Western Michigan University Undergraduate Catalog 2003-2005

Western Michigan University
2003–2005 Calendar

Fall Semester, 2003
August 28, Thursday
Advising Day—Classes Begin at 4:00 p.m.
September 1, Monday
Labor Day Recess
November 26, Wednesday
Thanksgiving Recess Begins at Noon
December 1, Monday
Classes Resume
December 8–12
Final Examination Week
December 13, Saturday
Semester Ends—Commencement

Spring Semester, 2004
January 5, Monday
Advising Day—Classes Begin at 4:00 p.m.
January 19, Monday
MLK Day Convocations and Activities—University Closed
February 27, Friday
Spirit Day
March 1, Monday
Semester Recess
March 8, Monday
Classes Resume
April 19–23
Final Examination Week
April 24, Saturday
Semester Ends—Commencement

Summer I, 2004
May 3, Monday
Classes Begin
May 31, Monday
Memorial Day Recess
June 23, Wednesday
Session Ends
June 26, Saturday
Commencement

Summer II, 2004
June 24, Thursday
Classes Begin
July 5, Monday
Independence Day Recess
August 13, Friday
Session Ends

Fall Semester, 2004
August 30, Monday
Advising Day—Classes Begin at 4:00 p.m.
September 6, Monday
Labor Day Recess
November 24, Wednesday
Thanksgiving Recess Begins at Noon
November 29, Monday
Classes Resume
December 6–10
Final Examination Week
December 11, Saturday
Semester ends—Commencement

Spring Semester, 2005
January 3, Monday
Advising Day—Classes Begin at 4 p.m.
January 17, Monday
MLK Day Convocation and Activities—University Closed
February 25, Friday
Spirit Day
February 28, Monday
Semester Recess
March 7, Monday
Classes Resume
April 18–22
Final Examination Week
April 23, Saturday
Semester Ends—Commencement

Summer I, 2005
May 2, Monday
Classes Begin
May 30, Monday
Memorial Day Recess
June 22, Wednesday
Session Ends
June 25, Saturday
Commencement

Summer II, 2005
June 23, Wednesday
Classes Begin
July 4, Monday
Independence Day Recess
August 12, Friday
Session Ends

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

Graduation Fee and Application Deadline
Fall Semester Graduation (December)
$45.00 Application Deadline: August 1
Spring Semester Graduation (April)
$45.00 Application Deadline: December 1
Summer I Graduation (June)
$45.00 Application Deadline: February 1
Summer II Graduation (August)
$45.00 Application Deadline: February 1
Western Michigan University

Undergraduate Catalog
Kalamazoo, Michigan
2003 • 2005

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 to rescind 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.

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228  •  Art (ART)
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54   •  Biological Sciences (BIOS)
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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 staff through institutional practices and programs
• To recognize excellence in the teaching, research, learning, creative work, scholarship, and service contributions of students, faculty, and staff
• To conduct ongoing assessment activities and engage in continuous improvement initiatives within the University
• To establish life-long 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
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 graduates 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 or more information may be requested, and/or individual attributes and special abilities may be considered.

Freshmen applicants are strongly encouraged to follow a college preparatory curriculum that would include minimally four units of English; three of math (including intermediate algebra); three of social sciences; two of biological/physical sciences; and two years of foreign language, especially for those students planning to pursue a major in WMU's College of Arts and 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 reserves the right to withdraw, revoke, and/or cancel an admission decision for any reason, and at any time, it deems warranted. This right shall also apply in instances when the University acquires information about an applicant or student after an admission decision is made.

Admission to Western Michigan University is non-discriminatory.

Forgiveness Policy

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

The WMU grade point average will be calculated from a minimum of twelve graded hours of work attempted after the re-entry date. All other University regulations apply. As a matter of course, the Registrar will advise students granted forgiveness to meet with a college advisor.

Readmission

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

Students who leave the University in good standing 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 reenrolled 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 FOR DOMESTIC 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/adm/undergradapp/) with a non-refundable $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. Make arrangements to take the examinations of the American College Testing (ACT) Program, or the College Board (SAT), with results sent directly to Western Michigan University (ACT College Code 2066; SAT College Code 1902), and
4. For those who have completed a General Educational Development (GED) Test, submit official GED scores as well as a high school transcript.

WHEN TO APPLY

Students should submit applications for fall semester during the fall preceding their enrollment. High school students may apply for freshman admission after completion of the junior year. The Admissions Office will begin to review applications for the following semester on or near September 15. Application by December 31 ensures full consideration for scholarships.

ADMISSION INTERVIEWS

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

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 on selected dates. These programs take place Monday through Friday and most Saturdays. For more information, or to arrange a visit, go online to www.wmich.edu/adm/visit/, or contact the Office of Admissions and Orientation.

NOTIFICATION OF STATUS

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

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

2. Request that each college attended send an official transcript directly to the Office of Admissions and Orientation at WMU. A tentative admission decision and partial credit evaluation can be made to allow for advising and registration. A final transcript showing acceptable grades must be received within ten days of enrollment at Western; and

3. If transferring fewer than twenty-six college semester hours, submit a high school transcript.

Prospective transfer students whose native language is not English will be required to demonstrate proficiency in the English language prior to enrollment in the University. For details see International Students in this section.

WHEN TO APPLY

All application materials (application, fee, transcripts) must be postmarked by August 1 to be considered for the Fall semester, and by December 1 for the Spring semester. Transfer students applying for fall semester should apply before March 1 for fullest advising/registration and financial aid/scholarship opportunities. Some programs require earlier application. See the Programs of Study section in this catalog.

NOTIFICATION OF STATUS

The University notifies transfers of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, students receive notification. The decision may be to admit, to hold a decision with the condition of successful completion of work at WMU and before their formal admission to WMU, or to suggest that a student take more work before being accepted.

Admission to one institution does not imply admission to another institution. Students transferring to another institution is conditional upon successful completion of the work in progress. Poor performance may change the admission status at the other institution or cause withdrawal of the admission offer.

CREDIT EVALUATION

Students Transferring to WMU

Students accepted for transfer to WMU will receive an evaluation of their previous college work, showing courses transferred with WMU equivalencies. Course equivalencies for Michigan's public community colleges and other transfer information are available in the counseling offices of those community colleges and WMU's Office of Admissions and Orientation web site. 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 eligibility for admission to the University; they will not be recorded on the WMU transcript. Courses in which "D" or the equivalent has been earned will not be accepted for credit only if the cumulative grade point average is 2.0 or better in transferable work from the transferring institution as computed by the WMU Office of Admissions and Orientation. 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 begins with successful completion of 6 semester hours of course work at WMU or another institution, accredited by an agency recognized by the Department of Education.

If an applicant has taken AP or CLEP examinations, credit is awarded on a course by course basis depending on the result.

WMU Students Transferring Credit Back to WMU

All regulations and procedures concerning transfer of credit for new students also apply to WMU students who take work at other institutions to transfer back to WMU. 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 arrangements 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 check their college advising office or contact WMU 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.

Orientations

Transfer students are encouraged to participate in orientation programs on facilities, general requirements, and services. The orientation program has been developed with input from past transfer students to meet the needs of students making a successful transfer to a new institution. These sessions do not provide academic credit.

Students transferring fewer than 16 credit hours at the time of admission are required to attend a transfer orientation program.

ADMISSION PROCEDURE FOR INTERNATIONAL STUDENTS

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, advising 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 further information and directions. The website is http://www.wmich.edu/isis

To qualify for admission, international students must show that they are academically, financially, and emotionally capable of succeeding in 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 $75.00 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 lists course titles and grades (marks) received for each.

3. Provide proof of adequate funding per academic year. This funding amount includes tuition, room, board, books, health insurance, and miscellaneous expenses ($30,000 for undergraduate students). Personal/family savings must be verified by a bank statement. Those not 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. Complete the Student and Dependent Information form.

5. Provide proof of English competency. The following tests and scores are accepted at Western Michigan University as evidence of English competency. (Applicants who have successfully completed at least twenty-six semester hours at another institution with a grade of 2.0 or higher in English courses are exempted from this requirement, at the discretion of the Office of International Student Services.)

Test of English as a Foreign Language (TOEFL) A score of 650 (173 CBT) is required for restricted admission (part-time remedial English and part-time academicians during the first semester), 750 (213 CBT) 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) A minimum score of 7.0 for unrestricted admission.

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

Certificate of Proficiency in English (CPE) A passing grade is required for unrestricted enrolment.

Certificate in Advanced English (CAE) A passing grade is required for unrestricted enrolment.

The College Board's English Language Proficiency Test (ELPT) A score of 900 is required for restricted enrolment or 965 for unrestricted enrolment.

CELICSI Successful completion of the advanced level and instructor recommendations from CELCIS.
6. A prospective student may enroll in the WMU Career English Language Center for International Students (CELSIUS) until achieving the required TOEFL score for academic enrollment. For more information, contact the CELSUS Office.

SPECIAL ADMISSION PROGRAMS

Alpha Program

The Alpha Program is a one-year probationary academic support program for first-year students. The program provides developmental academic advising, alerts students to University resources, and requires attendance at skill-building workshops. Consideration is given to those students who do not meet WMU's regular admissions criteria but who have demonstrated the potential for college-level work. From this pool, the Office of Admissions and Orientation will select those students who appear to have the best chance for success. The Office of Admissions and Orientation determines eligibility of applicants for further consideration as Alpha students.

Admission to the Alpha Program is on a one year probationary status. Selected students and their parents or guardians are asked to sign a program contract accepting conditions of admission. These include:

1. Enroll in WMU's University Curriculum (UNV).
2. Attend Freshman Orientation;
3. Meet regularly with the Alpha advisor;
4. Enroll in 100 and/or 200 level courses during the probationary year;
5. Register for no more than four academic courses along with UNIV 101;
6. Maintain a minimum 2.0 (C-) grade point average while at WMU; and
7. Complete an academic assessment and attend skill-building workshops.

8. Agree not to join a fraternity or sorority during their first year.

Students' grades and progress are reviewed by the Alpha coordinator before the end of each semester. If contract stipulations are met, students are eligible to continue their college work in good standing.

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 1968. Named in honor of the late Dr. King, this particular program has the distinction of being the forerunner 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 now is 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 programs and associated internships.
- Participation 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 any school or college for at least five years;
3. May register for any course for which the prerequisites have been met. PTC 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 few 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. Freshmen 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 in 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 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 all have all academic work recorded on a permanent student record.
TUITION AND FEES

Fees and costs identified in this catalog pertain to the 2003-2004 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 2003-2004 are listed below; these fees are subject to change without notice by action of the Board of Trustees.

Resident Undergraduate—Lower Division*, $164.43
Resident Undergraduate—Upper Division**, $181.76
Resident Graduate, $233.53
Non-Resident Undergraduate—Lower Division, $89
Non-Resident Undergraduate—Upper Division, $464.87
Non-Resident Graduate, $569.00
Extended University Programs, All Undergraduates, $241.76
Extended University Programs, All Graduates, $293.53

*Resident: See the Resident Classification section directly below for definition.
**Non-Resident: See the Residency Policy section directly below for definition.

Residency Policy of Western Michigan University

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.

The policy which follows was approved by the Western Michigan University Board of Trustees effective with the Fall Semester, 2001. This policy applies to all students (undergraduate and graduate) at WMU. The Office of the Assistant Vice President for Business administers this policy.

Information on this policy is available through the University's web site. Additionally you may contact the Office of the Assistant Vice President for Business directly at 3080 Seibert Administration Building, Western Michigan University, Kalamazoo, MI 49008, or call (616) 387-2304 for additional information or to request an application form.

Residency Policy for University Admissions and/or Fee Purposes

Any student may apply for in-state resident classification for any semester/session in which they are enrolled by completing the "Application for Resident Classification for University Admissions and/or Fee Purposes" and submitting it to the Office of the Assistant Vice President for Business. Applications can be filed as early as one month prior to the start of each semester/session but not later than 20 calendar days following the first day of classes for the fall and winter semesters (10 calendar days for the spring and summer sessions). The deadline dates are the same for all students (undergraduate and graduate).

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. The burden of proof is on the student.

2. "Domicile" is defined as the place where an individual's true, fixed and permanent home and principal establishment is and to which the individual returns whenever he/she is absent from the University. A student shall not be considered domiciled in Michigan unless the student is in continuous physical presence in this state for one year (12 consecutive months) immediately preceding the first day of classes of the term for which classification is sought and intends to make Michigan his/her permanent home, not only while in attendance at the University but thereafter as well, and has no domicile elsewhere.

3. Dependent Student: For tuition classification purposes, a student is presumed to be a dependent of the 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 employed 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.

A dependent student with one parent domiciled in Michigan regardless of whether that parent is the student's custodial parent, is presumed to be eligible for resident classification for tuition-paying purposes if one parent is, according to University Residency Policy, domiciled in Michigan.

The domicile of a dependent student's legal guardian(s) will be 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 is, according to University Residency Policy, permanently domiciled in Michigan does not lose resident status if the parents leave Michigan provided: (1) 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. Dependent 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, once 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 of 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 entitled to reside permanently in the United States may be eligible for resident classification at Western Michigan University. These individuals, like U.S. citizens, must still 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, persons 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 I visa holders: Based upon current law, these non-immigrant visa classifications are temporary, as are the 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 period 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 of 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. Providing a written notice of appeal to the Vice President for Business and Finance stating the reasons thereof. Please note that any additional information that may provide evidence of domicile not submitted with the initial application must be included with the appeal.

b. Additionally, the student must request in writing that all documents submitted with the initial application for residency be forwarded to the Vice President for Business and Finance so that the entire file may be reviewed in the appeal process.

c. Failure to comply within the required 20 days shall constitute a waiver of all classification reclasification or rebates for the applicable semester/session.

The student will receive a written decision on their residency 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 information 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 a 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 themselves 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 W-2 forms for the applicants and the person or persons upon whom the applicant is basing the claim to resident eligibility.
- All applicants who are born outside the State of Michigan must provide verification of U.S. citizenship or visa status.
- All applicants whose 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 W-2 forms.
- All applicants whose claim to 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 application.
- 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 and reapplies for admission will continue to be classified as a non-resident student until an Application for Resident 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 tuition-paying purposes is questioned does not necessarily mean that the student will be ineligible. It simply means that the student's circumstances must be documented and an Application for Resident Classification for University Admission and/or Fee Purposes must be filed.

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 in-state purposes, the University will require the student to have continuously resided in Michigan for one year immediately preceding the first day of classes of 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 to eligibility for in-state classification. This is not an exhaustive list.

- In the case of a dependent student, at least one parent domiciled in Michigan, as demonstrated by the parent's permanent employment, establishment of a household and severance of out-of-state ties.
- 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 requesting 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 no 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.

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

Change in Credit Hour Load, Effect on Tuition
Changes in student credit hour load prior to the end of the final day for adding a course are considered to be reassessments, and a refund will be granted, in full, for any net reduction in the credit hour load. After the final day for adding a course, there is no reassessment or refund for reduction in credit hour load. An increase in credit hour load will result in an upward adjustment of the tuition fee assessment. Students should refer to the current Schedule of Course Offerings for complete information pertaining to the University's refund policy.

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.

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 acceptance 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
An additional fee of $25.50 will be assessed for each course at the 200-level and above.

College of Health and Human Services Class Fees
An additional fee of $26.00 will be assessed for each course at the 200-level and above.

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 capitation assessment. The enrollment fee for students registered in on-campus classes is as follows.

Students enrolled for 5 or more credit hours per semester or 4 or more credit hours per session:
Fall and Spring Semesters .......... $289.00
Summer I and Summer II Sessions ... $144.50

Students enrolled for 4 or fewer credit hours per semester or 3 or fewer credit hours per session:
Fall and Spring Semesters .......... $150.00
Summer I and Summer II Sessions ... $75.00

Entering Student Development Fee
The entering student development fee covers the administrative costs associated with special activities and events provided for new students as they begin their first semester at WMI. The $100 entering student development fee will be assessed to all new freshmen, new transfer, and new graduate students. The new student development fee will not be refunded beyond the last day to add and drop classes.

Extended University Programs Technology Fee
A technology fee of $25.00 per student is assessed each semester/session. Certain courses, such as contract courses or Self-Instructional courses, are exempt from this fee.

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.

Graduation Fee and Application Deadline
Summer II Session Graduation (August) $45.00 Application Deadline: February 1
Fall Semester Graduation (December) $45.00 Application Deadline: August 1
Spring Semester Graduation (April) 45.00 Application Deadline: December 1
Summer I Session Graduation (June) $45.00 Application Deadline: February 1

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

International Student Insurance Program: 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 approved at the Sincereinsurance Center during the first two weeks of the semester/session. No refunds of insurance premiums can be given after that time. The insurance coordinator at the Health Center is available to assist students via e-mail at shc-usb@wmich.edu or phone at (269) 387-3266.

Late Add Fee
Classes cannot be added after the drop/add registration period ends except for extenuating circumstances as determined by the Registrar. Should the Registrar deem that a late add should be granted, the student will be assessed a fee of $50.00 per class added. If the student was not previously registered for at least one class, the late registration fee of $100.00 also will be assessed.

Late Registration Fee
A late registration fee of $100.00 is assessed each student who is not registered for at least
one class prior to the third day of the semester/session. Students who have registered for classes prior to the late fee assessment date and wish to process drops/adds, should add classes before processing drops to avoid being assessed the fee.

**Liability Insurance Fee**

Students enrolled in courses requiring participation off-campus for field experience or practicums will be charged a liability insurance fee. This fee will be assessed one time per year, fall semester through summer II session. Students registered in classes that require more than one type of liability insurance will be charged for each type one time.

**Student Activity Fee**

A student assessment fee (SAF) of $12.00 per semester (Fall and Spring) and $6.00 per session (Summer I and Summer II) 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's Center Stage, lectures, etc.

**Transcript Fee**

One unofficial transcript per semester or session may be obtained in the Registrar's Office without cost. An unofficial or official transcript sent via regular mail is $5.00; an unofficial transcript faxed and then followed by an official transcript sent via regular mail is $10.00. The transcript will be released only upon written authorization of the student and only after payment is made.

**RESIDENCE HALL AND DINING FEES**

Cost of room and dining in 2003–2004 for 20 meals per week is $3,248.00 for the academic year; for 15 meals per week, $3,167.00 for the academic year; for 10 meals per week, $2,982.00 for the academic year.

The cost for room only is $1,675.00 for the fall semester and $1,675.00 for the spring 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.

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.
FINANCIAL AID AND SCHOLARSHIPS

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 based upon the 2003-2004 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 (269) 387-6000.

FASTWEB

FastWeb is a free and comprehensive scholarship search available 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

WMU Scholarship Search

The WMU Scholarship Search is intended for students who plan to attend or currently attend Western Michigan University. Scholarships described are opportunities within WMU departments and federal and state grants. Please visit our website at www.wmich.edu/finaid for a complete listing of these scholarships.

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 PIN notification at their home addresses by late December. Students may file the FAFSA on the web at www.fafsa.ed.gov using their PIN 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 attendance 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 awards. If the additional information received affects student's financial aid awards, a Revised Award Letter will be created.

Payment Process

Financial aid payments are credited on or before the first day of the term to a student's account. 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 directly deposited to a student's account or mailed to a student's local address.

Maintenance Requirements

In accordance with Federal and State regulations WMU must monitor a student's academic progress on an annual basis (at the end of spring semester). Full time undergraduate students must pass at least 24 credit hours per academic year (or 12 hours per fall and/or spring semester) and achieve a minimum 2.0 grade point average. 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.

Students not meeting these standards of academic progress may lose financial aid eligibility for future semesters/sessions.

Reinstatement of financial aid may be considered by filing an Academic Progress Appeal or by taking courses during the summer I or summer II sessions to make up any credit hour deficiencies. If a financial aid recipient withdraws from all courses after the first day of class, Federal regulations mandate that WMU calculate the amount of financial aid that must be repaid to the scholarship, grant, and loan programs. Failure to withdraw officially after the drop/add period may result in all aid being cancelled for that semester.

