff members are very much aware of the potential hazard that dense shrubbery can present. Evergreens and shrubbery that are near sidewalks or against buildings are pruned so that they could not conceal a person. Low growing low density plantings that provide hiding places for intruders are utilized near building entrances used at night.

DRUG AND ALCOHOL POLICY

The University complies with federal, state, and local laws including those that regulate the possession, use, and sale of alcoholic beverages and controlled substances. The Department of Public Safety staff actively enforces laws concerning drugs and alcohol which includes:

1. Distribution, possession or sale of any illegal drug or controlled substance.
2. Possession and/or consumption of alcoholic beverages by individuals under 21 years of age.
3. Illegal possession or consumption of an alcoholic beverage in a public place.
4. Driving under the influence of an alcoholic beverage or controlled substance.

In addition to criminal prosecution, the Student Code details drug and alcohol offenses and discipline for students - ranging from reprimand to expulsion from the University.

The University Substance Abuse Services are located in the Sindecuse Health Center. Confidential service is provided to students who seek assistance or are referred for assessment. All new students receive information about substance use and abuse and about relevant University services at an orientation program preceding their enrollment.

WEAPONS POSSESSION

The unauthorized possession or use of firearms, fireworks, explosives, toxic or dangerous chemicals, dangerous substances or compounds, and other lethal weapons is prohibited on University property or in University housing. Authorized use is confined to circumstances as Reserve Officer Training Corps (ROTC) weapons training and police officers.

THE INDIVIDUAL'S RESPONSIBILITY

The cooperation and involvement of students and employees themselves in a campus safety program is absolutely necessary. It is the responsibility of each student to take steps to protect themselves and their personal belongings by taking simple precautions. For example, although the University Police recommend that a resident be accompanied at night, an individual - male or female - may feel more comfortable using the University Police escort service when returning to the residence halls late at night. Room doors should be locked at night and when the room is unoccupied. Valuable items such as stereo equipment, cameras, and personal property should be marked with engraving instruments provided by the University Police at no charge. Bicycles should be registered with the University Police and should be secured with a sturdy lock. Individuals with cars must park them in their assigned area and keep their vehicles locked at all times. Valuable items should be locked in the trunk. Individuals should report any suspicious looking people whom they feel do not belong in the area or any unusual incidents to the University Police immediately.

APPENDIX A

SEXUAL ASSAULT VICTIM GUARANTEE WITH THE DEPARTMENT OF PUBLIC SAFETY

Sexual assault, including date and acquaintance rape, is a crime of very serious concern to the WMU Department of Public Safety. If you are the victim of a sexual assault that occurs on campus, the Department of Public Safety guarantees you the following:

1. We will meet with you privately, at a place of your choosing in this area, to receive the information on the assault.
2. Your name will not be released to the public or media.
3. You will not be pre-judged, nor be blamed for what occurred.
4. Your complaint will be handled with sensitivity, understanding and professionalism.
5. If you feel more comfortable talking with a female or male officer, we will do our best to accommodate your request.
6. We will assist you in arranging any medical care or treatment that you need.
7. We will assist you with contacting a counselor and make available other resources to help you through this process.
8. Your complaint will be thoroughly investigated to help you achieve the best outcome. This may involve the arrest and full prosecution of the suspect responsible. You will be kept informed on the progress of the investigation and/or prosecution.
9. We will continue to be available to you, to answer your questions, explain the systems and processes involved (prosecutor, courts, etc.) and to be a listening ear if you wish.
10. Your complaint will be taken seriously, regardless of your gender or the gender of the suspect.

If you have been sexually assaulted, call the WMU Department of Public Safety at 387-5555 and say you want to privately make a sexual assault complaint. You may call any time of day or night. We will investigate the complaint and if a potential crime is identified, the Director of Public Safety, Robert J. Brown, will contact you personally to address any problems. DPS wants to help make the WMU campus safe for all students, faculty, staff, and visitors.

APPENDIX B

SEXUAL ASSAULT: STATEMENT OF GUIDELINES, PROGRAMS, AND PROCEDURES

Western Michigan University recognizes that sexual assault is a serious social problem that occurs among college students as well as within other segments of our society. The University makes a strong commitment to work toward preventing sexual assault within our community, to provide support and assistance to sexual assault victims, and to impose sanctions on those who have been found guilty
of committing a sexual assault. Our goal is to foster and protect an environment of mutual respect and concern and a safe community in which learning and growth can occur.

Foremost, the term "sexual assault" includes rape, acquaintance rape and other sex offenses, both forcible and non-forcible.