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. The official registration drop/add period extends five business days into a semester or session. In addition, a twenty-four hour grace period will be provided to students who drop or add a class that meets for the first time on the final day of the drop/add period. This same twenty-four hour period also applies to any class that meets for the first time beyond the five-day drop/add period. A student who withdraws from the University or who reduces a credit hour load during the drop/add period will be granted a complete removal of tuition charges.
A complete withdrawal from all courses, past the drop/add period, results in a partial reduction of tuition charges, up through the first Friday past mid-semester. See the Refund Policy in the Office of the Registrar for complete information and dates. To appeal for a greater reduction or possible cancellation of tuition charges, students may complete a Request for Cancellation of Tuition Charges, with supporting documentation, through Student Financial Aid. Student Financial Services Specialists will review the submitted requests and forward a written decision to the student. There is no reduction of tuition charges for a partial withdrawal from classes after the official drop/add period unless circumstances warrant. Students may complete a Request for Cancellation of Tuition Charges through Student Financial Aid. Circumstances which warrant an appeal may include medical reasons, university error, death of a close relative, or another significant event that occurred during the semester of withdrawal having a direct impact on the student’s ability to complete course(s). Supporting documentation is required in order to substantiate an appeal approval. A student’s reasons for requesting a cancellation of tuition charges vary individually and are evaluated on that basis.

It is highly recommended that the student contemplating a partial or complete withdrawal first discuss the situation with a Financial Services Specialist in the Office of Student Financial Aid.

**TYPES OF FINANCIAL AID**

**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 $4,050 per academic year to eligible undergraduate students who have not obtained a bachelor’s degree.

**Federal Supplemental Educational Opportunity Grant** provides grants up to $1,800 per academic year to eligible, undergraduate students who have not obtained a bachelor’s degree.

**Michigan Educational Opportunity Grant** provides grants up to $4,000 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 who 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 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 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 end.

**Federal Perkins Loan** allows needy undergraduate and graduate students to borrow funds on an annual basis with an interest rate of 5 percent. The annual amount ranges up to $4,000 per academic year for undergraduate students and $6,000 per year for graduate students. Interest and principal payments are deferred as long as a student is enrolled at least half-time. Repayment of the loan plus interest begins nine months after the student ceases to be enrolled at least half-time.

**Federal Direct Subsidized (DFS) Loan** allows undergraduate and graduate students with financial need to borrow funds on an annual basis with a variable interest rate capped at 6.25 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 (less a 1.5% interest rebate) 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 6.25 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 (less a 1.5% interest rebate) 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 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 (less a 1.5% interest rebate) 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 history may borrow FDU loan funds.

**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 MICH/GRE or ACT 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 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 jobs.dow.wmich.edu. Openings include student service and clerical positions of all levels, retail sales positions, and technical positions requiring computer 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.

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

**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, the University’s most prestigious scholarship for new freshmen, exemplifies Western’s commitment to recognize and encourage academic achievement. Medallion scholars currently receive $32,000, awarded $8,000 each year for up to four years. Scholarships carry the name of the donor and are awarded to students entering programs designated by the donor; others are open to students in all degree programs.
transferrable courses and all materials necessary for admission must be mailed to Western’s Office of Admissions and Orientation and postmarked by March 1. Recipients are selected by the Western Michigan University Transfer Scholarship Selection Committee.

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 apprenticeship 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, a 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 3.3, and
typically have accumulated at least 60 credit hours at 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/spring 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 January 1 through March 1. Students must submit their application by March 1 for the following fall/spring semester academic year.

Clifford and Ella Chapman Distinguished Senior Scholarship

The trust established in 1964 by Clifford and Ella Chapman, longtime friends of Western Michigan University, provides the funds for this scholarship program.

Western students who have achieved senior classification and have a grade point average of 3.5 or above may apply for a $200 spring semester award.

The selection committee also weighs extracurricular and community service activities, and the honors and awards the student has earned while enrolled at Western. Students whose extracurricular activities have been limited because of employment while attending Western should also include their work history.

Applicants must be U.S. citizens or permanent residents.

Application forms are available 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 twelve credit hours for fall/spring and have a 2.5 grade point average. Graduate students must be enrolled for two to five credit hours for fall/spring 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.
### DEGREES, CURRICULUM, 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 Education
- Master of Fine Arts
- Master of Music
- Master of Science in Engineering
- Specialist in Education
- Master of Science in Medicine
- Doctor of Education
- Doctor of Philosophy

### UNDERGRADUATE CURRICULA AND MAJORS

#### Curricula and Majors by College

**College of Arts and Sciences:**
- Students selecting a communication or psychology program will be placed in the (1) “Pre-Communication” (PCM) or (2) “Pre-Psychology” (PPF) major respectively until requirements have been met. See the Department of Communication or Department of Psychology section for complete information on admission requirements.

**Curriculum:**
- IPC Interpersonal Communication
- JHL Journalism
- LAT Latin
- MAT Mathematics
- MOS Media Studies
- OCM Organizational Communication
- PHI Philosophy
- PHY Physics
- POL Political Science
- PPA Political Science in Public Administration
- PSP Professional Studies
- PSY Psychology
- PHL Public History
- PUR Public Relations
- REL Religion
- SOC Sociology
- SPA Spanish
- STA Statistics
- SPM Student Planned Major
- TCM Telecommunications Management
- TOU Tourism and Travel

#### 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.)
- CURR: LEC Legal Education
- CURR: BAD Business Administration
- CURR: IET Industrial Education Technology
- CURR: ATT Athletic Training
- CURR: MME Music Education
- CURR: DIT Dietetics
- CURR: DHE Community Health

**College of Aviation:**
- Students selecting a College of Aviation major will be placed in the “Pre-Aviation Curriculum (PAV)” until requirements have been met. See the College of Education section for complete information on admission requirements.

**Curriculum:**
- CURR: BAD Business Administration
- CURR: BAC Business Administration
- CURR: ATM Aviation Technology
- CURR: GEM General Engineering
- CURR: MIR Music, Elementary
- CURR: PMA Physical Medicine
- CURR: KIN Kinesiology
- CURR: PFA Physical Fitness Administration
- CURR: PER Physical Education
- CURR: PSE Physical Science

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

**Curriculum:**
- CURR: CTE Career and Technical Education
- CURR: CEM Career and Technical Education

**College of Education:**
- CURR: CTE Career and Technical Education
- CURR: CEM Career and Technical Education
College of Engineering and Applied Sciences:

(5) 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.

(6) Not available on-campus.

CURR: AER Aeronautical Engineering
Major: Aeronautical Engineering
CURR: CHE Chemical Engineering
Major: Chemical Engineering
CURR: CIV Civil Engineering
Major: Civil Engineering
CURR: CPE Computer Engineering
Major: Computer Engineering
CURR: CECE Construction Engineering
Major: Construction Engineering
CURR: CSG Computer Science—General
Major: Computer Science—General
CURR: CST Computer Science—Theory and Analysis
Major: Computer Science—Theory and Analysis
CURR: EE Electrical Engineering
Major: Electrical Engineering
CURR: EGR Engineering Graphics and Design Technology
Major: Engineering Graphics and Design Technology
CURR: GCA General College
Major: General College
CURR: ID Industrial Design
Major: Industrial Design
CURR: IEN Industrial Engineering
Major: Industrial Engineering
CURR: IMI Imaging
Major: Imaging, Management Option
Major: Imaging, Marketing Option
CURR: MFE Manufacturing Engineering
Major: Manufacturing Engineering
CURR: MFT Manufacturing Engineering
Major: Manufacturing Engineering
CURR: ME Mechanical Engineering
Major: Mechanical Engineering
CURR: PAE Paper Engineering
Major: Paper Engineering
CURR: PAS Paper Science
Major: Paper Science

College of Fine Arts:

(7) 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
ATHE Art Education
ART Art History
GRD Graphic Design
CURR: DAC Dance
Major: DAC Dance
CURR: MUS Music
Major: MUS Music
MUC Music Composition
MUE Music Education
MTR Music History
MTJ Music—Jazz Studies
MSR Music Performance
MST Music Theory
MUY Music Therapy
CURR: MTP Music Theatre Performance
Major: MTP Music Theatre Performance
CURR: THR Theatre
Major: THD Theatre—Design and Technical Production
THR Theatre—Performance
THS Theatre—Theatre Studies

College of Health and Human Services:

Students selecting any Health and Human Services program will be placed in a "Pre-Program" until all requirements have been met. See the College of Health and Human Services sections for complete information on admission requirements.

CURR: HSV Interdisciplinary Health Services
Major: HSV Interdisciplinary Health Services
CURR: MUR Nursing
Major: MUR Nursing
CURR: OT Occupational Therapy
Major: OT Occupational Therapy
CURR: SW Social Work
Major: SW Social Work
CURR: SPN Speech Pathology and Audiology
Major: SPN Speech Pathology and Audiology
CURR: TIN Travel Instruction
Major: TIN Travel Instruction

Coordinate Major: (This major is selected only along with a standard major.)
GRN Gerontology

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

Major: Any Undergraduate Major

Extended University Programs:

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

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

CURR: GUS General University Studies Concentration:
CIES Occupational Education Studies
SCS Student Integrated Curriculum
STC Student Planned Curriculum
CURR: CE Continuing Education
Major: PTC Permission to take Classes

Other Curricula
CURR: UNV University Curriculum
Major: UNV University Curriculum

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

Medical Sciences

Maria McGurr, Advisor
Jacquelyn Bizzell
Medical Sciences Advisors
2318 Friedmann Hall
387-4366

Predentistry and Premedicine

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

Detailed guides for Premedicine and Predentistry are available at the College of Arts and Sciences web site: www.wmich.edu/cas/. Students should meet with a premedical or predental advisor on a regular basis for guidance on planning a four-year college program that includes the minimal required courses listed below. Students should also meet with their academic advisors regularly at the College of Arts and Sciences Reference Desk, with special attention to official information on admission requirements, selection factors, and deadlines.

ADEA Official Guide to Dental Schools, published by the American Dental Education Association. Medical School Admission Requirements (MSAR), published by the Association of American Medical Colleges. Dental Schools (call number: RK 91 A58; 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 predental advisor).

Required Core

1. General Chemistry (CHEM 110/111 and 120/121)
2. Organic Chemistry (CHEM 375/376 and 377/378)
3. General Biology (BIOS 150/151)
4. Two advanced biology courses (BIOS 250 and 350 are recommended)
5. General Physics (PHYS 113/114 and 115/116 or 205/206 and 207/208)
6. Two semesters of English (ENGL 105 and a literature course)

Other Health Professions (Optometry, Pharmacy, Podiatry, Veterinary, Chiropractic, Physical Therapy, and Physician Assistant)

The requirements for admission to other doctoral level health profession schools and many master’s degree programs are similar to those of medical and dental schools. However, unlike medical and dental schools, these programs can be quite varied in their requirements. The student should work with his/her medical sciences advisor in tailoring as may required course as possible to fit their curriculum or degree requirements.

Pre-Law

Kevin Knutson, Prelaw Advisor
Mark Gadson, Prelaw Advisor
College of Arts and Sciences Academic Advising Office
2318 Friedmann Hall
269 387-4366
http://www.wmich.edu/cas/advising/prelaw.html

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

Some courses are essential during a bachelor's degree program; however, courses with a strong writing or oral communication component are ideal as are courses that require legal reasoning like business law and constitutional law. Courses that allow the student a broader understanding of the structure and processes of government (such as nation government, the legal environment, and judicial processes) are also valuable, as are those that focus on the American historical experience.

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

ACCREDITATION

University Accreditation

Western Michigan University is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools, 30 North LaSalle Street, Suite 2400, Chicago, IL, 60602-2594, telephone 800-827-7440.

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, middle and junior high school; secondary education; health, physical education, and recreation; and special education.
- master's programs in early childhood, reading, teaching in the elementary 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 School of Art are accredited by the National Association of Schools of Art and Design.

Programs in rehabilitation teaching and orientation and mobility in the Department of Blindness and Low Vision Studies are accredited by the Association for Education and Rehabilitation of the Blind and Visually Impaired. The programs in Travel Instruction and Rehabilitation Counseling/Teaching are accredited by the Council on Rehabilitation Education.

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 Board.

The programs in aeronautical, computer, construction, electrical, engineering management technology, industrial, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The 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 aviation flight science program is accredited by the Council of Aviation Accreditation. Flight Education.

The dietetics programs in the Department of Family and Consumer Sciences are approved by the American Dietetics Association. The bachelor's didactic program in dietetics is accredited by the Didactic Program in Dietetics.

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.

The bachelor's physical education program in the Department of Health, Physical Education and Recreation is accredited by the National Association for Sport and Physical Education; the bachelor's health education program by the American Association of Health Education; and the graduate athletic training program by the National Athletic Trainer Association.

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

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 of 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 Accreditation Review Commission on Education for the Physician Assistant, Inc.

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 Michigan Department of Education 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 Council on Academic Accreditation in Audiology and Speech Language Pathology; the speech pathology and audiology clinics are accredited 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 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 end of a semester or a session—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 slips, minor slips, and curriculum guides also must be secured from the appropriate advisor(s) and submitted along with the application and fee to the Registrar's Office. 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.

Graduation Application Deadlines and Fees

Fall Semester Graduation (December) $45.00 Application Deadline: August 1
Spring Semester Graduation (April) $45.00 Application Deadline: December 1
Summer I Session Graduation (June) $45.00 Application Deadline: February 1
Summer II Session Graduation (August) $45.00 Application Deadline: February 1

Final Date for Completion of Work

All work taken either on or off the campus must be completed by graduation day. Transcripts of completed work earned off the campus will be received after the end of the semester only in cases where there are extenuating circumstances. Courses taken or completed after the summer session will not count toward bachelor's degrees, teaching certificates or credit hours earned at the close of the summer session. Students who take or complete such courses will receive their degrees and certificates at the close of the fall semester.

Students who fail to meet academic standards or complete all degree requirements will be removed from graduation lists automatically. Such students will be placed in the class of the succeeding semester or session only after they change their graduation date with the Registrar's Office, assuming requirements can then be met. No fee is charged for submitting a Change of Graduation Date form. The graduation auditor will not automatically move the student to another graduation class. Under no circumstances will any student be graduated with a class if his/her academic record does not show complete fulfillment of all requirements within 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 30-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 Collegiate Registrars and Admissions Officers General Education Agreement, will automatically have fulfilled the first and second year General Education requirements. General Education requirements of two courses at the junior and senior levels will continue to be required.
4. A minimum grade point average of 2.0 must be obtained in any major or minor(s) presented for graduation. Individual colleges, departments, or programs may have additional University approved requirements including a higher minimum grade point average.
5. A student must also have an overall University grade point average of 2.0 or higher to graduate. If a student fails to meet minimum University academic standards, he/she 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. Individual colleges and departments may have additional residency 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 restrictions on the application of correspondence (self-instructional) courses to degree requirements.
10. A maximum of 8 hours of general physical education (PEGN) courses may be counted toward graduation.
11. 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 at an accredited four-year, degree-granting institution.
12. Students may graduate under the WMU catalog in effect at the time of their initial registration or any succeeding catalog provided the catalog is not more than ten years old upon the completion of requirements for graduation. Students who have been gone from the University for ten years or more must enter the University under the catalog in effect at the time of re-entry. For exceptions, see special policy in "Graduation Requirements—Bachelor of Science in Engineering" listed in the College of Engineering and Applied Sciences section of this catalog.
13. 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.
Requirements for Earning a Second Bachelor's Degree

WMU Graduates

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

Non-WMU Graduates

Students who received a bachelor's degree from an institution other than Western Michigan University, must meet the following minimum requirements:
1. Possession of a prior bachelor's degree from a regionally accredited college or university.
2. Completion of a minimum of 30 credits in residency beyond the requirements for the first degree.
3. Completion of new major requirements as well as all specified University, college, and program requirements, including general education, proficiencies, and a minimum 2.0 gpa.
4. Generally, no second degree will be granted from the discipline in which the first degree was earned.
5. NOTE: Program accreditation standards may impose additional requirements or limitations. Completion of certification requirements generally 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 requirements 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, geogaphy, or chemistry) major or minor sequence, but may be required to satisfy curricular 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 Bachelor's degree at Western Michigan University includes proficiency in the intellectual skills of writing, reading, and quantification. To ensure development of students' intellectual 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, where 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 written skills may be exempted from the college-level writing course requirement.

Basic writing course options are:
   - ENGL 100
   - BIS 100 (Business students)

College-level writing course options are:
   - ENGL 105
   - BIS 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 meeting a baccalaureate-level writing requirement designated by the student's major department or program. It is recommended that students complete this requirement after attaining junior standing. Existing guidelines regarding repeating a course will apply. Credit for course work from four-year institutions only will fulfill this requirement. Implementation begins for students entering under the 1984 Undergraduate Catalog Supplement except for students gaining a second baccalaureate degree. This requirement meets General Education Proficiency 2.

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.

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 transferring 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 requirements.
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.

**READING**

Students who transfer twenty-six semester hours or more of credit with a GPA of 2.0 or better, or who transfer the equivalent of 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.

**QUANTIFICATION**

Students who transfer a mathematics course at the level of MATH 110 or higher are considered to have entry-level computational skills and need not take the computational skills assessment test upon entry. All other transfer students will place into or be exempted from MATH 103 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., ART/DAN/CIS/HEA 114, BIS 102 or 110, CS 105, FCS 225, MUS 386, HPER 149, SOC 182); or
2. A passing grade or a credit-by-examination for an approved computer usage course; or
3. Meeting proficiency standards set by the college of the student's major.

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

**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**

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

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

**Proficiencies**

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

1. college-level writing course;
2. baccalaureate-level writing or writing-intensive course in one's major or curriculum;
3. college-level mathematics or quantitative reasoning course beyond MATH 110 (not satisfied by MATH 111), not limited to courses in the Departments of Mathematics or Statistics;
4. course or courses in one of the following categories (one of these options may be required by the student's major and/or curriculum):
   a. advanced writing, 3-4 hours,
   b. mathematics or quantitative reasoning, 3-4 hours,
   c. critical thinking, 3-4 hours,
   d. oral communication, 3-4 hours,
   e. American Sign Language, 3-4 hours,
   f. computer programming and applications, 3-4 hours, or
   g. courses to advance proficiency in a foreign language to at least second semester, college-level, 6-8 hours.
5. Satisfy both the college-level writing (1. above) and college-level mathematics or quantitative reasoning (3. above) proficiency requirements before registration in any upper-division-level course. Upper-division-level courses are defined as those 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: Applications and Implications, 3-4 hours
- Area VIII, Health and Well-being, 2 hours

**Other Requirements**

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

- Course work must total a minimum of 37 hours, not counting the baccalaureate-level writing course except for designated majors. If a student completes all requirements by completing fewer than 37 credit hours, the remaining required credits may be selected from any course approved for general education.
- A minimum of six hours must be taken from 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.

**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 Agreement 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 course (Proficiency 2). In addition, the University will determine the equivalency and applicability of transferable community college courses in meeting other graduation requirements.

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 the WMU Office of Admissions and Orientation web site. In order to determine remaining General Education requirements, students should consult their curriculum advisor.