PREVENTION EFFORTS

The Sexual Assault Education Project (SAEP), an ongoing program of Women's Resources and Services (WRS), Office of Student Life, provides educational programs for our students focusing on acquaintance rape. Programs are presented in residence halls, for student organizations, in academic classes, and as part of University 101: Freshman Seminar. In addition, all entering first-year students attend a presentation on sexual assault during freshman orientation. All freshmen and all students attending SAEP presentations receive a brochure that includes the information contained in this policy statement. The brochure is also widely distributed through other means and readily available at a number of campus locations.

The WMU Department of Public Safety presents numerous crime prevention programs annually that include discussion of personal safety issues. Programs are presented to such campus groups as freshman orientation, resident assistants, international students, specific campus departments, academic classes, and student organizations. Printed crime prevention materials are distributed at presentations and at various locations throughout campus.

RESPONDING TO SEXUAL ASSAULT

The University recognizes the right of a sexual assault victim to decide, without pressure or coercion, what action s/he will take following an assault. The University encourages students to report all crimes to the police and to pursue sanctions against offenders through the University judicial process. The University makes information available to students about sexual assault victim rights, options, and resources for help. Staff also assist victims in carrying out their decisions and accessing needed services.

The University encourages victims of sexual assault to take the following steps following an assault:

1. Preserve physical evidence. A special physical examination performed at the hospital collects evidence that will be helpful if the victim later decides to prosecute the assailant. To preserve evidence, the victim should not wash, brush teeth, comb hair, use the toilet, douche, destroy clothing or straighten up the area where the assault occurred. The victim should also bring another set of clothing to the hospital, since the clothing a victim had on during the assault will probably be taken into evidence.

2. Report the assault to the police—dial 911. It is the victim's decision whether or not to report the assault to the police. Reporting a sexual assault to the police may protect the victim and others from possible future victimization by the assailant. Public safety officers apprehend the assailant. A police report also maintains the victim's future option of criminal prosecution, and helps support student disciplinary action or a civil suit against the perpetrator.

Making a police report does not obligate the victim to prosecute the assailant. Whether or not the case will be prosecuted is a decision that is made later, based on a number of factors. Except as otherwise required by law or court order the Department of Public Safety will not release the victim's or the suspect's name or any identifying information to the media or the general public.

3. Get medical attention. The rape evidence exam should be performed as soon after the assault as possible. In Kalamazoo, the exam is available at Bronson Methodist Hospital or Borgess Medical Center emergency rooms. If the victim decides not to have the rape evidence exam, s/he should still be examined for possible injury, pregnancy, and sexually transmitted infections. An exam for these purposes is available at the Sindecuse Health Center, Planned Parenthood of South Central Michigan, or from a physician of choice.

4. Ask for information, support, and assistance. To help sexual assault victims in obtaining accurate and complete information about their rights, options, and available resources for help, as well as any assistance in making a decision about what to do following an assault, the University provides the services of a Sexual Assault Victim Advocate (SAVA). To contact the victim advocate, call Women's Resources and Services, 387–2995. Sexual assault victims may request special academic accommodations or arrangements and, when appropriate, a change in University living arrangements. Requests for such assistance may be made directly to the Dean of Students (387–2150) or through the SAVA to the Dean of Students. The assistance of the victim advocate is available weekdays by appointment. For immediate support and assistance at other times, students should call the YWCA Sexual Assault Program (SAP) 24-hour crisis line, 345–3036. YWCA–SAP provides information and support by phone or on-site at the hospital or police station.

5. Report the assault to Student Judicial Affairs. Sexual assault is expressly prohibited by the WMU Student Code, and the University has the right to discipline students who violate the University's rules and regulations. Anyone who is assaulted by a WMU student, or who knows that a sexual assault by a WMU student has taken place, whether on campus or elsewhere, may request that the University take disciplinary action against the accused. It is not necessary for the victim to file a police report in order to pursue sanctions through the University judicial system; however, it is strongly recommended.

Since Student Judicial Affairs has limited resources to investigate a crime such as sexual assault, it is generally in the victim's best interest to file a police report. Pursuing sanctions through the University does not preclude the victim from also pursuing criminal prosecution or a civil lawsuit.

The University judicial process is initiated by a complaint being made to the University Judicial Officer (387–2160). A detailed description of the process is included in the Student Code, copies of which are available at many offices on campus, including Women's Resources and Services. Sexual assault victims are assured the same rights. A student charged with committing a sexual assault is assured of the same rights. A student found guilty of committing sexual assault or other sexual offenses by Student Judicial Affairs will be given a penalty appropriate to the offense. Possible sanctions range from a reprimand to expulsion from the University.

RESPONDING FOR SUPPORT AND ASSISTANCE IN KALAMAZOO

MEDICAL CARE

Bronson Methodist Hospital, 252 East Lovell, 341–6386
24-hour emergency care; rape evidence exam.

Borgess Medical Center, 1511 Gull Road, 224–9315
24-hour emergency care; rape evidence exam.