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

4. Waiver of junior-senior requirement for transfer students with advanced standing:
   - A student transferring ninety or more semester hours may be eligible to have the junior-senior General Education requirement waived, provided that a minimum of thirty semester hours are from a four-year college or university. Such students should contact their curriculum advisor for further information.
GENERAL EDUCATION PROGRAM COURSES
Approved as of 6/1/03

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 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
AFS 380 Special Topics in African Literature and Culture 4
AMS 490 American Studies in a Global Context
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 460 Money, Consumption, and Cannibals 3
ART 325 Writing About Art 3
ART 227 Writing About Art History 3
AVS 437 Airline Administration 3
AVS 490 Senior Project I—Planning 1
and
AVS 491 Senior Project I—Analysis 2
BIOG 319 Plant Physiology 4
BIOG 350 Human Physiology for Majors 5
BUS 370 Integrated Communication in Business 3
CCE 483 Project Design and Control 1
CCE 485 Senior Project 3
CHEM 436 Physical Chemistry Lab I 2
COM 335 Leadership 3
COM 350 Public Relations and Ornamental 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 490 Software Systems Development I: Requirements and Design 3
CTE 342 Curriculum Development in CTE 3
DANC 345 Twentieth Century American Dance 3
EC 481 Electrical/Computer Engineering Design I 2
ECON 484 Comparative Economic Systems 3
EDUES 306 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 3
ENGL 444 Studies in the Novel 4
ENGL 452 Shakespeare Seminar
ENVS 320 Major Environmental Writings 3
FCS 390 Entrepreneurship in FCS 3
FCS 350 Textiles for Interiors 3
FCS 415 Effective Parenting 3
FCS 486 Advanced and Experimental Foods 3
GEOG 303 Geographic Inquiry 4
GEOG 432 Geomorphology 3
GEOG 435 Sedimentation and Stratigraphy 4
HIST 390 Introduction to the Study of History 3
HPER 332 Research and Writing in Recreation 3
HPER 450 Cultural Dynamics of HPER II 2
ID 443 Industrial Design Thesis and Project I 3
ID 447 Industrial Design Thesis and Project II 3
IME 316 Report Preparation 3
IME 491 Multidisciplinary Senior Proposal 2
IME 492 Multidisciplinary Senior Project 2
JRN 420 Obligations of Professional Journalism 3
LANG 375 Foreign Literature in English: Views of Humanity 3
MATH 314 Mathematical Proofs 3
ME 365 Machine Design I 3
ME 480 Mechanical and Aeronautical Engineering Project 3
MSE 483 Project Design and Control 1
MSE 485 Senior 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 483 U.S. Policy in Health and Human Services 3
PADM 310 Hard Choices in Public Policy 3
PAPR 465 Research Design 3
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 3
PSCI 450 Seminar in International and Comparative Politics 3
PSCI 490 Political Science Honors Seminar 3
PSCI 494 Seminar in Political Science 3
REL 300 Writing About Religion 3
SOC 465 Social Stratification 4
SOC 466 Advanced Criminology 3
SOC 480 Advanced Sociology 3
SPA 459 Special Studies in Communication Disorders 3
STAT 481 Communicating Statistical Results 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

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 Rewriting for Press 3
ENGL 482 Advanced Writing 4
JRN 300 Newswriting and Reporting 3

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 3
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 3
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 112 Computer Science II 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 entering the University with college-level knowledge of a foreign language will be allowed to satisfy this requirement by taking two more advanced language courses or by taking two semesters of yet another foreign language.

The Distribution Areas

Distribution Area I: Fine Arts
AFS 330 History and Significance of Black Pop Culture 3
AFS 340 African and African-American Cinema 3
AFS 400 Blacks in the Arts 3
ART 120 Introduction to Art 3
ART 130 Studio Experience (3-D) 3
ART 142 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
DANC 145 Experiencing Dance 3
DANC 148 Direct Encounter with the Arts 4
ED 230 The Nature of Creativity 3
ENG 110 Literary Interpretation 4
ENG 150 Literature and Other Arts 4
ENG 210 Film Interpretation 4
HIST 315 Poplar Art and Architecture in America 3

Distribution Area II: Humanities and Social Sciences

Distribution Area III: Natural Sciences

Distribution Area IV: Mathematics

Distribution Area V: Physical Education

Distribution Area VI: Health and Wellness

Distribution Area VII: Fine Arts

Distribution Area VIII: Humanities and Social Sciences

Distribution Area IX: Natural Sciences

Distribution Area X: Mathematics

Distribution Area XI: Physical Education

Distribution Area XII: Health and Wellness

Distribution Area XIII: Fine Arts

Distribution Area XIV: Humanities and Social Sciences

Distribution Area XV: Natural Sciences

Distribution Area XVI: Mathematics

Distribution Area XVII: Physical Education

Distribution Area XVIII: Health and Wellness

Distribution Area XIX: Fine Arts

Distribution Area XX: Humanities and Social Sciences

Distribution Area XXI: Natural Sciences

Distribution Area XXII: Mathematics

Distribution Area XXIII: Physical Education

Distribution Area XXIV: Health and Wellness
INTL 330 Study Abroad—WMU Programs 1–16
INTL 331 Study Abroad—Non-WMU Programs 1–16
LANG 376 Foreign Literature in English Translation: Form and Meaning in Literature 3
MUS 148 Direct Encounter with the Arts 4
MUS 150 Music Appreciation: Live 4
MUS 151 Music Appreciation: Jazz/Pop 4
MUS 152 Rock Music: Genesis and Development 4
MUS 450 Music Appreciation: The Symphony 3
PHIL 312 Philosophy of Art 3
PHYS 101 Science of Music 4
THEA 100 Introduction to Theatre 3
THEA 148 Direct Encounter with the Arts 4

Distribution Area II: Humanities

AFS 214 Sources of Black Theology 3
AFS 224 Africanautobiography 3
AFS 313 Black Ministers in Comparative Perspective 3
ENGL 111 Myth and Folk Literature 4
ENGL 112 Literary Classics 4
ENGL 252 Shakespeare 4
ENGL 307 Literature in Our Lives 3
ENGL 308 Quest for the Self 3
ENGL 311 Our Place in Nature 3
ENGL 312 Western World Literature 3
ENGL 315 The English Bible as Literature 3
ENGL 352 Literature for the Young Child 4
ENGL 383 Literature for the Intermediate Reader 4
HIST 100 Early Western World 3
HIST 101 Modern Western World 3
HIST 145 Women and Villagers in the Middle Ages 3
HIST 300 Arts and Ideas: Ancient/Medieval 3
HIST 301 Modern Arts and Ideas 3
HIST 330 Canadian History and Culture 3
INTL 330 Study Abroad—WMU Programs 1–16
INTL 331 Study Abroad—Non-WMU Programs 1–16
INTL 405 Foreign Studies Program 3
LANG 350 Classical Greek and Roman Mythology 3
LANG 351 The City of Gods: Power and Morality in the Roman World 3
LANG 375 Foreign Literature In English Translation: Views of Humanity 3
MDVL 145 Heroes and Villains of the Middle Ages 3
PHIL 200 Introduction to Philosophy 4
PHIL 201 Introduction to Ethics 4
PHIL 300 Ancient and Medieval Philosophy 4
PHIL 301 History of Modern Philosophy 4
PHIL 303 Existentialist Philosophies 3
PHIL 311 Political Philosophy 3
PHIL 314 Philosophy and Public Affairs 3
PHIL 316 Ethics in Engineering and Technology 3
PSCI 360 Introduction to History of Political Theory I: Political Theory to Thomas Hobbes 3
PSCI 361 Introduction to History of Political Theory II: Political Theories of Thomas Hobbes to Karl Marx 3
PSCI 362 Theoretical and Ideological Bases of Contemporary Political Philosophy 3
REL 100 Religions of the World 4
REL 305 The Christian Tradition 4
REL 306 The Jewish Tradition 4
REL 324 Psychology of Religion 4
REL 332 Religion and Social Ethics 4
RUSS 310 Russian Civilization 3
WMS 100 Media and the Sexes 3

Distribution Area III: The United States: Cultures and Issues

AFS 200 Introduction and Foundations to Africana Studies 3
AFS 223 African American Literature/Criticism and Culture 4
AFS 300 Black Experience: From the African Beginnings to 1865 3
AFS 301 Black Experience: From 1866 to the Present 4
AFS 310 The Black Woman: Historical Perspective and Contemporary Status 3
AFS 314 The Black Community 3
AFS 315 The Underground Railroad in the Midwest 3
AFS 360 Black Woman-Black Man Relationships 3
AMS 200 Introduction to American Studies 3
ANTH 347 Ethnicity/Multiculturalism 3
BLS 305 Introduction to Adults with Disabilities 3
COM 307 Freedom of Expression 3
ECON 309 Women and the Economy 3
ENGL 222 American Literatures and Cultures of the U.S. 4
ENGL 223 Black American Literature 4
ENGL 484 Multi-Cultural American Literature for Children 4
HIST 210 American History to 1877 3
HIST 211 American History Since 1877 3
HIST 212 American Culture 3
HIST 316 Women in United States History 3
HIST 326 Native American History and Culture 3
HIST 327 U.S./Spanish Borderlands: History and Culture 3
HIST 328 African-American History and Culture 3
JRN 330 The Cultural History of American Journalism 3
MUS 350 American Music 4
PHIL 307 Philosophy in the American Context 3
PSCI 315 Race and Gender Issues 3
PSCI 320 National Government 3
PSCI 330 Urban Politics in the U.S. 3
PSCI 363 American Political Theory 3
PSCI 422 Civil Liberties and Civil Rights 3
REL 313 Religion in America 4
SPAN 265 Hispanic Culture in the U.S. 3
SPAN 275 Latino Writing/Latino Culture 3
THEA 105 African-American Theatre 3
WMS 200 Introduction to Women's Studies 4
WMS 300 Working Women, Past and Present 3
WMS 350 Male/Female Psychological Perspectives 3

Distribution Area IV: Other Cultures and Civilizations

A-S 304 Nonwestern World (4 hrs.)
AFS 225 African Storytellers as Traditional Historians 3
AFS 235 African Diasporas in the Caribbean 3
AFS 325 Ethnography of Sub-Saharan East Africa 3
AFS 388 Introduction to African Civilization 3
AFS 410 Bridging the African Diaspora in the New Millennium: An Interdisciplinary Approach 3
ANTH 120 Peoples of the World 3
ANTH 339 Cultures of Latin America 3
ANTH 340 Cultures of Asia 3
ANTH 341 Cultures of Africa 3
ANTH 344 The First Americans 3
ARAB 275 Life and Culture of the Arabs 3
ART 222 Art of Africa, Oceania, and the Americas 3
ART 223 Asian Art 3
CHIN 275 Chinese Life and Culture 3
ECON 385 Central and East European Economies 3
ECON 386 Central and East European Economies 3
ECON 388 African Economies 3
ECON 389 Latin American Economies 3
ENGL 313 Asian Literature 3
ENGL 314 African Literature 3
FCS 315 Global Ecology of the Family 3
FREN 275 Francophone Culture 3
GEOG 381 South America 3
GEOG 382 Mexico and the Caribbean 3
GEOG 389 Monsoon Asia 3
GEOG 390 China, Japan, and Korea 3
HIST 276 Modern East Asia 3
HIST 302 World History to 1500 3
HIST 303 World History since 1500 3
HIST 374 History of the Caribbean 3
HIST 375 East Asian Societies and Culture 3
HIST 384 Islamic Civilization 3
HIST 385 Modern Middle East 3
HIST 388 Introduction to African Civilization 3
INTL 200 Introduction to Global Studies 3
INTL 330 Study Abroad—WMU Programs 1–16
INTL 331 Study Abroad—Non-WMU Programs 1–16
JPNS 275 Japanese Language and Culture 3
MUS 352 Non-Western Music 4
PSCI 341 The Politics of Sub-Saharan Africa 4
PSCI 342 East Asian Politics 4
PSCI 344 Russian and East European Politics 4
PSCI 345 Latin American Politics 4
PSCI 346 Women in Developing Countries 4
REL 301 Buddhist Traditions 4
REL 302 Religion in the Indian Tradition 4
REL 303 Chinese Religion 4
REL 304 African Religions 4
REL 307 The Islamic Tradition 4
REL 308 Japanese Religion 4
SOC 304 Nonwestern World 3
SOC 334 Pacific Rim—Asian Societies 3
SOC 335 Modern Latin American Societies 3
SOC 336 Modern Japanese Society 3
### Distribution Area V: Social and Behavioral Sciences

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<th>Title</th>
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<td>AF  1</td>
<td>Comparative Approaches to Psychology and Black Consciousness</td>
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<tr>
<td>AF  2</td>
<td>Theory/Research Techniques—Diagnosis and Treatment</td>
<td>3</td>
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<td>ANTH 110</td>
<td>Lost Worlds/Archeology</td>
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<td>ANTH 210</td>
<td>Introduction to Archeology</td>
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<tr>
<td>ANTH 240</td>
<td>Principles of Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 343</td>
<td>Cultures of Europe</td>
<td>3</td>
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<td>BUS  175</td>
<td>Business Enterprise</td>
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<td>COM  200</td>
<td>Introduction to Communication Theory</td>
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<td>Economic Issues in the U.S.</td>
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<td>Contemporary International Economic Issues</td>
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<td>ECON 201</td>
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<td>World Geography Through Maps and Media</td>
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<td>GEOG 383</td>
<td>Western and Southern Europe</td>
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<td>GEOG 394</td>
<td>The Post-Soviet States</td>
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<td>HIST 103</td>
<td>History and Current Events</td>
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<td>Technology and Culture</td>
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<td>The Medieval World</td>
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<td>History of Modern Britain</td>
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<td>HIST 364</td>
<td>Modern Europe: Culture and Society</td>
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<td>HIST 366</td>
<td>Russia Yesterday and Tomorrow</td>
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<td>HIST 370</td>
<td>History of Latin America</td>
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<td>IME  422</td>
<td>Engineering Teams: Theory and Practice</td>
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<td>Study Abroad—WMU Programs</td>
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<td>Study Abroad—Non-WMU Programs</td>
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<td>OT   225</td>
<td>Growth, Development, and Aging</td>
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<td>PADM 200</td>
<td>Introduction to Nonprofit Leadership</td>
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<td>PHIL 313</td>
<td>Philosophy of Law</td>
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<td>PSCI 100</td>
<td>Introduction to Political Science</td>
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<td>Critical Thinking about Politics</td>
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<td>Introduction to Comparative Politics</td>
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<td>American Foreign Policy</td>
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<td>Religion and Revolution</td>
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<td>SOC  200</td>
<td>Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>WMS  320</td>
<td>Women, Multiculturalism, and Social Change</td>
<td>3</td>
</tr>
<tr>
<td>WMS  330</td>
<td>Gender Issues in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

### Distribution Area VI: Natural Science with Laboratory

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 150</td>
<td>Race, Biology, and Culture</td>
<td>3</td>
</tr>
<tr>
<td>AVS  280</td>
<td>Transportation Technology: Policy, Perils and Promise</td>
<td>3</td>
</tr>
<tr>
<td>CHEG 261</td>
<td>Environmental Engineering: Introduction to Media and Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>COM  240</td>
<td>Environmental Engineering: Introduction to Media</td>
<td>3</td>
</tr>
<tr>
<td>ENV  300</td>
<td>Environmental, Technology, and Values</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 300</td>
<td>Environmental, Technology, and Values</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 100</td>
<td>World Ecological Problems and Man</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 350</td>
<td>Conservation and Environmental Management</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 144</td>
<td>Environmental Earth Science</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 312</td>
<td>Geology of the National Parks and Monuments</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 322</td>
<td>Ocean Systems</td>
<td>3</td>
</tr>
<tr>
<td>IME  122</td>
<td>Automobile in Society</td>
<td>3</td>
</tr>
<tr>
<td>IME  150</td>
<td>Introduction to Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>MSE  251</td>
<td>The Evolution of Materials</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 160</td>
<td>Introduction to Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 255</td>
<td>Science, Technology, and Values</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 334</td>
<td>Biomedical Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 350</td>
<td>Foundations of the Modern World</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 355</td>
<td>Philosophy of Science</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 102</td>
<td>Physics, Technology, and Society</td>
<td>3</td>
</tr>
<tr>
<td>SCI  132</td>
<td>Anthropology in Social Polany</td>
<td>3</td>
</tr>
<tr>
<td>SPPA 200</td>
<td>Communication Disorders and Sciences</td>
<td>3</td>
</tr>
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</table>

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 103</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 105</td>
<td>Textiles and Design Media</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 106</td>
<td>Textiles and Design Media</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 190</td>
<td>Chemistry in Society</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 191</td>
<td>Chemistry in Society</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 100</td>
<td>How Things Work</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 103</td>
<td>Sky and Solar System</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 104</td>
<td>Introduction to the Sky and Solar System</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 106</td>
<td>Introduction to Stars and Galaxies</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 108</td>
<td>Stars and Galaxies</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 109</td>
<td>Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 110</td>
<td>Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 112</td>
<td>Mechanics and Heat</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Mechanics and Heat</td>
<td>3</td>
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### Distribution Area VIII: Health and Well-Being

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADA  225</td>
<td>Drug Use: Personal and Social Impact</td>
<td>3</td>
</tr>
<tr>
<td>HFER 111</td>
<td>Healthy Living</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 170</td>
<td>Health and Wellness—Aerobics</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 171</td>
<td>Health and Wellness—Water Aerobics</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 172</td>
<td>Health and Wellness—Circuit Fitness</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 173</td>
<td>Health and Wellness—Jogging</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 174</td>
<td>Health and Wellness—Walking</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 176</td>
<td>Health and Wellness—Racquet Sports</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 177</td>
<td>Health and Wellness—Self-Defense</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 179</td>
<td>Health and Wellness—Figure Skating</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 180</td>
<td>Health and Wellness—Beginning</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 181</td>
<td>Health and Wellness—Intermediate</td>
<td>2</td>
</tr>
<tr>
<td>PEGN 182</td>
<td>Health and Wellness—Swim Conditioning</td>
<td>2</td>
</tr>
</tbody>
</table>

### GRADUATION RATE

Number of first-time, full-time, degree-seeking beginning freshman, Class of 1996: 3,125. After six years, the number (and percentage) of those in the Class of 1996 who graduated: 1,660 (53.1%).

### ACADEMIC ADVISING

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

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

It should be emphasized that it is the student's responsibility to arrange to meet with curriculum and/or departmental advisors. A listing of curriculum advisors may be found in the Schedule of Course Offerings, which is published each semester and session. Students not certain of their curriculum or advisor should contact the Advising Office of the College to which they have been admitted. (See list below.) Students should refer to their Admission Certificates to find out to which curriculum and College they have been admitted.

### Academic Advising for Freshmen Students

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

**Academic Advising for Transfer Students**

Newly-admitted transfer students will be invited either to an Advising Conference scheduled especially for transfer students, to summer orientation, or to an individual appointment. Invitations to these events will be sent along with the Admission Certificates or shortly thereafter. At these events, students will be advised as to how transfer courses apply to programs at Western. In addition, students will receive curriculum and major/minor advising, as well as Intellectual Skills Program advising. It is important that transfer students bring their most recent Credit Evaluations to these conferences. Transfer students are urged to take advantage of Western Michigan University's comprehensive advising services.

**Academic Advising for Graduation**

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 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**

<table>
<thead>
<tr>
<th>College of Arts and Sciences</th>
<th>2316 Friedmann Hall, 387-4366</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Aviation</td>
<td>Aviation Education Center, 964-6375</td>
</tr>
<tr>
<td>Haworth College of Business</td>
<td>2130 Schneider Hall, 387-5075</td>
</tr>
<tr>
<td>College of Education</td>
<td>2504 Sangren Hall, 387-3474</td>
</tr>
<tr>
<td>College of Engineering and Applied Sciences</td>
<td>E102 CEAS, 276-3270</td>
</tr>
<tr>
<td>College of Fine Arts</td>
<td>2148 Dalton Center, 387-3220</td>
</tr>
<tr>
<td>College of Health and Human Services</td>
<td>B-119 Henry Hall, 387-2656</td>
</tr>
<tr>
<td>University Curriculum</td>
<td>203 Moore Hall, 387-4410</td>
</tr>
<tr>
<td>Lee Honors College</td>
<td>Lee Honors College Building, 387-3230</td>
</tr>
</tbody>
</table>
REGISTRATION, RECORDS, AND ACADEMIC REGULATIONS

REGISTRATION
Registration is conducted by telephone and web 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 web site. 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, and have reapplied to the University, may apply for academic forgiveness through the Office of the Registrar. Students who are granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of twelve graded hours of work attempted after the reentry date. All other University regulations apply. 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, 387-8236.

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 unenrolled 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.

Dropping Classes and Withdrawing from All Classes
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. See the Schedule of Class Offerings for detail concerning the amount of tuition refund allowed. 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-enroll for the class. Students who wish to drop a course or withdraw from all class 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 a Request to Late Drop a Class form which may be obtained from the Registrar's Office. Students may withdraw (drop) classes from WMU undergraduate students who have not earned a degree and have not attended the University for at least four years, and have reapplied to the University, may apply for academic forgiveness through the Office of the Registrar. Students who are granted academic forgiveness may have work still applicable to their program counted toward graduation requirements, but grades will not be calculated in their grade point average. The WMU grade point average will be calculated from a minimum of 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.