Planned Parenthood of South Central Michigan, 4201 West Michigan, 372–1200
Testing and treatment for pregnancy and STDs; no emergency or trauma care; no rape evidence exam.

Sindecuse Health Center, WMU, 347–3290
Testing and treatment for pregnancy and STDs; emotional support and referral for other assistance; no emergency or trauma care; no rape evidence exam.

COUNSELING SERVICES

YWCA Counseling Center, 2510 Faunce Student Services, 387–1850
Free private and confidential counseling.

YWCA Sexual Assault Program, 353 East Michigan 345–9412 (office), 345–3036 (24-hour crisis line)
Free, short-term counseling for victim, friends, and family; individual and group sessions; services on campus one day/week.

A list of other counselors and psychologists in the Kalamazoo area experienced in working with victims of sexual assault is available from the WMU Sexual Assault Program, the WMU Sexual Assault Victim Advocate, and the Sindecuse Health Center.

INFORMATION, SUPPORT, ADVOCACY

Women's Resources and Services, A331 Ellsworth Hall, 387–0905
Information, referral, emotional support, and assistance in regard to medical care, police involvement, counseling, academic concerns, University judicial process; free.

Victim Assistance Unit, Kalamazoo Prosecuting Attorney's Office, 383–8677
Assistance to crime victims involved in a court case. Also provides assistance with filing Crime Victim's Compensation claims which may compensate a victim for expenses related to medical and counseling services, and lost wages.

YWCA Sexual Assault Program, 335 East Michigan, 345–9412 (office), 345–3036 (24-hour crisis line)
24-hour on-site support and assistance to victim and family/friends at hospital or police station; support and assistance to victims during all phases of prosecution, free.

ANNUAL SECURITY REPORT 283
STUDENT JUDICIAL AFFAIRS
University Judicial Officer,
Faunce Student Services, 387-2160
Administers the University’s judicial system for
handling complaints of student violations of
the Student Code.

WMU DEPARTMENT OF PUBLIC SAFETY
511 Monroe, 387-5555 (non-emergency), 911
(emergency).

FURTHER INFORMATION
Further information about campus safety can
be obtained from the Department of Public
Safety, 616-387-5555. Website:
www.wmudps.wmich.edu

This information is provided in compliance with
the Federal Crime Awareness and Campus
Security Act of 1990. The information is also
contained in a brochure available upon
request from the Department of Public Safety.
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.

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. This 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 spring or summer 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.

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.

Computer usage requirement
A requirement that all students demonstrate computer literacy by course, test, or program.

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.

Course numbering system
The course numbering system is limited to three digits. The first digit includes the level of work. The second digit indicates an area of study within the series or level. The third indicates the specific course number in each area and each series. Undergraduate courses are numbered from 100 through 499. Graduate courses are numbered 500 through 799. Courses numbered 500 through 599 are for graduate and advanced undergraduate students.

Course
Numbers Levels
0- 89 Non-credit courses
90- 99 Terminal course credit that may not be applied toward degree programs
100-199 Courses primarily for first-year students

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 “D” 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
A unit of academic credit measured in semester hours or quarter hours. One credit hour usually represents one hour of class time per week. 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 winter semesters listing students who have achieved a grade point average of 3.50 in at least twelve semester hours of course work.

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: fine arts; humanities; United States: Cultures and Issues; other cultures and civilizations; social and behavioral sciences; natural science with lab; natural science and technology; health and well-being.

Elective
A course which will count as credit toward a degree but is not a specific program requirement.

Emphasis
A designated group of courses within a major program.
Field experience, practicum, work experience, co-op

**Field experience** is an 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** is 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** is 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 in an actual job in a school, business, or industry.

**Cooperative education** is 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** is an organizational pattern of instruction which involves regularly scheduled employment and which gives students an opportunity to apply classroom learning.

**Full-time student** is an undergraduate student who enrolls for twelve credit hours during Fall or Winter or for six credit hours during Spring or Summer. 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 designation 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** is 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** is 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** is the numerical value given to letter grades. For example an "A" is equivalent to 4 points per semester hour, a "B+" to 3.5 points, a "B" to 3 points and so on. No points are earned for an "E" grade. Also referred to as "hour points."

**Grade point average (GPA)** is a student's scholastic average computed by dividing total grade or honor points by total credit hours attempted.

**Graduation audit** is 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 April 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 Records Office will not change a student's graduation date unless the student submits this new application for graduation.

**Grant** is financial assistance awarded to a student which does not have to be repaid; usually based on need.

**Guest student** is 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.

**Hold** is 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.

**Honor designation** is indicated on the college degree 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.

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

**Honors College (Lee Honors College)** is 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** are special courses offered by Western's Lee Honors College designed to pose intellectual challenge and give personal attention to particularly able students.

**Incomplete** is 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** 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** is a course of study undertaken outside the classroom by a student under the supervision of one or more faculty members.