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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 discipline action. Students are personally liable for all obligations incurred by the use of their identification cards.

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, third floor Seibert Administration Building to record the change. Legal proof is required.

Transcripts

A student's permanent academic record or transcript is a document listing, at minimum, all courses taken and credit hours and grades earned in the courses. All students desiring a transcript of their academic records at Western Michigan University should write or visit the Office of the Registrar, giving dates of graduation. All names under which the student may have been enrolled and a social security number should be provided. Official transcripts are $5.00 each. The transcript will be released only upon written authorization of the student and only after payment is made.

ACADEMIC REGULATIONS

Academic Standards

A student must earn an overall grade point average of at least 2.0 to satisfy degree requirements. The scholarship policy is intended to encourage satisfactory progress toward that end. The policy operates as follows:

1. Good Standing
   A student is in good standing whenever the student's overall grade point average is at least 2.0.

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

3. Probation
   The student will be placed on probation whenever the student's overall grade point average falls below 2.0.

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

5. Continued Probation
   If the overall grade point average increases to 0.1 or better, although still below 2.0, the student may be continued on Probation for one additional enrollment period.

6. Dismissal
   Students who fail to increase their overall grade point average .01 or better at the end of an enrollment period of Probation or whose overall grade point average falls to reach 2.0 at the end of one enrollment period of Continued Probation, will be dismissed from the University. Students who have been dismissed from Western are expected to remain out at least one full fifteen-week semester. Students may apply for re-admission through their college advising office or the Office of Admissions and Orientation.

Attendance

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

Course Grades and Grading System

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Significance</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Outstanding, Exceptional, Extraordinary</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td>Very Good, High Pass</td>
<td>3.5</td>
</tr>
<tr>
<td>CB</td>
<td>Satisfactory, Acceptable, Adequate</td>
<td>3.0</td>
</tr>
<tr>
<td>DC</td>
<td>Poor</td>
<td>2.0</td>
</tr>
<tr>
<td>E</td>
<td>Failing</td>
<td>1.0</td>
</tr>
<tr>
<td>X</td>
<td>Failure (Unofficial Withdrawal)</td>
<td>0.0</td>
</tr>
<tr>
<td>W</td>
<td>Official Withdrawal</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>Credit</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
<td></td>
</tr>
<tr>
<td>AUD</td>
<td>Audit (non-credit enrollment)</td>
<td></td>
</tr>
</tbody>
</table>

CREDIT/NO CREDIT SYSTEM

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

1. The name of the program shall be “Credit/No Credit.”

2. “Credit” will be posted for each undergraduate student who earns the grade of “C” or better. “No Credit” will be posted for any grade below a “C”. Faculty members will not be notified whether a student is taking a course for a grade or for Credit/No Credit.

3. A student may elect for Credit/No Credit any course approved for General Education or General Physical Education credit, as well as other courses not counting toward his/her major or specified in his/her curriculum as defined in the University Undergraduate Catalog.

4. Directed Teaching, a required course, is taken on a credit/honors basis.

5. Acceptance of Credit/No Credit in required courses may be permitted on an individual basis by the head of the department or dean of the college requiring the course.

6. A student may change only during the drop/add period from Credit/No Credit to letter grade or from letter grade to Credit/No Credit.

GRADE POINT AVERAGE

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

HONOR POINTS

The number of honor points earned in a course is the number of semester hour credits given by the course multiplied by the honor points assigned to the course. (See the "Grading System" table above.) For example, a grade of B (3 honor points)
The following guidelines shall apply in the earning of CLEP credit:

1. 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 in Area I (fine arts) of the General Education Program.

2. If a student passes the social sciences-history examination with a score of 50 or above (520 prior to July 1, 2001), six hours of credit will be awarded to Area V (social and behavioral sciences) of the General Education Program.

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

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

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 Board 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, visit the Office of Admissions and Orientation web site.

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP) This program gives individuals the chance to earn college credit for knowledge gained 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 listed 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 hour) basis.

3. Nontraditional students may take the general CLEP examinations only before 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 composition 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 these areas, the humanities, social sciences, or natural sciences (excluding mathematics courses), from the Distribution Areas of General Education, or comparable transferred 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 in Area I (fine arts) of the General Education Program.
   - If a student passes the natural sciences-examination with a score of 50 or above (520 prior to July 1, 2001), six 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 CLEP credit policy.

COMPREHENSIVE EXAMINATIONS Each department shall have the authority, with the approval of its dean, to establish a procedure for granting credit for any course in that department through comprehensive examinations. All comprehensive examinations should be administered by authorized personnel designated by the department. Each department shall 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 100 or higher can be used to meet the requirement that one-half of all academic work must be completed at a four-year-degree-granting institution.

3. Credit by comprehensive examination can be used to meet all other University graduation requirements, except the minimum residence requirements.

4. Credit by comprehensive examination can be posted only for admitted students who have either previous or current enrollment.

5. All credit by comprehensive examination is normally based on undergraduate credit.

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

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

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

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

Full-Time/Part-Time Student Status

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

Fall/Spring Semester Undergraduate 12 hours

Summer I/Summer II Session Undergraduate 12 hours

University Housing has its own regulations on the definition of hours needed to be eligible for housing contracts. Students should contact the University Housing Office for this information.

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

HONORS

DEAN’S LIST

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

1. Have completed at least twelve semester hours of work during the fall or spring semester for letter grade.

2. Have a grade point average of at least 3.50 for the semester.

Official Dean’s Lists are not prepared for the summer I or summer II sessions.

HONORS UPON GRADUATION

Honors are conferred upon graduating students who have displayed a high level of performance during their university career. Recipients of honors receive their degrees:

Cum laude—when their grade point average is 3.50 to 3.69, inclusive

Magna cum laude—when their grade point average is 3.70 to 3.89, inclusive

Summa cum laude—when their grade point average is 3.90 to 4.00, inclusive

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

1. All credits and honor points earned at Western Michigan University will be counted.

2. Credits and honor points earned in correspondence and extension classes will be counted toward honors.

3. Students must have earned at least fifty-six semester hours of credits 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

30 REGISTRATION, RECORDS, AND ACADEMIC REGULATIONS
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 the calculation of a student’s grade point average beginning Fall 1989.

The number of times a course can be taken is limited to three (including withdrawals). Appeals may be addressed to the department chairperson. The limitation on the number of times a course can be taken applies only to students enrolling in Fall 1989 or thereafter.

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

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

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

REPEATED COURSES IN THE COLLEGE OF ENGINEERING AND APPLIED SCIENCES
Students in the College of Engineering and Applied Sciences may enroll in a course that is required in their curriculum only three times. Any additional enrollments require prior written approval of their department chair.

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

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

Undergraduate Catalog, 2003-05, p. 1

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

GOALS OF UNDERGRADUATE EDUCATION
The major concern of Western Michigan University is the education of its undergraduate students, and it is committed to provide the environment and the means to enable them to:

1. To assume primary responsibility for their own growth and education, to achieve a genuine sense of competence, and to develop the motivation and ability to perceive and pursue learning as a continuous process.
2. To acquire the knowledge, skills, and will to examine critically [human] experience, especially as that experience relates to contemporary life and illuminates the future.
3. To gain an understanding of the persistent values of their own and other cultures and the ability to respond critically, sensitively, and sympathetically to cultural differences and change.

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

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

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

General education also seeks to extend the undergraduate learning experience beyond particular academic or professional concentrations. It aims to acquaint the student with essential subject matter and methods of knowing in the arts and humanities, the social and behavioral sciences, mathematics, and the natural (including applied) sciences. Moreover, it aims to provide the student with the ability to use technology appropriately, and to understand the value of individual health, fitness, and well-being. Those aims are based on the belief that such learning enriches human experience and fosters understanding of oneself, others, and the world.
While the two kinds of education can thus be distinguished, they are essentially complementary. The ethical, elements of an undergraduate education, and courses in each type often contribute to fulfilling the goals of the other. Study in depth can reward the student with a sense of competence, the sobering awareness of how much is yet to be learned in any field, while the broader perspective and the habit of seeking interrelationships promise to teach the course according to personal professional judgment. Stated requirements are not intended to impinge upon academic freedom, but to set the range of content within which the course should be structured. Matters of interpretation and pedagogy are the sole prerogative of the individual professor.

**CRITERIA FOR SELECTING AND EVALUATING GENERAL EDUCATION COURSES**

**Criteria Applicable to All Courses**

1. Courses should further the goals of general education articulated in the introduction to this document. Courses may be those specifically designed for general education, or they may be introductory or intermediate courses in a major sequence so long as they conform to the goals of general education. Advanced courses may be offered for proficiencies 2 (baccalaureate-level writing), 4a (advanced writing), and 4b (optional mathematics or quantitative reasoning).

2. Courses at the 500-level do not count towards general education. Courses with prerequisites may count towards general education.

3. Grading and the amount of work required of students should be as rigorous in general education courses as in courses for majors. However, course work and teaching methods should be designed to optimize the learning experiences of non-specialists.

4. All courses included in general education should have syllabi detailing course content, amount of student work, and grading procedures. Syllabi and other related course materials should be made available to the COGE on request.

5. Departments that offer courses in multiple sections should demonstrate that all sections meet the standards of general education and are comparable with one another.

6. In the case of variable topics courses which may be taken more than once for credit when the subject matter is different, the different course subtopics should be reviewed for general education credit, and not simply the basic courses.

7. Students may receive credit by examination in a foreign language at a second-year level does not waive the fourth proficiency requirement.

8. Courses approved for general education credit should, if possible, be offered at least once every two years.

9. If a department seeks approval for a course that is other than three credit hours, it should explain the basis for the difference in credit-hour requirements.

**Criteria for the Proficiencies**

**Writing Courses (Proficiencies 1 and 2)**

Writing courses which fulfill proficiency requirements should work to develop students’ ability to express themselves effectively in writing. Specifically, college-level writing courses should enable students to think critically and reflectively about written material, to develop and support ideas and arguments and express them clearly.

**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 Departments of Mathematics or Statistics or in other departments that offer courses satisfying the described criteria and requiring the use of the skills of Math 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 must significantly advance students’ mathematical skills and competencies beyond the level of one year of elementary algebra.

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

**Writing, 4a**

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

**Mathematics or Quantitative Reasoning, 4b**

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

**Critical Thinking, 4c**

Critical thinking is the art of reasoning, which may be defined as reaching reasonable and reflective judgments focused on what to believe and do, or on how to interpret others’ words and deeds. Courses should help students become more expert in reasoning when they listen, read, think, evaluate, write, speak, and when they carry out plans of action. To this end, the courses have at least two of these four goals:

- Courses should help students become more skilled in making several kinds of distinctions: between arguments (means of reasoning) and other information, between conclusions and premises, between the different patterns of arguments, between complete and incomplete presentations of arguments, between strong and weak arguments, and between cogent and ineffective ways of exposing weak arguments.
- Courses should help students become more skilled in resolving differences of opinion by locating common ground, by marshalling arguments, and by becoming sensitive to fallacies and other pitfalls of disputes.
- Courses should sensitize students to methods of overcoming differences that obstruct agreements to define the limits to which the parties may come to an accord on how to interact with a minimum of dissatisfaction and a maximum consideration of the merits of each side.
- Courses should help students become more skilled in planning tasks involving choices and uncertainties. To develop these skills, students should learn techniques for analyzing and operationalizing the tasks, e.g., formulating objectives, flow-charting, programming, and assessing probabilities.

**Oral Communication, 4d**

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

**American Sign Language, 4e**

Courses should enable students to recognize, describe, and produce under appropriate conditions the basic grammatical features and vocabulary of American Sign Language with the aim of achieving conversational proficiency. 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 Courses in the Distribution Areas**

**Area I, Fine Arts**

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

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

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

**Learning Outcomes for Area I**

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

**Area II, Humanities**

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

**Learning Outcomes for Area II**

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

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

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

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

**Learning Outcomes for Area III**

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

**Area IV, Other Cultures and Civilizations**

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

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

**Learning Outcomes for Area IV**

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

**Area V, Social and Behavioral Sciences**

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

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

**Learning Outcomes for Area V**

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

**Area VI, Natural Sciences with Laboratory**

Laboratory courses in the natural sciences which meet the general education requirement require students to interact with objects of nature and to use instruments that permit careful examination of natural phenomena. 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. The laboratory component of a approved course must:

- be based on direct observation;
- deal with objects of nature and employ appropriate instruments to observe or measure these objects;
- employ scientific methods; and
- have a designated period for laboratory work.

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

**Learning Outcomes for Area VI**

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

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

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

Criteria for these courses are:

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

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

**Learning Outcomes for Area VII**

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

**Area VIII, Health and Well-Being**

Courses which satisfy this area must advance students' knowledge and ability to influence their own health. Course content should examine national 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 lifestyle choices. Single-topic courses may not be used to satisfy the requirement, and course content must address a minimum of four areas of health-related issues such as substance abuse, stress-related issues, grief and loss, development of healthy relationships, sexually transmitted diseases, lifestyle related diseases (primarily heart disease and cancer), and the principles of a healthy lifestyle.

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

**Learning Outcomes for Area VIII**

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

Larry tenHarmsel
Dean

John E. Martell, Jr.
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, seminars, 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 arenas 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 also 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 affiliation with the University 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 to over 150 local agencies and to state, national, and international volunteer opportunities. Student Volunteer Services also sponsors campus-wide service events such as the College Volunteer Opportunities Fair, Trick-or-Treat For Food Shelf, and Adopt-an-Agency.

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 Lee Honors College serves as the campus office for the WMU chapter of the national freshman honorary Alpha Lambda Delta and the Honors Student Association. These organizations sponsor academic and social events throughout the school year.

The Academic Program of Study

The Carl and Winifred Lee Honors College admits students in the first two years of their university education, including incoming freshmen, 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. A senior capstone project, the Honors College thesis, requires students to prepare and present a paper or performance typical of professional work in their major field.

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 and diploma.

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 49008; telephone: 269-387-3230; 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 organization, 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.
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.

Academic Advising Office
Kate Hayes, Director
Jacquelyn Bizzell
Mark Gadson
Kevin Knutson
Maria McGurn
Steven Miller
2318 Friedmann Hall
387-4366

Students in the Arts and Sciences 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.

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 taken through self-instructional Programs may be used in fulfillment of the General Education Distribution, Academic Proficiency Areas, and LEC Core.
4. Students who will graduate from the College of Arts and Sciences must satisfy the University General Education Requirements as articulated in the College of Arts and Sciences. It reflects the traditional program of study for the Bachelor of Arts and the social sciences, and the natural sciences goalsof liberal education in the humanities, common academic experience for students in Western Michigan University's International experience, and focus on contemporary issues and skills and critical thinking. In addition, the LEC incorporates and expands upon the University General Education Program with stipulations for prerequisites in a major or minor. Students with unusual circumstances concerning Self-Instruction courses to be used toward completion of the General Education Curriculum may not be allowed to use the College Level Examination Program (CLEP) except in elective courses.

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 and critical thinking. In addition, 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 fulfill 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, 2318 Friedmann Hall.

Students in the Liberal Education Curriculum will complete the University General Education Program with stipulations and additions comprising the LEC Core as described below.

1. Critical Thinking requirement: Proficiency 4 (Enhanced Proficiency) in the University General Education Program to be fulfilled by completing 4c Critical Thinking.

2. Foreign Language requirement: Two semesters (6-8 hours) of a foreign language or American Sign Language, or proficiency by exam, or two years of a foreign language in high school with "B" or better in final semester. Enrollment may be limited in American Sign Language courses taught by the Department of Speech Pathology and Audiology through Extended University Programs.

3. Additional Courses supplementing the Distribution Area requirements in the University General Education Program:
   (a) one additional course in Distribution Area 3 (U.S. Cultures);
   (b) one additional course in Distribution Area 6 (Natural Science) or from a science department (3-4 credit hours) [Need not include a lab. Courses in Mathematics and Statistics, Computer Science, and Geography (social science) are excluded];
   (c) one additional course in the Humanities (see Distribution Area 2 for departments; additional course need not be General Education course);
   (d) one additional course in the Social Sciences (see Distribution Area 5 for departments; additional course need not be General Education course); only one of the two courses in the social sciences need be a "principles" or introductory social science course from the following list: ANTH 100, 110, 140, 210, 240; BUS 170, 220, 200; ECON 107, 108, 109, 201, 202; GEOG 102, HIST 103, PSCI 100, 105, 240, 250, PSY 100, SOC 200.

4. Computer Usage requirement: The university computer usage requirement must be fulfilled by (a) completing, with a passing grade, CS 105, or (b) completing CS 105 by "credit by examination." For exemptions, students should see a College of Arts and Sciences curriculum advisor.

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.

Arts and Sciences Student Planned Major (SPM)

The Student Planned Major provides students who wish to graduate from the College of Arts and Sciences the opportunity to pursue educational goals which cannot readily be accommodated in the College's disciplinary majors. The student will complete the College's Liberal Education Curriculum and work with a College Advisor plus at least one faculty advisor to create an individually tailored course of study of sufficient credit hours to meet general degree requirements. Students completing this major are eligible to receive either the B.A. or the B.S. degree, depending upon the particular configuration of course work selected.

Any undergraduate student in good academic standing, with 75 or fewer semester hours earned, is eligible to enter the SPM. Students interested in this option should contact the Office of Advising in the College of Arts and Sciences. Those entering the SPM are expected to develop a written statement outlining educational goals and the proposed course of study.
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.

INTERDISCIPLINARY PROGRAMS

1. Africana Studies: African Studies, Black Americana Studies
2. American Humanities Program
3. Program in American Studies
4. Criminal Justice Program
5. Environmental Studies Program
6. Global and International Studies
7. Medieval Studies
8. Professional Studies Program
9. Science and Mathematics Teaching
10. Science Education
11. Social Studies Teaching
12. Women's Studies
13. World Literature

AFRICANA STUDIES

Lawrence T. Potter, Jr., Director
331 Moore Hall
(269) 387-2668

Africana Studies gathers faculty and students dedicated to the interdisciplinary study of the past and present experiences of African heritage. We engage the critical study of the black Diasporic cultural traditions and race relations in Africa, the Caribbean basin, and especially North America, taking seriously the essential, organic role black peoples and their cultures have played in shaping the societies in which they live.

African Studies emphasizes both an interdisciplinary approach and a global perspective to the study of black history and culture. We ask students to draw on a wide range of disciplines to fulfill their concentration requirements, including literature, history, sociology, economics, anthropology, music, drama, film, and the visual arts.

Africana Studies Major

The Africana Studies Program offers an interdisciplinary major with two emphasis options: (1) Black Americana Studies and (2) African Studies. The major is a concentration of 36 credit hours in work from required core courses and a combination of electives. Both major options integrate a language requirement that emphasizes the importance of foreign language study. However, the Black Americana Studies option provides for studying a foreign language in the United or abroad. Students in the Africana Studies option are strongly encouraged to look into the study abroad opportunities available through the Africana Studies Program and the Diether H. Haenicke Institute. Students who have chosen the Africana Studies major will satisfy the baccalaureate writing requirement by successfully completing AFS 380 Special Topics in Africana Literature and Culture.

This requirement can be met in one of two ways: By earning foreign language credit through foreign study (A-S 330–331) or by taking one course beyond the 101-level in any foreign language (French, German, Spanish, Portuguese, or Arabic recommended).

Electives (sufficient to bring major total to 36 hrs.)
Elective courses focusing on Africa or the African-American experience must be approved by the Africana Studies advisor from among courses offered at WMU by the Africana Studies faculty or appropriate courses in other departments.

AFRICANA STUDIES OPTION

36 hrs.
1. Core Requirements (13 hrs.)
   AFS 300 Introduction and Foundations to Africana Studies ....................................... 3
   AFS 301 Black Experience: From the African Beginnings to 1865 .............................. 3
   AFS 302 Black Experience: From 1866 to the Present ............................................. 3
   AFS 380 Special Topics in Africana Literature and Culture ....................................... 4
2. Foreign Language/Foreign Study Requirement (3-6 hrs.)
   Elective courses focusing on Africa must be approved by the Africana Studies advisor from among courses offered at WMU by the Africana Studies faculty or appropriate courses in other departments.

African Studies Minor

18 hrs.
1. Required Course (3 hrs.)
   AFS 200 Introduction and Foundations to Africana Studies ....................................... 3
2. Required Content Courses (6 hrs.)
   Elective courses focusing on the continent of Africa must be approved by the Africana Studies advisor from among courses offered at WMU. At least one of these courses must be at the 300-level or higher. Courses may be from a variety of departments. See advisor for the list of electives.

AFRICANA STUDIES CONTENT COURSE

AFS 300 Black Experience: The African Beginnings to 1865 ....................................... 3
AFS 301 Black Experience: From 1866 to the Present ............................................. 3

AFRICAN STUDIES CONTENT COURSE

AFS/HIST 388 Introduction to African Civilization .................................................... 3
HIST 488 History of West Africa ............................................................................... 3

3. Elective Courses (9 hrs.)
   Choose three courses from the list below
   AFS 210 Comparative Approaches to Forms of Black Consciousness ...................... 3
   AFS 223 African-American Literature, Criticism, and Culture .................................. 4
   AFS 310 The Black Woman: Historical Perspective and Contemporary Status ........... 3
AFS 314 The Black Community 3 hrs.
AFS 315 The Underground Railroad in the Midwest 3 hrs.
AFS 330 History and Significance of Black Popular Culture 3 hrs.
AFS 350 Blacks in Michigan 3 hrs.
AFS 360 Black Woman—Black Man Relationships 3 hrs.
AFS 370 Black Historical Movements/Moments 4 hrs.
AFS 400 Blacks in the Arts 3 hrs.
AFS 410 Bridging the African Diaspora 3 hrs.
ANTH 150 Race, Biology, and Culture 3 hrs.
ANTH 341 Cultures of Africa 3 hrs.
ANTH 347 Ethnicity and Multiculturalism 3 hrs.
ART 3643 African Art 3 hrs.
ECON 396 African Economics 3 hrs.
ENGL 222 Black American Literature 3 hrs.
ENGL 314 African Literature 3 hrs.
GEOG 396 Sub-Saharan Africa: Man, Environments, Resources 3 hrs.
HIST 328 African American History 3 hrs.
HIST 388 Introduction to African Civilization 3 hrs.
HIST 436 Topics in African American History 3 hrs.
HIST 488 History of West Africa 3 hrs.
HIST 489 Topics in African History 3 hrs.
PSCI 300 Urban Politics in the United States 3 hrs.
PSCI 341 The Politics of Sub-Saharan Africa 4 hrs.
REL 304 African Religions 3 hrs.
REL 307 Islamic Tradition 3 hrs.
SOC 314 Ethnic Relations 3 hrs.
THEA 105 Introduction to African American Theatre 3 hrs.

AFS 214 Sources of Black Theology 3 hrs.
This course is designed to introduce students to the social, political, and theological sources that inform Black Theology. In doing so, the course emphasizes the role of Old Testament motifs in the social construction of black theology. Students will address the writings and interpretations of prominent black theologians and activists on the subject of liberation, faith and blackness. A primary component of this course centers on how race, class, and faith impact an individual, the community, and a nation's understanding of God and divine redemption. In essence the course is an introduction to what liberation theologians term the "God of the Oppressed." Students will have an opportunity to critically analyze, for example, the teachings of the Black Jesus and the Black Virgin Mary.

AFS 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 further study in 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: AFS 200 or ENGL 110, 111, 222.

AFS 224 African Autobiography 3 hrs.
This course will examine autobiographies and autobiographical novels from different parts of Africa and the United States. Some of the texts in the course will refer to a remote period of the African and African-American experience, while others will refer to the current developments in Africa and the United States. Through these texts, an attempt will be made to understand and assess the African and African-American experience, past and present. Prerequisite: ENGL 105.

AFS 225 African Storytellers as Traditional Historians 3 hrs.
To understand Africa's past from the perspective of the African storytellers, we must understand their art and their ability to cross boundaries between the present and the past, as well as understand how they fuse fact and fiction at the crossroads of myth and history, where transformations occur. This is the area where fact and fiction become endowed with meaning. What makes the narration of past travel and emotionally evocative is the metaphorical center, "the poem in the story." Drawing on the art of storytelling, this course will examine Africa's past through myths, epics, and local African stories.

AFS 235 African Diasporas in the Caribbean 3 hrs.
This course will review basic (social science and cultural history) texts from the Caribbean to determine who is included in collective identities, where/how people transmit memories that mobilize them, and how they make community despite out-migration. These questions will be put to a representative territory from each of four language groups. To prepare conditions for region-wide comparison, we will first explore equal power relations, cultural and political contexts exemplifying social conflicts, institutions justifying the status quo, and out-migrations.

AFS 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. It aims to examine how the Black presence altered the idea of race and how this alteration became a function of the institutional forms that Black Americans was shaped to survive in a hostile environment.

AFS 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 Movements and the non-Black backlash. AFS 300 is highly recommended.

AFS 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 achievements of the Black woman. Students will participate in securing visiting Black female speakers and documenting their story as Black women.

AFS 313 Black Ministers in Comparative Perspective 3 hrs.
This course is designed to introduce students to the role and influence of black religious leadership in movements of liberation. This course addresses issues of race, gender and violence within the cultural realities of black ministers, by blending the disciplines of history and theology. A key focus of the course is the role and influence of the "black sermon" as a vehicle for change and protest against abusive power structures. The course is comparative in that the lives and activities of African American ministers like Dr. Martin Luther King, Jr. and Minister Malcolm X are contrasted with that of South African ministers such as Bishop Desmond Tutu and Re. Allan Boseack. Prerequisites: AFS 200 and 213.

AFS 314 The Black Community 3 hrs.
This course will examine the social and structural bases of 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.

AFS 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 a part of 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 and "The Capital of the Free colors." 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.

AFS 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.

AFS 322 West Africa in Colonial America 3 hrs.
This course will cover the cultural, social, and political history of West Africa of African-Americans. It will also treat African origins of aspects of American culture. It will provide students with the opportunity to explore the cultural, material, and social contributions of West Africans and later African Americans to the development of America from 1607 to the end of the American Revolutionary War in 1783. The course will therefore be a foundation for other courses covering African Americans, especially in their experiences in America.

AFT 325 Ethnohistory of Sub-Saharan East Africa 3 hrs.
This is a seminar course in the ethnohistory of Sub-Saharan East Africa, from the point of view of the Africa storytellers as well as that of the western historians. The main focus of the course will be in Upper Nile River in Sudan, and Lake Rudolf, the region known as "the cradle of humankind," in northern Kenya, the Omo river and its delta in southern Ethiopia, the Karamoja Plateau in northern Uganda.

AFT 330 History and Significance of Black Popular Culture — 1906 to Present 3 hrs.
This course will focus on the continuum to Black Popular Culture in the twentieth century, its developmental stages and its emergence as the nucleus of black culture in "mainstream" America. Students will survey African American theater, art, music, and literature in twentieth-century America and study the individuals, persons, siles, and traditions that inspired. This course requires the submission of 3 research papers on selected topics, 10-page each. The course will prepare students to enter a variety of professional careers and to function effectively in the work world.

AFT 335 Theories/Research Techniques for African Studies 3 hrs.
This course examines current social theories and research techniques emerging from a region's cultural history and used both to produce data and explain collective experiences of African Diaspora located in the Caribbean basin. Participants will consider recent theoretical debates, efforts to uncover field techniques of predecessors in those debates, and how those techniques are used both to understand material conditions of globalization under which cultures are produced and analyze solutions to problems shared with other parts of world system.

African filmmakers capture Africa's past and present experiences and imagine themselves in the future. The course examines African cultures and peoples through films, within the light of film theory and cultural studies, and it addresses a wide variety of topics such as tradition and modernity, globalization, economic development, colonial and post-colonial identities, power and resistance, and gender studies. Prerequisites: ENGL 105 and one of the following: AFS 200, COM 241, ENGL 210.

AFT 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 emigrés, 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 varieties of historical sources available for such study.

AFT 360 Black Woman-Black Man Relationships 3 hrs.
This course is a study of the dynamics of the Black male/Black female relationships in a variety of contemporary settings. Students are expected to help conduct and document 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.

AFT 370 Black Historical Movements/Moments 4 hrs.
This spring travel-course is designed to examine Black historical movements/moments related to the African diaspora (African American, African, and Caribbean). Students will have the opportunity to interface with historical locations, sites, and documentaries relevant to the era of study. Topics will vary each spring offered and may be repeated under different topics with the approval of advisor/professor from AFS. Prerequisite: One of the following: AFS 223, 301, 330, or ENGL 223, 308, 321, or HIST 211, 212, 314, 328.

AFT 380 Special Topics in African Literature and Culture 4 hrs.
This seminar will be designed both to examine critical issues central to the African diaspora and to produce quality research through investigating African American, African, and diaspora literature, history, philosophy, and culture from an African-centered or Afrocentric perspective. The course may be repeated once under different topics with the approval of the advisor. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Students should have completed one of the following: AFS 223, 310, 330, ENGL 223, 300, or 314.

AFT 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. The course is cross-listed with HIST 388.

AFT 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.

AFS 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.

AFS 465 Internship in Africana Studies 3–6 hrs.
Students will participate in an internship/practicum where their knowledge will be put directly into practice. They will benefit from this experience with a seminar led by an approved faculty member from the AFS core faculty and, where appropriate, a person from the student's disciplinary major department. Prerequisite: Completion of a minimum of 15 credit hours in the AFS major. Call number obtained from AFS administrative assistant.

AFS 486 Africa and the Slave Trade 3 hrs.
This course will examine Africa and the Atlantic Slave Trade from the 15th to the 19th centuries. Course is cross-listed with HIST 486.

AFS 498 Directed Independent Study 1–6 hrs.
A program of independent study, directed by an approved AFS faculty member, that allows the student to pursue readings relating to the Black Experience not dealt with in other courses. The initiative for designing the project, planning the method(s) of investigation, determining the appropriate results, and securing the cooperation of a faculty member to advise must come from the student. Applications are available from the AFS 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 700 collaborating 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 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 demonstrate fulfills the American Humanics competency requirements. These can be courses in the student's major, minor, curriculum, general education requirements, or electives. The student must complete 36 credit hours in courses that demonstrate competency requirements.

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

3. The student must complete a minimum 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 Humanities director as an American Humanities internship (PADM 410)

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

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

The American Humanics competency requirements include communication skills, employability skills, a demonstrated understanding of historical 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, Boys 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, the YMCA 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
Professor of English
3047 Moore Hall
(269) 387-2069 or (269) 387-2985
Email: joslin@wmich.edu

Joint-appointed Faculty:
Michael Miller, Spanish and American Studies
Carolyn Podruchny, History and American Studies

Associate Faculty:
James Biles, Geography
Linda Borish, History
Jose Brandao, History
Paula Bruch, Sociology
Sharon Carlson, Director of the Regional History Archive
Michael Chiarrappa, History and Environmental Studies

Kevin Corder, Political Science
Douglas Davidson, Sociology
Nora Faires, History
Sarah Hall, Anthropology
Catherine Julien, History
Ashlyn Kuersten, Political Science
Irma Lopez, Spanish
Vincent Loper, Anthropology
Mustafa Mirzeler, African Studies
Michael Nasser, Anthropology
Lawrence Potter, African Studies
Gwen Raber, Women's Studies
John Saillant, English
Peter Schmitt, History
Kristyn Szydlowski, History
Gwen Tambor, Women's Studies
Daneen Wardrop, English
Ben Wilson, African Studies
Brian Wilson, Comparative Religion
Nicolas Witcho, English

The Program in American Studies provides students with a critical understanding of American identities through teaching and mentoring as well as providing opportunities for internships, undergraduate research, and study abroad. The course of study offers students an interdisciplinary framework that examines the United States and its neighboring countries from regional, national, and global perspectives. It is also a useful major for students who plan to do graduate studies in law, the humanities, and the social sciences.

**Major in American Studies (36 hours)**

Students must select courses in at least four (4) departments participating in the program and must concentrate their 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 Archaeology of the Great Lakes States
AFS 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:
AFS 315 The Underground Railroad in the Midwest
AFS 315 Black Experience: From the African Beginnings to 1865
AFS 301 Black Experience: From 1866 to the Present

COM 240 Introduction to Telecommunication
COM 507 Freedom of Expression
ENGL 321 American Literature II
ENGL 522 Studies in American Literature
HIST 212 American Culture
PHIL 307 Philosophy in the American Context

**CORE ELECTIVE COURSES (12 hours)**
Students must select four (4) courses from different departments, including at least one each from perspective: regional, national, and global.

**ELECTIVE COURSE (3 hours)**

**INTERDISCIPLINARY PROGRAMS**

ENGL 539 Post-Colonial Literature
HIST 315 American Diplomatic History
PSCI 250 International Relations
PSCI 350 American Foreign Policy
REL 400 Topics in Religion
SOC 314 Ethnic Relations
SOC 354 Population and Society
SPAN 275 Latin American Literature

**CAPSTONE SEMINAR AND BACCALAUREATE WRITING REQUIREMENT (3 hours)**
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

**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

**CORE CAPSTONE SEMINAR (3 hours)**
AMS 490 American Studies in a Global Context .............. 3

**ELECTIVE COURSE (3 hours)**

**CORE ELECTIVE COURSES (12 hours)**
Students must select four (4) courses from different departments, including at least one each from perspective: regional, national, and global.

**Approved Elective Courses**

Regional
AFS 350 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 Women in American History
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 1887
HIST 515 Topics in Public History
PSCI 202 State and Government
SOC 353 The City and Society
SOC 568 Race, Ethnicity, and Justice

National
AFS 330 History and Significance of Black Popular Culture
COM 444 Mass Communication, News, and Public Affairs
American Studies Courses (AMS)

A list of approved General Education courses can be found in "Graduation and Academic Advising" earlier in this catalog. At least 18 hours of courses approved in the American Studies Program, including AMS200 and AMS300, or graduate-student status in any participating department.

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's 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, sport, 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.

CRIMINAL JUSTICE PROGRAM

Ronald C. Kramer, Director
2406 Sangren Hall
(269) 387-5284

Susan Standish, Advisor
2401 Sangren Hall
(269) 387-5206

Criminal Justice is an interdisciplinary curriculum designed to provide perspective on the criminal justice system. The program is designed to provide a well-rounded theoretical and practical education necessary for careers in criminal justice and/or graduate work in law, criminology, or other areas. The Criminal Justice Major requires thirty-three hours of core and specialized classes including Criminology, Criminal Justice Process, Sociology of Law Enforcement, Juvenile Delinquency, Correctional Process, Advanced Criminology, and Methods of Data Collection and Analysis. Specialized work in police justice, courts, probation, and law enforcement is available as well as certification as a Michigan police officer. Curriculum and program details may be found under Sociology/Criminal Justice.

ENVIRONMENTAL STUDIES

Thomas Bailey, Director
3934 Wood Hall
(269) 387-2716

Michael Chiappapa
Harold Glasser
Johnson Heasly
Lynne Heasley
Sarah Hill
Steven Kohler
Carla Kowlesky

ADVISNG
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 ENVS courses is controlled by the advisor and accessible to students using the Touchtone registration system. 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 REQUIREMENT**

Students who have chosen an Environmental Studies major will satisfy the Baccalaureate Requirement by successfully completing ENVS 320 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 and VI, and 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 a disciplinary major from outside the College of Arts and Sciences must satisfy the criteria for their first or 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 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.

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 hrs.

**CONCEPTUAL FOUNDATIONS**

The prerequisite 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 four listed below with either ENVS 401, ENVS 410, or ENVS 500.

**SPECIALIZATION REQUIREMENTS**

**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 225 Environmental Ecology** 4 hrs.

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

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

**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 320 Major Environmental Writings** 3 hrs.

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

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

**APPLICATIONS**

5. A minimum of six semester hours required from the following 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 hrs.

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

**ENVS 420 Internship** 1-3 hrs.

**ENVS 430 Environmental Projects** 1-4 hrs.

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

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

**CAPSTONE**

The prerequisites are ENVS 350 and ENVS 360, or approval of a program advisor.

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

**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 hrs.

**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 four listed below with either ENVS 401, ENVS 410, or ENVS 500.

**ENVS 215 Environmental Systems and Cycles** 4 hrs.

**ENVS 225 Environmental Ecology** 4 hrs.

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

**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 225 Environmental Ecology** 4 hrs.

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

**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 of the non-teaching minor (see above), plus an approved environment/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.

**ENVS 215 Environmental Systems and Cycles** 4 hrs.

This course presents an overview of the fundamental physical, biological, and geophysical 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. Prerequisites: 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 within and among them. Includes a field-oriented laboratory component. Prerequisites: 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 technoeconomic 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: ENV 110 or approval of a program advisor.

**ENV 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: ENV 110 or approval of a program advisor.

**ENV 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 modern 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, ENV 300 may be substituted for ENV 110 for those students wishing to take an environmental studies major or minor. Students may not enroll in ENV 300 after successfully completing ENV 110.

**ENV 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.

**ENV 350 Environmental Problem Solving** 4 hrs. This course develops an approach to solving complex environmental 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.

**ENV 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 and models of sustainability and the underlying values and elements which may favor sustainable futures. Prerequisite: Required conceptual foundations courses or approval of a program advisor.

**ENV 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.

**ENV 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 in both industrial countries and the Third World. Criteria for assessing the appropriateness and sustainability of various technologies and technological systems in different settings will be discussed and mini-assessments will be conducted. Prerequisite: Required conceptual foundations courses or approval of a program advisor.

**ENV 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.

**ENV 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.

**ENV 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.

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

**ENV 500 Advanced Environmental Topics** 3 hrs. An intensive, focused study of a current environmental issue. The role of 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 Course Offerings. Prerequisite: Required conceptual foundations courses or approval of a program advisor.
required for access to advanced courses may also be counted:

- Anthropology
- Economics
- Geography
- History
- Political Science
- Comparative Religion
- Sociology

Course selection also must include either a regional, a comparative, or a foreign language option:

**Regional Option** The regional option consists of at least three courses dealing exclusively or substantially with one of the following:

- Asia—General
- Asia—Japan
- Asia—China
- Asia—Middle East/Islamic
- Africa
- Europe—General/comparative
- Western Europe
- Russia/Eastern Europe
- Latin America

**Comparative Option** The comparative option consists of four advisor-approved courses extending the comparative and cross-cultural nature of the program. It may include thematic, theoretical, and area studies courses. The course work must be drawn from at least three different departments/prefixes.

**Foreign Language Option** The foreign language option permits the exploration of comparative and cross-cultural issues through the study of a second foreign language in addition to the required foreign language component in the program. Up to four courses in a second foreign language beyond the 100-level may be incorporated into the major.

**FOREIGN LANGUAGE COGNATE REQUIREMENT**

Proficiency in a second language is a key goal. The program requires at least two courses beyond the 201-level in a single language other than the student's native language and appropriate to the chosen regional focus. Intermediate proficiency is required if the chosen language is not offered at WMU beyond the 200-201 level. Some advanced courses in foreign languages may be included in a regional focus within the major as listed. Students whose native languages are other than English should consult the program advisor on fulfilling of the cognate requirement.

In addition to listed courses for the major, appropriate subtopics in topical courses may be used with advisor approval.

**Global and International Studies Minor (20 hours)**

This minor encourages a broad study of global conditions and change across multiple disciplines and on a comparative basis. Minimum of 20 hrs., with at least half at the 300-level or above. INTL 200 is required.

**Asian Studies Minor (20 hrs.)**

Requires a minimum of 20 hrs., with a minimum grade of "C" in all courses in the minor and with at least half at the 300-level or above. The minor may be organized around a general study of Asia, one of its regions, or some specific countries, through completion of at least four appropriate courses in one of several tracks available in the program, including:

- General Asia/East Asia
- Japan
- South Asia
- Southwest Asia/Islamic

Up to 6 hrs. of study in a single Asian language (such as Arabic, Chinese, Japanese, etc.) may be included in the minor requirements as appropriate to the track selection.

**Latin American Studies Minor (18 hrs.)**

Minimum of 18 hrs., with at least half at the 300-level or above, of "C" in all courses in the minor. At least one course from at least three different departments is chosen from an approved list of courses.