**Institution** is an organizational unit similar in nature to a Center, as defined above, but which is degree-granting. Typically an institution 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** are 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** is 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.

**Loan** is 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 100-200 level; freshman or sophomore standing.**

**Major** is a concentration of related courses generally consisting of thirty to fifty semester hours of credit.

**Michigan residence requirements** are the requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.

**Minor** is a concentration of courses generally consisting of a minimum of twenty semester hours of credit.

**Mult-topics or "umbrella" course** is a variable topic, variable credit 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** is a student who has been admitted to a non-degree category and is not currently seeking a bachelor's degree.

**Part-time student** is an undergraduate student who takes fewer than twelve hours during a semester or fewer than six hours during a session.

**Permission to Take Classes (PTC)** is a status awarded specifically to eligible students who are not seeking a degree and merely want to take courses. PTC status is available to those students whose academic record and circumstances meet existing admissions criteria. The PTC student may register for any course for which the prerequisites have been met. However, certain University courses, as well as financial aid, may or may not be available to PTC students. Acceptance for PTC status does not constitute degree admission to Western Michigan University.

**Portfolio** is a collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.

**Prerequisite** is a requirement, usually the completion of another course, which must be met before a student may register for a course.

**Proficiency** is a General Education requirement. Each undergraduate candidate must show...
proficiency in four (4) areas: college-level writing; baccalaureate-level writing; college level mathematics or quantitative reasoning; enhanced proficiency (one of six options).

Readmission
An appeal procedure for a student who has been dismissed or suspended. Consult your college advising office to begin the procedure. Readmission must be sought in the area of intended study.

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.

Residence requirement
The requirement that a minimum of 30 semester hours 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 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.

Self-instructional course
A credit-bearing course designed for the student unable to attend an on-campus class.

Semester
A unit of time, 15 weeks long, in the academic calendar.

Semester hour
A unit of academic credit usually meaning the pursuit of a subject for one period a week for one semester. 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.

Session
A unit of time, 7½ 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.

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 300, 400, and 500 levels.

Withdrawal
An official procedure for withdrawing from a course or from the University. Deadlines for the last day to withdraw from a course without academic penalty (grade of “W” is on the transcript) is noted each semester or session in the Schedule of Course Offerings. Students who do not follow the official procedure when withdrawing from 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.
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Dan Pero, Diamondale
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Mr. John Fraire, Admissions and Orientation
Dr. Elise B. Jorgens, College of Arts and Sciences
Dr. Daniel M. Litynski, College of Engineering and Applied Sciences
Dr. Margaret Merrion, College of Fine Arts
Dr. Janet I. Pisaneschi, College of Health and Human Services
Dr. Joseph G. Reish, Lee Honors College and Interim Dean, University Libraries
Dr. James W. Schmotter, Haworth College of Business
Dr. Diane K. Swartz, Associate Vice President for Student Affairs and Dean of Students
Dr. Donald E. Thompson, Vice President for Research and Dean, The Graduate College
Dr. Alan G. Walker, Vice Provost of Academic Affairs for Continuing Education
Dr. Richard A. Wright, College of Aviation
Garmon, M. Arthur, 1997, Assistant Professor of Teaching, Learning, and Leadership
B.A., M.A., Western Michigan; Ph.D., Michigan State

Gates, Wanda F., 2000, Professor and Director, School of Nursing
B.S.N., M.S.N., Ph.D., Wayne State

Gaudet, Stephen, 1971, Professor of English and of Women's Studies
B.A., Portland State; M.A., Ph.D., Minnesota

Gaynor, Michael T., 2001, Assistant Professor of Psychology
B.S., Eastern Illinois; M.S., Ed. D., Illinois

Gazzam, Rebecca, 1997, Administrative Assistant
B.S., M.A., Western Michigan

Gross, William C., 1987, Associate Professor of Health, Physical Education and Recreation
B.S., Temple; M.S., H.S.D., Indiana

Grotzinger, Laurel Ann, 1964, Professor University Libraries
B.A., Carleton; M.S., Ph.D., Illinois

Guilchereal, Arun, 1987, Professor of Mechanical and Aeronautical Engineering
B.S.E., M.S.E., Ph.D., Michigan

Guilickson, Arthur R., 1991, Chief of Staff, Evaluation Center and Professor of Counselor Education and Counseling Psychology
B.A., M.A., Iowa; Ph.D., Colorado

Gupta, Anora, 1987, Associate Professor of Medical Rehabilitation
B.S., Eastern Michigan; M.A., Ph.D., Purdue

Gurza, John, R., 1999, Assistant Professor of Biomedical Engineering
B.S., Pittsburgh; Ph.D., Washington

Gusler, John S., 1976, Professor of Counselor Education and Counseling Psychology
B.S., Adrian; M.Ed.; Ed.D., Toledo

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