**Modern European Studies Minor (18 hrs.)**

Minimum of 18 hrs., with a minimum grade of "C" in all courses in the minor and with at least half at the 300-level or above, including two of the following:

- ANTH 343 Cultures of Europe
- HIST 364 Modern Europe
- PSCI 340 West European Political Systems
- PSCI 344 Russian and East European Politics

The minor may be organized around a general study of Europe, one of its regions, or some specific countries, through completion of at least three appropriate courses in one of several tracks available in the program, including:

- General/Western Civilization (four courses required in track)
- Spain/Hispanic Civilization
- France/Francophone Civilization
- Germanic Civilization
- Britain/British Isles
- Russia/Eastern Europe

**International and Area Studies Courses (INTL)**

INTL 200 Introduction to Global and International Studies

3 hrs. Interdisciplinary introduction to global and international studies as an academic field of study, with emphasis on historical development of the global system, global economy and society, environmental conditions and awareness, mass communications, technology and enterprise, response formats for global issues and intellectual and creative life. Explores the relationships between globalizing forces and the counteracting influences of regional and cultural identity.

INTL 330 Study Abroad—WMU Programs

1–16 hrs. Student participation in an approved program of study in a foreign college or university organized through Western Michigan University's Office of International Affairs. Where credit toward the major or minor 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, prior to enrollment when possible, for approval and placement in the appropriate Distribution Area or Proficiency. May be repeated for up to 32 credit hours.

INTL 331 Study Abroad—Non-WMU Programs

1–16 hrs. Student participation in an approved program of study in a foreign college or university organized through an institution other than Western Michigan University. Where credit toward the major or minor 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, prior to enrollment when possible, for approval and placement in the appropriate Distribution Area or Proficiency. May be repeated for up to 32 credit hours.

INTL 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.

INTL 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 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.

INTL 490 Seminar in Global and International Studies

3 hrs. Written and oral discourse on a selected issue in global and international studies. Topics listed in Schedule of Course Offerings. May be repeated. Prerequisite: INTL 200 and 18 hrs. of course work toward major in global and international studies, exclusive of foreign language requirements.

INTL 498 Directed Research and Field Projects

1–6 hrs. Individual reading, research, and international field projects. Topics may be listed in Schedule of Course Offerings. May be repeated for up to 6 hrs. Prerequisite: Advisor approval.

INTL 500 Topics in Global and International Studies

1–3 hrs. Topics may be listed in Schedule of Course Offerings. May be repeated.
The Medieval Institute

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

Knowledge of medieval and Renaissance culture is 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.
REL 500 Historical Studies in Religion (Christian Theology to 1500) 4 hrs.
REL 510 Morphological and Phenomenological Studies in Religion (when appropriate) 4 hrs.

Language and Literature
ENGL 410 Special Topics (when appropriate) 4 hrs.
ENGL 530 Medieval Literature 3 hrs.
ENGL 555 Studies in Major Writers (when appropriate) 3 hrs.
FREN 560 University 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.
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. Students may not receive credit for both MDVL 145 and HIST 145.

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-A Renaissance 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. Registration 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

(Admissions suspended, effective January 2004)
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 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 80 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 Americana 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 obtained 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 496 Directed Independent Study for 3-6 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 hours.

*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.

The Mallinson Institute for Science Education

The Mallinson Institute for Science Education is devoted to the study and improvement of how people learn science at the K-12, undergraduate, and graduate levels. The Mallinson Institute has four major programs:
1. Graduate programs leading to a Master of Arts and a Doctor of Philosophy in Science Education. See the graduate catalog for more information.
2. Coordination of undergraduate programs as part of the elementary education science and mathematics teaching minor. See the College of Education section of this catalog for more information.
Science Education 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 about science as a human endeavor. It examines the aims or goals of science and compares these to the evaluative treatments of the scientific enterprise, as well as demonstrating the methods of science and other methods of obtaining reliable information. The course, designed for the general student, 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 280 Physical Science for Elementary Educators II 3 hrs.

This laboratory-based course is a continuation of SCI 180 and is specifically designed for prospective elementary teachers. The objectives of the course are to aid student 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 alternated conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science. Prerequisite: PHYS 180.

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 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. Prerequisites: 15 hours of science in a certifiable science discipline and ED 402 which may be taken concurrently with this course. Cross-listed with CHEM 404 and PHYS 404.

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 and may be repeated for credit if different topics are involved. Prerequisites for SCI 404 are SCI 280 and SCI 380.

SCI 560 Science Workshop for Teachers 1-3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of the course. The course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. Prerequisites: Teacher certification or baccalaureate plus work toward certification.

SCI 580 Chemistry Workshop for Teachers 1-3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of chemistry. The course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. Prerequisites: Teacher certification or baccalaureate plus work toward certification.

K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. Intended for delivery in one-to-two-week workshop format.

SCI 590 Earth Science Workshop for Teachers 1-3 hrs.

This course will involve participants in several activities especially designed to help them achieve an understanding of some of the important concepts of earth science. The course is designed and taught to address the needs of K-12 teachers. It is a variable topics course and may be repeated for credit if different topics are involved. Prerequisites: Teacher certification or baccalaureate plus work toward certification.

Science and Mathematics Teaching

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. To obtain information about an additional mathematics endorsement, contact the Department of Mathematics.

Mathematics courses must be taken in sequence, and a "C" grade is required in each. Minimum 2.0 GPA required in this minor.

SCIENCE AND MATHEMATICS TEACHING

Advisors: College of Education
Office of Admissions and Advising
2504 Sangren Hall

Science And Mathematics Teaching Minor

INTERDISCIPLINARY PROGRAMS 47

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<th>REQUIRED COURSES:</th>
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<td><strong>BIO</strong> 270 Life Science for Elementary Educators II</td>
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<td><strong>MATH</strong> 265 Probability and Statistics for Elementary/Middle School Teachers</td>
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At least one 300-level course selected from the following:

**WMS 300** Working Women, Past and Present 3

**WMS 320** Women, Multiculturalism, and Social Change 3

**WMS 350** Male/Female Psychological Perspectives 3

At least one 500-level course resulting in an internship experience or a Research Project:

**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 selected from:

- 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 Resistance 3

**ANTH 345** Topics in Anthropology: Gender Issues (variable) 3

**ANTH 360** Sex, Gender and Culture 3

**ART 521** Women in Art 3

**AFS 310** The Black Woman: Historical Perspectives and Contemporary Status 3

**AFS 360** Black Woman-Black Man Relationships 3

**COM 307** Freedom of Expression 3

**COM 475** Family Communication 3

**COM 479** Females/Male Interaction 3

**ECON 309** Women and the Economy 3

**ENGL 410** Special Topics: Images of Women in the Media 3

**ENGL 416** Women in Literature 4

**FCS 205** Topics: Women and Health 3

**FCS 210** Introduction to Human Sexuality 3

**HIST 316** Women in American History 3

**HIST 336** Women in European History 3

**HIST 432** Women in America to 1870 3

**HIST 433** Women in America Since 1870 3

**MGMT 512** Women in Management: Male, Female, and Organizational Perspectives 3

**PHIL 314** Philosophy and Public Affairs (variable) 3

**PHIL 315** Race and gender Issues 3

**PSCI 270** Political Topics: Women and Politics (variable) 1-3

**PSCI 341** African Political Systems 3

**PSCI 346** Women in Developing Countries 3

**PSCI 549** Problems in Foreign Relations (variable) 3

**REL 511** Women and Religion 3

**SOCI 133** Issues in Social Biology 3

**SOCI 190** Men and Women in Contemporary Society 3

Women's Studies Courses (WMS)

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

**WMS 100** Media and the Sexes 3

The course investigates how films, television, music videos and advertising present images of women and men to different audiences.

**WMS 200** Introduction to Women's Studies 4

This interdisciplinary core course in Women's Studies provides analytical frameworks for the study of gender and gender-defining institutions, focusing on women in American society. Course emphasizes approaches that study the diversity and similarity of women's experience across class, racial and ethnic groups.

**WMS 300** Working Women, Past and Present 3

Analysis of the social significance of women's work in the United States. Emphasis is on the history of women's participation in the paid labor force, with consideration of women's changing role in the family and society.

**WMS 320** Women, Multiculturalism, and Social Change 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, 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

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 inequalities 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

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

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 of undergraduates to 500-level Women's Studies classes are twelve hours of course work 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 student's disciplinary training with investigation of an interdisciplinary problem in Women's Studies. May be repeated for credit when topics vary.

WMS 510 Internship Seminar
3 hrs.
Course offers an opportunity for the advanced student to apply theory and knowledge in Women's Studies to a professional or community project. Student will work under the supervision of a faculty advisor or a community sponsor. Opportunities available in areas such as television production, K-12 classroom presentations, and a variety of community organizations and agencies serving women and children.

WMS 550 Contemporary Feminist Theory
3 hrs.
An advanced course focusing on the analysis of American and European texts in feminist theory. The course will also consider the relation of these texts to other contemporary theoretical approaches. Prerequisite: WMS 401.

WMS 597 Issues in Women's Studies: Variable Topics
1–3 hrs.
Group study of special issues in Women's Studies. Variable topics may address theoretical, critical, or practical issues in the historical or contemporary context. The courses will be offered in response to the special needs and interests of students and may be organized around special events or available guest speakers. May be repeated for credit when topics vary. Course open to graduate students.

WMS 598 Readings in Women's Studies
1–4 hrs.
Individual study project available to the advanced student by permission of faculty advisor with departmental approval of project application.

WORLD LITERATURE

World Literature Minor
Robert Felkel, Advisor
Department of Spanish

This is an interdepartmental program administered jointly by the Departments of English, Foreign Languages, and Spanish.

Studying the literature of other peoples of the world is one of the best ways to begin to know them. A great body of the world’s literature is available for study in English translation in a variety of courses and departments at Western Michigan University. The world literature minor grows out of and is based on these courses.

This minor should be of value to students who have a general interest in literature and are curious about the world, especially that major part which does not have English as its literary language.

Any student, including those majoring or minoring in English or Foreign Languages and Literatures, may elect the world literature minor. The minor should be of obvious value to students preparing to teach humanities or literature (at any of several levels), but education curricula students should understand that this minor is not a teaching minor.

The world literature minor can provide useful backgrounds to students interested in foreign affairs, law, politics, journalism, mass communication, and theatre. It should also be of interest to students in business, scientific, and engineering curricula who wish to do a minor outside their main field.

The minor should interest students who, whatever their career plans or major, wish the varied view and mixture of experiences of an interdepartmental program. Also, the wide range of electives possible should make the minor attractive to students who would like the opportunity to help shape their own programs.

Prerequisites listed for any of the courses in this minor will be waived. However, students with questions about the advisability of taking courses for which there are prerequisites should consult one of the minor advisors.

Transfer students should consult the minor advisor to determine the applicability of courses taken at other colleges.

Minor slips are required. Both the English and the Spanish Departments have world literature minor advisors with regular office hours, either one of whom may issue minor slips. For information, stop at or call the English Department office (620 Sprau: 387-2570) or the Department of Spanish (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
   OR
   ENGL 315 The English Bible as 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 (with the approval of 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 (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
   OR
   THEA 570 Dev't of Theatre Arts . . . . 3

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.

INTERDISCIPLINARY PROGRAMS
ANTHROPOLOGY

Robert Ulin, Chair
Robert Anemone
William Cremin
Arthur Helwig
Sarah.tex
Jon Holtzman
Vincent Lyon-Calvo
Ann Mies
Michael Nassaney
Frederick Smith
Laura Spielvogel
Pameila Stone
Blinda 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 expected to meet with their advisor two semesters before they plan to graduate for assistance in selecting appropriate programs.

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

6. A grade of "C" or better in every anthropology class counted toward the minor

No more than twelve (12) hours of anthropology classes may be transferred for the major; no more than nine (9) hours of anthropology classes may be transferred for the minor.

Anthropology Courses (ANTH)

A list of approved General Education courses can be found in “Graduation 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, Spring
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, Spring
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, Spring
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 the 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. The course will integrate 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 shared 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 environments. 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 ethnographic perspective. Readings and class discussions will highlight the intersections of colonialism, nationalism and globalization among selected groups in different areas in the region. By locating contemporary societies within broader contexts this class aims to replace cultural stereotypes with anthropological analysis.

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.

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

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 the 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. The course will integrate theoretical, methodological and substantive issues with an emphasis, though not exclusive focus, on North America. Prerequisite: ANTH 210 or consent of instructor.

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

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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 recognizing 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 borders 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 illustrating 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 social-cultural 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 Fauenal 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 relevance of animal behavior to hunting, predator-prey relationships, food transport behavior, subsistence and seasonality, reconstructing the palaeoenvironment, and the meaning of mortality patterns. 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 introduction to bioarchaeology. Topics covered will include: mortuary practices, age categories and cohorts, assessing growth and development rates, indicators of population health, palaeoecology, palaeopathology, trauma and warfare, occupational indicators, trace elements, and problem solving with metric and non-metric bias. 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 355 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 outlining 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 relations between gender-coded people and objects, and various ideologies supporting the differences. In this course, biological and cross-cultural data will be used to explore the foundation of this process and the social, cultural, and psychological consequences of gender coding on men and women in different cultural settings.

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 1–1.5 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. southwestern Michigan, Lower Mississippi Valley). Participants will receive instruction in collecting and evaluating background information, creating a research design and implementing archaeological field-work (e.g., logistics, site location survey, mapping, recovering objects from archaeological contexts), selecting and preparing 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 Ages to the point of European contact. Emphasis will be on changing adaptive requirements of the environment over time as reflected in subsistence-economy or habitats, interaction through exchange, and societal complexity. Prerequisite: ANTH 210 or consent of instructor.

ANTH 405 Anthropology 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 them during the past 10,000 years. Prerequisite: ANTH 210 or consent of instructor.

ANTH 439 Issues in South American Ethnography
3 hrs.
An overview of the cultural diversity and the complex social and political structures of indigenous peoples in South America. Prerequisite: ANTH 240 or consent of instructor.

ANTH 440 Ethnography
3 hrs.
This course deals with the analysis and interpretation of early technologies and technological organization and their relationship to social, political, and economic dimensions of cultural systems. Prerequisite: ANTH 210 or consent of instructor.

ANTH 449 Issues in South American Ethnography
3 hrs.
An overview of the cultural diversity and the complex social and political structures of indigenous peoples in South America. 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 and 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 460 Money, Consumption, and Cannibals 3 hrs. What do vamps, the devil, and cannibals have to do with money or commodities? This course explores the diverse ways in which money and commodities are gendered and commodities. How money finds its way into practices ranging from weddings to spirit possession will be examined as well as how money and goods are gendered in different societies. The course also explores the ways in which money and goods, and often the whiteness associated with their introduction, can have literally monstrous connotations. Prerequisite: ANTH 240.

ANTH 465 Alcohol and Culture 3 hrs. Alcohol is the most widely used drug, and drinking is often a highly ritualized social event. The goal of this seminar is to explore the role alcohol has played historically in politics, society, and the economy from a comparative cross-cultural perspective. Using a wide range of historical, archaeological, and ethnographic evidence, we will identify common themes in the social uses of alcohol and interpret the symbolic meanings societies attach to drinking. Moreover, alcohol is a prism through which to view broader cultural issues, especially class, race, gender, power, and sociability. Concepts and theories will be introduced to the relatively new field of alcohol studies. Students will also be given some instructions in basic historical and anthropological methods. Throughout the course there will be in-depth discussion of the assigned reading, and each student will eventually discuss his or her research with the class.

ANTH 472 Slavery and Resistance 3 hrs. This course examines the development of black slavery in the Americas from its African and European antecedents down through its eradication in the nineteenth century. Attention will be given to the Caribbean, and to mainland North and South America, although some areas may receive more emphasis than others. We will adopt a cross-cultural and interdisciplinary perspective toward slavery. Anthropological, historical, archaeological, and sociological approaches to slave studies are examined in order to assess competing materialist and ideological viewpoints. The goal is to identify common themes and characteristic behaviors in different historical and cross-cultural contexts.

ANTH 498 Independent Readings 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.

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.

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 biogeographies 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.

ANTH 505 Social Archaeology 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 biogeographies 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.

ANTH 506 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 507 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 in which 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 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 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, Hobson, and Hall. Students will examine select case studies of nationalism in a number of world areas. Emphasis will be placed on nationalism as a cultural as well as political process so its relation to invented tradition and self-identity will be highlighted. Prerequisite: 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 a role in producing, strengthening, 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. Prerequisites: Junior/senior status 12 hours of Anthropology.

ANTH 525 Spirits and Medicine 3 hrs. This course explores how healing is linked to belief and in turn how beliefs about well-being, illness, and treatment are culturally prefigured. Students will examine healing practices in the United States and cross-culturally as they related to belief and consciousness, including western medicine and alternatives, spirit possession and trance, and methods of divination. Prerequisites: Junior status, 12 hours of anthropology, and ANTH 240 or consent of instructor.

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.
focus of the course is to understand the world, the symbolism of modern medicine, the Caribbean is a region of some 30 million people living in the islands stretching from the Bahamas to Trinidad, as well as the continental enclaves of Belize, Surinam, Guyana, and French Guiana. Despite its great cultural, racial, and linguistic diversity, the Caribbean exhibits certain broad social and economic similarities born of its history of slavery and colonialism. Using a wide range of anthropological, documentary, and ethnographic sources, this course seeks to identify common themes in the cultural history of the Caribbean. We will explore the way Indian, European, African, and Asian cultures merged in the Caribbean to create distinct Creole societies. We will examine culture contact between Europeans and the native peoples of the Caribbean and look at the social and economic impact of sugar production on the region. Most importantly, we will investigate the rise and fall of Caribbean slavery. In the early session, students will be introduced to the Caribbean region. Students will also be given some rudimentary instruction in ethnohistorical methods, emphasizing archaeological contributions to the ethnohistorical approach. Prerequisites: Junior/senior status and 12 hours of Anthropology.

ANTH 540 Ethnographic Research Methods 3 hrs.

An exploration of the complexity of ethnographic research methods through a practice-oriented approach to training in ethnographic approaches. Students learn a range of qualitative research methods as well as the political, ethical, methodological, and theoretical dilemmas of anthropological fieldwork and writing through supervised fieldwork projects as well as classroom assignments. Prerequisites: Junior/senior 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 problems in Old World Prehistory: 1) Chimpanzee material culture and early hominid Oldowan assemblages; 2) the Middle Palaeolithic and the origin of modern humans; and 3) the Upper Palaeolithic 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 ethnohistoric 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.

ANTH 585 Forensic Anthropology 3 hrs.

Prerequisites: Junior/senior status, 12 hours of Anthropology, and ANTH 240 or consent of instructor.

BIOLOGICAL SCIENCES

Alexander J. Enyedi, Chair
Todd Barkman
Bruce Beijcek
Leonard J. Beuving
Christine Byrd
Cobern
David P. Cowan
Karmi Essani
Robert Everule
John R. Geiser
Leonard C. Ginsberg
Charles Ide
William F. Jackson
John A. Jelles
David Karowe
Steve Kohler
Cindy L. Linn
David Linn
Stephen B. Malcolm
Charles Mackenzie
Olga Maltseva
Jay C. Means
Martin Meglioss
Richard W. Pippin
Hector D. Quamada
Wendy Ransom-Hodgkins
David Reinhold
Silvia Rossbach
David W. Rudge
René Schwartz
Kamlesh Sharma
John Spitsbergen
Robert Stapleton
Brian Tripp

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., M.D., D.D.S., D.O.M., D.P.M., or D.V.M.; and (3) pre-professional training for such clinical areas as physician assistant, pharmacy, and physical therapy. For additional career options, see the Undergraduate Advisor. 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 freshman or transfer orientation and regularly thereafter. Courses taken without the approval of the Undergraduate Advisor may not be acceptable for major or minor credit.

In addition to planning your program with the Undergraduate Advisor, we also urge you to consult with the Preprofessional Advisor (in the College of Arts and Sciences) at an early stage, to determine any special requirements or variations from the above that may pertain to particular medical or dental schools to which you are planning to apply for admission. Students must satisfy prerequisites before enrolling in a course. Those who fail to earn a “C” or better grade in a departmental prerequisite course will be denied admission to enroll in the next class. Enrollment will not be honored if it is found that proper prerequisites have not been met.

Self-instructional courses offered by Extended University Programs may not be used for credit toward any departmental major or minor. 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**

**Biology Major**

**INTERMEDIATE LEVEL COURSES**

- BIOS 202 or 312, 250, 301, 319 or 350

**TWO ADVANCED INTEREST COURSES FROM THE FOLLOWING:**

- BIOS 312, 427, 430, 439, 441, 442, 456, 498, 499, 524, 525, 534, 536, 547, 553, 557, 574, 576; 597 (minimum 3 hrs.)

**CAPSTONE EXPERIENCE**

- BIOS 497 or BIOS 499

**BACCALAUREATE WRITING REQUIREMENT**

- Students who have chosen the Biology major can satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 301, 319, or 350.

**COGNATE REQUIREMENTS**

- CHEM 110 and 111; 112 and 113; 370 with 371 or 375 with 376 and 377 with 378; PHYSICS, 2 semesters with labs; and GEOL 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, 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 211, 250, 312 and 350

**TWO ADVANCED INTEREST COURSES FROM THE FOLLOWING:**

- BIOS 430, 496, 499, 507, 524, 525, 531, 534, 536, 550, 560, 561, 570, 574, 597 (minimum 6 hrs.)

**CAPSTONE EXPERIENCE**

- BIOS 497 or BIOS 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 Minor**

The Biological Sciences Minor consists of a minimum of 20 credits of biological sciences courses. Twelve of these credit hours must be from 200 or higher level courses. Corequisite requirements are CHEM 110 and 111. Minors in health related fields can take the following courses to fulfill a minor degree: BIOS 105, 112, 191 or 211, 232, 240, and 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. Corequisite 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 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” earlier in this catalog.

**Biology 155 Environmental Biology**

3 hrs. Fall, Spring

An ecology course that examines the relationships among living organisms, including man, and their environment. Emphasis will be placed on plant and animal systems and interrelationships of plants and animals. Credit does not apply toward a Biology or Biomedical Sciences major. Credit applies for 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, Spring

Designed as a companion to BIOS 105 or BIOS 112 to fulfill Natural Science Area VI requirement. Biology Laboratory provides hands-on experiences in environmental and general biology. Experiments will involve the use of scientific methodologies, 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, Spring

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, Spring

This is the first in a two semester introductory biological science sequence for majors in the Biological Sciences Department. The course covers basic concepts of molecular and cellular biology and physiology.
BIOS 151 Organismal Biology 4 hrs. Fall, Spring
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 170 Life 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 biological 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.

BIOS 191 Introduction to Human Anatomy and Biology 4 hrs. Fall
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, Spring
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 230 Cell Biology 4 hrs. Spring
This is a comprehensive course covering the fundamental principles of cell biology. The experimental basis of these discoveries will be stressed. It is intended for all biology majors and others who have a basic understanding of chemistry and biology. Prerequisites: CHEM 112, BIOS 150, and corequisite BIOS 151.

BIOS 232 Microbiology and Infectious Diseases 4 hrs. Fall, Spring
An introductory microbiology course emphasizing characteristics and modes of transmission of the microorganisms that cause human disease. Credit applies toward a minor in Biomedical Sciences and a major in secondary education.

BIOS 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 Biomedical Sciences.

BIOS 240 Human Physiology 4 hrs. Fall, Spring
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 areas and at 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
A study of the mechanisms of heredity at the level of cells, individuals, families and populations. Prerequisites: CHEM 112, BIOS 150, and corequisite BIOS 151.

BIOS 270 Life Science for Elementary Educators II 3 hrs.
This laboratory-based course is a continuation of BIOS 151. The objectives of the course are to aid students in developing meaningful and functional understanding of key biological 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.

BIOS 301 Ecology 5 hrs.
We introduce students to the dynamics of ecological interactions at different spatial and temporal scales and at different levels of organization from individuals, through populations and communities, to ecosystems, landscapes and biomes. Our emphasis is on population-level processes and dynamics, and examples dwell on both pure and applied aspects of ecology. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the General Education curriculum. Prerequisite: BIOS 202 or BIOS 250.

BIOS 312 Microbiology 5 hrs. Fall, Spring
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.

BIOS 319 Plant Physiology 4 hrs. Spring
An examination of plant functions and metabolism. The chemical elements essential for plant growth are studied, along with processes, such as photosynthesis, through which these elements combine to form the components of cells and tissues. The lab uses up-to-date techniques and equipment to investigate processes such as enzyme action and the movement of substances through membranes. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: BIOS 202 and a course in organic chemistry.

BIOS 321 Clinical Physiology 5 hrs. Fall
A study of the functioning and regulation of the organ systems and the application of this knowledge to an understanding of their malfunctions. The molecular and cellular mechanisms involved are emphasized. Students must be in the Physician Assistant curriculum.

BIOS 350 Human Physiology for Majors 5 hrs. Fall, Spring
An introduction to the functions and interrelationships of the human body organs systems with a description of various physiological malfunctions. The laboratory provides experience with some types of clinical measurements, laboratory instrumentation, data organization and scientific writing. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: BIOS 250 and organic chemistry; anatomy is recommended.

BIOS 401 Pathogenic Microbiology for Physician Assistants 2 hrs. Fall
This course describes the common diseases and their treatment with emphasis on the significance of laboratory findings in their diagnosis. Students must be in the Physician Assistant curriculum, or permission of instructor.

BIOS 415 Plants for Food and Industry 3 hrs. Spring (alternate years)
Representative cereal, fiber and industrial plants of primary economic importance will be examined, such as wheat, rice, wood and its uses, soybeans and grapes. Following a discussion of plant composition and some of the important processes involved in plant growth, we will look into the botanical characteristics of each plant, the areas where they are grown, the special aspects of their composition and growth habits that account for their economic prominence, their value in human nutrition, and some of their special problems. This course is enriched with several demonstrations and lab experiences that include diverse practical applications. Prerequisites: BIOS 202 and a course in organic chemistry.

BIOS 427 Systematic Botany 4 hrs. Fall (Alternate Years)
Principles and techniques of plant classification, nomenclature, and biosystematics are presented in lectures, in the field, and laboratory experiences, using vascular plants as examples. Evolutionary trends, family characteristics, and experimental systematics of vascular plants are emphasized. Students are expected to learn to recognize 100–150 plant species by common and scientific name. Prerequisite: BIOS 202.

BIOS 430 Evolution 3 hrs. Spring
This course in evolutionary biology covers the mechanisms of the evolutionary process, speciation, evolutionary genetics, the history of life on earth, and adaptation. Prerequisite: BIOS 250.

BIOS 439 Animal Behavior 3 hrs. Fall (alternate years)
Animal behavior is studied with regard to our understanding of the causes of behaviors, and the possible reasons for their existence. Particular emphasis is placed on how natural selection has affected individual and social behavior.

BIOS 441 Invertebrate Zoology 3 hrs. Fall
A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: BIOS 151.
BIOS 442 Entomology
3 hrs. Fall (alternate years)
This course is a general study of insects, their structure, classification, physiology, life histories, ecological relationships, and economic importance. Students will learn to identify common families of insects and make individual collections. Prerequisite: BIOS 151.

BIOS 456 Tropical Biology
3 hrs. Summer I
A travel study course providing an introduction to both terrestrial and marine ecosystems in the tropics. The course, consisting of lectures, field explorations, and individual projects, examines the major life zones and biogeography of the region visited, from an ecological perspective. Tropical Rain, Monsoon, and Dry Forests, and the biology of a coral reef will be studied. Human ecology, agriculture (tropical fruits and vegetables, sugar cane and coffee) and environmental issues will all be presented. The course will be presented on one of the islands of the Caribbean and/or in Central America.

BIOS 497 Senior Seminar: Topic to be specified
3 hrs. Fall, Spring
This capstone course integrates a variety of biological concepts within a selected broad topic. The student makes a technical presentation and submits a paper on a selected system. The student's record will indicate the nature of the seminar in which he/she has participated. Not repeatable for credit. Prerequisite: Senior standing and an approved major slip.

BIOS 498 Readings in Biological Sciences
1–3 hrs. Fall, Spring
Approved application required.

BIOS 499 Independent Research in Biological Sciences
1–4 hrs. Fall, Spring, and Summer
Students may contact a faculty member to conduct research under the guidance of that faculty member. Before the initiation of the research, a literature search and a written experimental plan must be prepared. At the conclusion of the research project, a written report will be submitted to the guiding faculty member. At least three credits of this course can fulfill the departmental capstone course requirement. Prerequisites: Approved application, junior standing, and a declared major in the Biological Sciences Department.

The prerequisites to 500-level courses are:
- Junior/Senior standing and at least 12 credits in biology including the specific prerequisite for each course.

BIOS 512 Environment and Health Problems
3 hrs.
Human activities impact the environment and environmental factors impact health. Human environmental interactions are often not optimal or without cost. In this course we seek sustainable solutions to environment and health problems. May not be taken for credit with BIOS 497 Senior Seminar with similar topic.

BIOS 518 Endocrinology
3 hrs. Spring (alternate years)
A survey of the hormonal integration of organ-system function including the chemical nature of these secretions, the cellular and biochemical mechanisms of hormone actions and the endocrine feedback control mechanisms. The regulatory nature of hormones in developmental processes, in adaptation and in disease processes will be stressed. Prerequisite: BIOS 350; biochemistry is recommended.

BIOS 524 Microbial Genetics
3 hrs. Fall (alternate years)
A lecture/seminar course emphasizing modern microbial genetics, as well as historic key Bose experiments. The course focuses on work carried out with bacteria and bacteriophages. Concepts include mutation and selection, recombineration and repair, DNA cloning and mutagenesis procedures, regulation of gene expression, differential gene expression in response to environmental stimuli, and genome organizations. Prerequisites: BIOS 312 Microbiology and BIOS 250 Genetics, or consent of instructor.

BIOS 525 Microbial Ecology
3 hrs. Fall
The objective of this course is to understand the importance of the role and diversity of microorganisms for life on our planet. Students will integrate concepts from various disciplines, including microbiology, ecology, chemistry, geosciences, evolution, genetics, and health sciences. Lecture/seminar format includes computer usage with the web. Prerequisites: BIOS 232 or 312 (or equivalent) and junior, senior, or graduate student standing; or consent of the instructor.

BIOS 526 Molecular Biological Laboratory
3 hrs.
This course is designed to expose students to techniques that are currently being used to manipulate and analyze nucleic acids. Student will gain extensive hands-on experience with restriction mapping, ligations, bacterial transformations, eukaryotic gene replacements, gel electrophoresis, non-isotopic hybridizations, as well as application of the polymerase chain reaction (PCR). Experimental design, use of appropriate controls and handling of acquired data will be stressed. Prerequisites: BIOS 250 Genetics, BIOS 312 Microbiology, CHEM 375 Organic Chemistry I, CHEM 376 Organic Chemistry Lab I and junior, senior, or graduate student status.

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. Prerequisite: An introductory physiology course.

BIOS 534 Virology
3 hrs. Spring
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 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 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.

BIOS 549 Field Ecology
3 hrs.
Field studies of forest, native grassland, wetlands, and other local ecosystems. Plant and animal composition, geological history, human effects, succession, and other aspects of the structure and working of ecosystems are integrated. Field ecological methods are emphasized. Prerequisite: BIOS 301 or equivalent.

BIOS 553 Limnology
3 hrs.
Biological, chemical, and physical aspects of lakes, ponds, and streams. Ecological relationships of invertebrate animals and lower plants are emphasized. Prerequisite: BIOS 151.

BIOS 557 Water Pollution Biology
3 hrs.
A comparison of organisms that live in clean waters, as contrasted with those in polluted waters. Streams, lakes and ponds will be studied. Water conditions will be analyzed, and the use of biological indicators will be studied. The course will include field trips, laboratory work and lecture presentations. Prerequisite: BIOS 202.

BIOS 559 Neurobiology
4 hrs. Spring
The substrate of behavior will be examined in this interdisciplinary survey of neural structure and function across molecular, cellular and system levels. There will be a strong emphasis on underlying mechanisms in different animal models. Lecture and discussion will be integrated and supplemented by demonstrations. Topics covered will include: membrane biophysics, synaptic physiology, transduction and signaling in the visual, auditory, chemical and somatosensory systems, reflexes, simple behavior and plasticity. Prerequisites: BIOS 350 and college-level courses in Physics and Biochemistry, or consent of instructor.

BIOS 560 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. Toxicodynamic 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 CHEM 558. Prerequisites: BIOS 350, and chemistry through biochemistry, or permission of instructor.

BIOS 561 Pharmacology
3 hrs. Spring
The study of the mode of action of drugs in the body. Topics may include, but are not limited to pharmacokinetics, pharmacodynamics, autonomic pharmacology, cardiovascular pharmacology, and renal pharmacology. The course will consist of approximately 50 percent lecture and 50 percent student presentations on selected topics. Prerequisites: BIOS 301 and a course in organic chemistry.

BIOS 570 General Pathology
4 hrs. Spring (alternate years)
An introduction to pathology which describes the structural and biochemical changes occurring in cells and tissues following injury or disease. Prerequisites: BIOS core curriculum and a course in organic chemistry.
BIOS 574 Developmental Biology
4 hrs. Spring
Developmental biology is the study of the formation of a complex, multicellular organism from a single cell, the fertilized egg. The course will present this material from both a classical description and an experimental cellular point of view. In addition to the lecture, laboratory exercises will provide experience in the recognition of the various stages of development and in the culturing and manipulations of embryos.
Prerequisite: BIOS 250.

BIOS 597 Topics in Biological Sciences
3-4 hrs. Fall, Spring
Lectures or seminars in various areas of Biological Sciences will be offered. The student's record will indicate the topic he/she has taken. May be repeated for credit.

CHEMISTRY
Michael J. Barcelona, Chair
Steven B. Bertman
Brian Buffin
John E. Chateauneuf
David L. Huffman
James Kiddle
Dongli Lee
Jay C. Means
John B. Miller
Yirong Mo
Subra Muralidharan
Marc W. Perkovic
David S. Reinhold
Elke Schoffers
Donald R. Schreiber
Susan R. Stapleton
Brian Tripp

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 437 Physical Chemistry Laboratory II
CHEM 520 Instrumental Methods
CHEM 515 Inorganic Chemistry
CHEM 575 Advanced Chemical Synthesis
CHEM 355 Introductory Biochemistry* or CHEM 550V Biochemistry I and 551 Biochemistry I Lab
CHEM 554 Biochemistry II

*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. 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
Students are required to declare their intent to be a major or minor before completing their credit hour requirements. This is done by filing a declaration of major/minor slip with the advisor.
To qualify as a major or minor in chemistry from Western Michigan University, the student, including the transfer student, must complete a minimum of their last 14 credit hours (major) or 7 credit hours (minor) in the Chemistry Department. The courses taken for credit 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 33 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 35 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

CHEMISTRY 57
CHEM 376 Organic Chemistry
CHEM 377 Organic Chemistry II
CHEM 378 Organic Chemistry Laboratory II
CHEM 355 Introductory Biochemistry
CHEM 430 Physical Chemistry I
CHEM 436 Physical Chemistry Laboratory I
CHEM 506 Chemical Laboratory Safety
CHEM 520 Instrumental Methods

**Geochemistry Major**

The Geosciences and Chemistry Departments offer a program of study leading to a major in geochemistry. Students choosing this major will not be required to complete an additional minor. The geochemistry major is designed to meet the needs of students preparing for a professional career in geochemistry or environmental chemistry. Students contemplating a geochemistry major should contact the Geosciences Department as early as possible for advising.

**Total Major: 68 hours**

**GEOSCIENCES CORE (19 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOS 130</td>
<td>Physical Geology I</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 131</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 132</td>
<td>Earth Systems</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 335</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 555</td>
<td>Introduction to Geochemistry</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 460</td>
<td>Geologic Communications</td>
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**CHEMISTRY CORE (12 hours)**

<table>
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<tr>
<th>Course Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 110, 111</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 112, 113</td>
<td>General Chemistry II with Lab</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 225, 226</td>
<td>Quantitative Analysis</td>
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**MATH CORE (8 hrs.)**

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<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
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**GEOSCIENCES ELECTIVES (Choose at least 9 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOS 336</td>
<td>Mineral Analysis</td>
<td>2</td>
</tr>
<tr>
<td>GEOS 435</td>
<td>Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 440</td>
<td>Petrography and Petrology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 506</td>
<td>Introduction to Soils</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 501</td>
<td>Stable Isotopes</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 512</td>
<td>Principles of Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 528</td>
<td>Groundwater Sampling and Monitoring</td>
<td>1</td>
</tr>
<tr>
<td>GEOS 544</td>
<td>Environmental Geology</td>
<td>3</td>
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</table>

**An approved field course (up to 3 hrs. total)**

**CHEMISTRY ELECTIVES (Choose at least 9 hrs.)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 370</td>
<td>Introduction to Organic Chemistry</td>
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<tr>
<td>CHEM 371</td>
<td>Introduction to Organic Chemistry Lab</td>
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<tr>
<td>CHEM 375</td>
<td>Organic Chemistry I</td>
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<td>CHEM 376</td>
<td>Organic Chemistry I Lab</td>
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<tr>
<td>CHEM 377</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 378</td>
<td>Organic Chemistry II Lab</td>
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<td>CHEM 430</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 436</td>
<td>Physical Chemistry I Lab</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 431</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 437</td>
<td>Physical Chemistry II Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 509</td>
<td>Topics in Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 520</td>
<td>Instrumental Methods in Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 525</td>
<td>Techniques in Water Analysis</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 550</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
</tbody>
</table>

**MATH AND GENERAL SCIENCE ELECTIVES (Choose at least 11 hrs.; hours cannot all be in the same department)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Mechanics and Heat Lab</td>
<td>1</td>
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</tbody>
</table>

**CHEMISTRY MINOR**

A minor in chemistry will contain at least 20 hours. Chemistry minors in secondary education are required to complete one year of physics before student teaching. Courses accepted for the minor are:

**CHEM 110** General Chemistry I
**CHEM 111** General Chemistry Laboratory I
**CHEM 112** General Chemistry II
**CHEM 113** General Chemistry Laboratory II
**CHEM 225** Quantitative Analysis
**CHEM 226** Quantitative Analysis Laboratory
**CHEM 370** Introduction to Organic Chemistry
**CHEM 371** Introduction to Organic Chemistry Laboratory

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 the "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, Spring**

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 tools for solving chemical problems: chemical formulas, chemical equations, stoichiometry, measurement units, conversions, and...
CHEM 106 Textiles and Design Media

CHEM 110 General Chemistry I
4 hrs. Fall, Spring

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 lectures 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, Spring

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. 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 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, 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. (To count for general education credit, both CHEM 105 and 106 must be passed.) Corequisite: CHEM 106.

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 105.

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 well prepared may earn credit by taking an examination. Students can receive 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 CHEM 111. (To 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. Prerequisites: 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 I Lab
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 Program. Prerequisites: 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. Prerequisites: 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 areas 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. Prerequisite: 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. Spring

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, Spring

This course includes the theory, techniques, and calculations of quantitative analysis. Instrumental techniques are used to supplement classical analytical procedures in the laboratory. Prerequisites: 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-cation transport and some aspects of nutrition, disease and hormone action. Prerequisite: PA Curriculum and CHEM 370 and CHEM 371 or CHEM 372 and CHEM 376.

CHEM 355 Introductory Biochemistry
3 hrs. Spring

A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Prerequisites: CHEM 370 and CHEM 371 or CHEM 372 and CHEM 376.

CHEM 356 Introductory Biochemistry Laboratory
1 hr.

Basic biochemistry laboratory techniques. Isolation and properties of proteins, enzymes, carbohydrates, lipids and nucleic acids. Use of instrumentation for bioanalytical determinations. Prerequisite or corequisite: CHEM 355 or CHEM 550.

CHEM 370 Introduction to Organic Chemistry
3 hrs. Fall, Spring

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 CHEM 371. 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. Prerequisite: CHEM 112 and 113. Corequisite: CHEM 370.
CHEM 375 Organic Chemistry I
3 hrs. Fall, Spring
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 reaction 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, Spring
This course is the continuation of CHEM 375. Prerequisites: CHEM 375 and 376. It is strongly recommended that students take CHEM 378 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, Spring
This course is designed to give students who have completed basic chemistry an opportunity to receive credit for experience in chemistry 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 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, spectrophotometry, statistical mechanics, chemical kinetics and mechanisms, transport properties, surface chemistry, macromolecules, crystal structure, etc. Prerequisites: PHYS 205, 206, 207, 208, MATH 272; CHEM 112 and 113.
CHEM 431 Physical Chemistry II
3 hrs. Spring
A continuation of CHEM 430. Prerequisite: CHEM 430.
CHEM 436 Physical Chemistry Laboratory I
2 hrs. Fall, Spring
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 of physical and chemical measurement skills introduced in CHEM 430. 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 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, 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 on emergency procedures to apply when accidents occur. Prerequisite: course of chemistry.
CHEM 509 Topics in Chemistry
3 hrs.
A topic is presented in greater depth or from a different perspective than 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. Spring
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 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 spectroscopic 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 526 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 540 Biogeochemistry
3 hrs.
An advanced survey of major current research topics in biogeochemistry. Examines chemical interactions among waters, minerals, and life in aquatic and geologic environment. Prerequisites: CHEM 112 and 113 or CHEM 525, or permission of the instructor.
CHEM 550 Biochemistry I
3 hrs. Fall
The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids and biochemical energetics. Prerequisites: CHEM 377, CHEM 378, and CHEM 430.
CHEM 551 Biochemistry I Laboratory
4 hrs. Fall
This is the lab course that complements CHEM 550. Experiments involve more advanced techniques and instrumentation than in CHEM 436. Emphasis will be on purification and properties of proteins and nucleic acids. Prerequisites: CHEM 377, CHEM 378, and CHEM 430. CHEM 550 is either a prerequisite or corequisite.
CHEM 554 Biochemistry II
3 hrs. Spring
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 geologic 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.

CHEM 575 Advanced Chemical Synthesis
2 hrs.
This course provides a synthetic laboratory experience for undergraduates in conjunction with CHEM 570 and CHEM 515 capstone courses. The fundamentals of synthetic techniques will be exercised through independent synthetic laboratory projects and detailed investigations of molecular structure using modern spectroscopic methods. Students will get hands-on experience with modern spectroscopic instrumentation and will learn to utilize the chemical literature and databases. It is strongly recommended that CHEM 570 be taken before CHEM 575 to prepare students for spectral interpretation.
Prerequisites: CHEM 377, 378, 431, 520 or permission of the instructor.

CHEM 580 History of Chemistry
3 hrs. Spring
This course traces the roots of chemistry from ancient technology through alchemy and medicine to the chemical revolution of Lavoisier and Dalton. In more detail it examines the nineteenth century basis of modern chemistry and the twentieth century clarification of the structural atom.
Prerequisite: 16 hours of chemistry, including CHEM 370 or 375.

CHEM 590 Special Problems in Chemistry
2 hrs. Fall, Spring
Research work on a problem in chemistry in association with a faculty member. This research work is to be summarized in a written report. May be repeated once for credit.
Prerequisites: CHEM 436, 24 hours of chemistry, with approval of the department chairperson and a faculty director.

COMMUNICATION
Steven Rhodes, Chair

Communication is the principal mode for which society is made possible, by which people develop and exchange ideas, solve problems, and work cooperatively in attaining common objectives. Effective communication is an educational imperative for all human beings.

The 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 Humanities 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 Humanities competency requirements, by taking the required American Humanities courses, and by meeting the American Humanities curricular requirements. For details, please see the American Humanities 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 Humanities 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 professionals, 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 387-3197 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. The student has a minimum overall grade point average of at least 2.0.

Admission will be based on space available, overall grade point average, grades in pre-communication courses, and an essay which is part of the application. The deadlines for submitting 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 major’s course requirements. Declaration of a minor in communication must be made with a departmental advisor before the completion of nine semester hours of communication credit or journalism credit.
2. Students must earn a grade of “C” or better in all course work applied toward a major/minor program. For Journalism
majors and minors, a "B" or better must be earned in ENGL 105 or equivalent.

3. Prerequisites listed for all communication courses must be met. Students who have not completed the prerequisites with a grade of "C" or better, will be dropped from the class. All 500-level courses require junior or senior standing, in addition to any specific prerequisites listed.

4. Petition for exceptions to any departmental policies should be directed to the department chair.

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
COM 372 Introduction to General Semantics
COM 441 Documentary in Film and Television
COM 448 Telecommunications Management
COM 450 Public Relations Program Development

Students who have chosen to major in Journalism will satisfy the Baccalaureate Writing Requirement by successfully completing one of the major courses:

ENGL 362 Literary Journalism
JRN 420 Obligations of Contemporary American Journalism

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 Production .................................................................................................. 3
      COM 457 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 322 Group Problem Solving ......................................................................................................... 3
      COM 334 Introspection and Debate ...................................................................................................... 3
      *COM 370 Interpersonal Communication II .......................................................................................... 3
      COM 372 Introduction to General Semantics ....................................................................................... 3
      COM 432 Group Communication Theory ........................................................................................... 3
      COM 472 Nonverbal Communication .................................................................................................. 3

   F. 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 .................................................................................................................. 3
      COM 441 Documentary in Film/TV ....................................................................................................... 3
      COM 443 Media Theory/Social Semantics ............................................................................................ 3
      COM 444 Mass Communication/News/Public Affairs ......................................................................... 3
      COM 446 Mass Entertainment .............................................................................................................. 3
      COM 541 Telecommunications Law .................................................................................................... 3
      COM 551 Methods of Media Analysis .................................................................................................. 3

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.

*Requires approval by an advisor of a specific topic.

Communication Studies (COS) Major

36 hours
1. Pre-Communication Requirements ..................................................................................................... 9 hrs.
   COM 170 Interpersonal Communication I ......................................................................................... 3
   COM 200 Introduction to Communication Theory .............................................................................. 3

2. Communication Core Requirements .................................................................................................... 3 hrs.
   COM 104 Public Speaking ..................................................................................................................... 3

3. Upper-level Interpersonal Communication Requirements ................................................................... 15 hrs.
   A. Both of these courses are required (6 hrs.)
      **COM 305 Special Topics in Communication ..................................................................................... 3
      **COM 370 Interpersonal Communication II ........................................................................................ 3

   B. Select three of the following courses (9 hrs.):
      **COM 305 Special Topics in Communication ..................................................................................... 3
      COM 432 Group Communication Theory ........................................................................................... 3
      COM 472 Nonverbal Communication .................................................................................................. 3
      COM 474 Intercultural Communication ............................................................................................. 3
      COM 475 Family Communication ........................................................................................................ 3
      COM 477 Communication Ethics ......................................................................................................... 3
      COM 479 Female/Male Interaction ....................................................................................................... 3

   A. Select two of the following courses (3 hrs.):
      COM 335 Leadership ............................................................................................................................ 3
      COM 350 Public Relations in Organizations ......................................................................................... 3
      COM 430 Studies in Attitude Change .................................................................................................... 3
      COM 447 Organizational TV Production .............................................................................................. 3
      COM 474 Intercultural Communication ............................................................................................. 3
      COM 477 Communication Ethics ......................................................................................................... 3
      COM 493 Interviewing ............................................................................................................................ 3
COM 484 Health Communication ... 3

4. Interpersonal Electives ... 9 hrs.
Nine hours of electives in communication, six 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.

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 (*).

**Requires approval by an advisor of a specific topic.

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 Female/Male Reporting and Editing ... 4
   JRN 301 Copy and Content Editing ... 4

3. Advanced Journalism (4 hrs.)
   JRN 400 Reporting Public Affairs ... 4

4. Electives (8 hrs.)
   JRN 401 Electronic Editing ... 3
   ENGL 362 Literary Journalism ... 3
   ENGL 364 Feature and Article Writing ... 3
   ENGL 365 Reporting 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 Television Criticism ... 3
   COM 447 Communication Ethics ... 3
   COM 448 Telecommunications Management ... 3
   COM 455 International Telecommunications Policy ... 3
   COM 456 Broadcast/Cable Programming ... 3
   COM 541 Telecommunications Law and Policy ... 3
   COM 554 Communication Technology ... 3

5. Capstone Experience (3 hrs.)
   *JRN 420 Obligations of Contemporary American Journalism ... 3

6. Internship (1 hr.)
   ENGL 485 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.

Media Studies (MDS) Major

36 hours

1. Pre-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. Media Studies Emphasis Core Requirements ... 9 hrs.

   A. This course is required:
   COM 240 Introduction to Media and Telecommunications ... 3

   B. Select one of the following courses (3 hrs.):
   COM 104 Public Speaking ... 3
   COM 106 Voice and Dictation ... 3
   COM 210 Performance of Literature ... 3

   C. Select one of the following courses (3 hrs.):
   COM 257 Radio Programming and Production ... 3
   COM 355 Small Format Video Production ... 3
   COM 356 Film Production ... 3
   COM 357 TV Studio Production ... 3
   *COM 358 TV/Film Scripting ... 3

   3. Upper-level Media Studies Emphasis Requirements ... 18 hrs.
   Two courses from each of the following groups required:

   A. Select two of the following courses (6 hrs.):
   COM 342 The Film Industry ... 3
   COM 343 American Film History ... 3
   *COM 441 Documentary in Film/TV ... 3
   *COM 445 Media Criticism ... 3
   COM 551 Methods of Media Analysis ... 3

   B. Select two of the following courses (6 hrs.):
   *COM 305 Special Topics in Communication: 1-4
   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 448 Telecommunications Management ... 3

   C. Select two of the following courses (6 hrs.):
   COM 455 International Telecommunications Policy ... 3
   COM 456 Broadcast/Cable Programming ... 3
   *COM 541 Telecommunications Law and Policy ... 3
   COM 554 Communication Technology ... 3

   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 (*).

   **Requires approval by an advisor of a specific topic.

Organization Communication (OCM) Major

36 hours

1. Pre-Communication Requirements ... 9 hrs.
   COM 170 Interpersonal Communication I ... 3

   2. Communication Core Requirements ... 6 hrs.
   COM 104 Public Speaking ... 3
   COM 280 Introduction to Organizational Communication ... 3

   3. Upper-level Organizational Communication Requirements ... 15 hrs.

A. Both of these courses are required (6 hrs.):
   *COM 335 Leadership ... 3
   COM 480 Applied Topics in Organizational Communication ... 3

B. Select three of the following (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 ... 3
   COM 440 Public Relations Case Studies ... 3
   COM 447 Organizational TV Production ... 3
   COM 448 Telecommunications Management ... 3
   COM 450 Public Relations Program Electives ... 3
   COM 445 Interactive Media ... 3
   COM 474 Intercultural Communication ... 3
   COM 477 Communication Ethics ... 3
   COM 479 Female/Jewish Studies ... 3
   COM 483 Interviewing ... 3
   COM 484 Health Communication ... 3
   COM 554 Communication Technology ... 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.

   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 (*).

   **Requires approval by an advisor of a specific topic.

Public Relations (PUR) Major

49-50 hours

1. Pre-Communication Requirements ... 6 hrs.
   COM 170 Interpersonal Communication I ... 3
   COM 200 introduction to Communication Theory ... 3

2. Public Relations core requirements ... 30 hrs.

   A. Required courses (12 hrs.)
   COM 280 Introduction to Organizational Communication ... 3
   *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 358 Television and Film Scripting ... 3
   *COM 359 Broadcast Journalism ... 3

   C. Select one of the following (3 hrs.)
   COM 332 Group Problem Solving ... 3
   *COM 335 Leadership ... 3
   COM 430 Studies in Attitude Change ... 3
D. Select two of the following (6 hrs.):
- COM 256 Broadcast Operations  
- COM 257 Radio Programming and Production  
- COM 355 Small Format Video Production  
- COM 356 Film Production  
- COM 357 Television Studio Production  
- COM 447 Organizational TV Production  
- COM 458 Television Performance  

E. Select two of the following (6 hrs.):
- COM 240 Introduction to Media and Telecommunications  
- COM 434 Media Theory and Social Change  
- COM 444 Mass Communication, News and Public Affairs  

3. Cognate Course Requirements  
   13-14 hrs.  

A. These courses are required (7 hrs.):
- PAPR 150 Fundamentals of Graphic Arts  
- JRN 102 Introduction to News Writing  

B. Select one of the following (3 hrs.):
- PAPR 251 Design and Electronic Publishing  
- COM 454 Interactive Media  
- COM 499 Internship  

C. Select one of the following (3-4 hrs.):
- JRN 200 Journalism Research  
- ENGL 364 Feature/Article Writing  

* Baccalaureate-level Writing Requirement: These courses can be used to fulfill either the Baccalaureate-level Writing Requirement or the elective, but not both.

** Baccalaureate-level Writing Requirement: This course satisfies the requirement.

Recommended minors include: Journalism, General Business, Marketing, Management, and Public Administration. Recommended majors include: Public Administration, Advertising, Environmental Studies, and Travel and Tourism.

TORRENTIAL MARSHALL

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.

A. Critical Communication Theory — Select one course (3 hrs.):
- COM 305 Special Topics in Communication  
- COM 307 Freedom of Expression  
- COM 442 Mass Media and the Child  
- COM 443 Media Theory/Social Change  
- COM 444 Mass Communication News/Public Affairs  
- COM 446 Mass Entertainment  
- COM 477 Communication Ethics  

B. Telecommunications — Select one course (3 hrs.):
- COM 256 Broadcast Operations  
- COM 342 The Film Industry  
- **COM 452 Broadcast and Cable Sales  
- **COM 454 Interactive Media  
- COM 455 International Telecommunications Policy  
- **COM 506 Satellite and Wireless Telecommunications  

C. Organizational Theory and Practice — Select one course (3 hrs.):
- COM 104 Public Speaking  
- COM 280 Introduction to Organizational Communication  
- COM 332 Group Problem Solving  
- **COM 335 Leadership  
- **COM 350 Public Relations and Organizations  
- COM 440 Public Relations Case Studies  

D. Select two of the following (6 hrs.):
- **COM 335 Leadership  
- **COM 350 Public Relations and Organizations  

Baccalaureate-level Writing Requirement:

*COM 104 or consent of department.

JRN 102 Introduction to Newswriting  
JRN 200 Journalism Research  
JRN 300 Newswriting and Reporting  

JRN 420 Obligations of Contemporary American Journalism  

Communication Courses (COM)

A list of approved General Education courses can be found in "Graduation 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.

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.  
This course introduces students to the humanistic and social science traditions of inquiry into human communication.

COM 204 Advanced Public Speaking 3 hrs.  
Advanced study and presentation of informative, argumentative, persuasive and special occasion speeches. Prerequisite: COM 104 or consent of department.
COM 207 Intrapersonal Communication 3 hrs.
The examination of intrapersonal communication models showing how imagery and symbols 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.

COM 240 Introduction to Media and Telecommunications 3 hrs.
This course proposes to help students attain understanding of how media and telecommunications 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.
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.

COM 256 Broadcast Operations 3 hrs.
Introduction to the electronic theory, equipment, operating procedures and personnel involved in radiotelevision 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 types of aural messages. Prerequisites: 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.
General study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Most 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; others 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 and COM 505 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 expression in the workplace, international differences in speech rights, and other topical free speech issues.

COM 332 Group Problem Solving 3 hrs.
This course examines principles and procedures of effective group communication with an emphasis on 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. 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. Students will also gain practical experience in managing forensic activities.

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. 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: ENGL 105 or the equivalent.

COM 359 Broadcast Journalism 3 hrs.
This course will study the history of radio broadcasting as a mass communication medium, including its political, social, and economic impact on society. Emphasis will be on the development of radio broadcasting as a medium of communication in the United States, and the role of the journalist in a democratic society.

COM 360 Broadcast Operations 3 hrs.
This course will provide an in-depth study of the technical aspects of broadcasting, including the production of radio and television programs. Topics will include studio and field production, audio and video equipment, operating procedures and studio management. Prerequisites: COM 200, COM 256.

COM 365 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. Prerequisites: COM 200, COM 256.

COM 367 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. Prerequisites: COM 200, COM 256.

COM 385 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 390 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.

COM 395 Broadcast Journalism 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.

COM 397 Interpersonal Communication II 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.

COM 398 Independent Study Communication 1–4 hrs.
Designed to allow outstanding students to work independently under staff supervision. Includes extensive study, research or special
creative projects in any of the several areas of communication. One to six hours credit may be accumulated. Prerequisite: 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 may be taken for 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. Freedom of Speech
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 issues of 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. 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 have 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.
The course 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, institutional, educator, media specialist, and the clinician. Utilization of electronic media for training, research observation and instruction. In addition to required test materials, students must provide supplies averaging about $10 per student. Prerequisites: 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 selected management issues. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: 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 management techniques, 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. Prerequisites: COM 200, COM 350.

**COM 452 Broadcast and Cable Sales** 3 hrs.
This course examines the role 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 essentials of 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. 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. Prerequisites: COM 200, COM 357.

**COM 458 Television Performance** 3 hrs.
Exercises in television performance, stressing the special problems of the video performer. 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.
The course examines theory and research in the nature and function of nonverbal message systems. Topics include: the role of nonverbal communication in the developmental stages of humans; individual differences in ability to interpret messages; the relationship of nonverbal communication to the concept of culture; extension of a person such as space, clothing, possessions; and specific messages related to the human 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.
Examines the variable of gender as it influences communication between women and men. Topics include female-male stereotypes, interpersonal attraction, differences in female-male verbal and nonverbal codes, relational dialogues and patterns, and female-male interaction on the job.

**COM 480 Applied Topics in Organizational Communication** 3 hrs.
This course will enable students to master knowledge and skills in an applied specialty area of organizational communication. Students will participate in an extensive hands-on project addressing a pragmatic problem in an organizational setting. Topics will vary. Six hours of COM 480 may be taken for credit toward the Organizational Communication major. Specific topics may not be repeated for credit. Prerequisites: COM 201, COM 280.
COM 483 Interviewing
3 hrs.
Theories and principles of planning, conducting, and evaluating interviews are studied and applied to specific interview types, including selection, performance appraisal, survey, and journalistic interviews. Emphasis is placed on the perspective of the interviewee rather than the interviewer.

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 300 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 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 Department office, 301 Sprau Tower. Six hours of COM 505 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 541 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. Prerequisites: 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, sociological, structural, historical, ideological, psychological) by intensive “reading” and shot sequence examination and evaluation of widely divergent works. Prerequisites: 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. Prerequisites: Junior or senior standing and COM 240, or graduate standing.

COM 560 Teaching Communication
3 hrs.
This course provides an overview of telecommunications networking technologies, standards, and protocols. Network configurations, switching technologies and signaling standards that sustain voice and data communications networks, corporate networks, and advanced intelligent networks are major sections of the course. Prerequisites: 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 the fundamental journalistic principles and provides extensive practice in writing for newspapers. It focuses on developing basic newswriting skills, practice in grammar, punctuation, language, and conventions of written English and knowledge of newswriting 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 systematic development of search strategies for researching news 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, interviews, trials, news conferences, public meetings, disasters and tragedies. Students spend time outside of the classroom covering these events on campus and in the Kalamaazoo 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 COM 105.

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, typographic, 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 M. 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. Gings. 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, politics, courts, police, health, science, and 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 construction 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.
COMPARATIVE RELIGION

Brian C. Wilson, Chair
Stephen G. Covell
David Ede
Nancy Falk
Julia Harmon
E. Thomas Lawson
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
314 Antebellum African-American Religion
315 African-American Religion in the 20th Century
500 Historical Studies in Religion

COMPARATIVE STUDIES IN RELIGION

311 Myth and Ritual
313 Religion in America
318 Morphological and Phenomenological Studies in Religion
320 Women in Religion

METODOLOGICAL STUDIES IN RELIGION

321 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
596 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 is designed to introduce students to key issues, themes, and sacred texts and writings within African-American religion and culture during the antebellum period. It emphasizes the role of the African slave in the emergence of African-American thought and addresses the evolution of that consciousness in the rise of the Black Church. Issues of faith, identity, race, gender, violence and fear are addressed in light of the African slave's understanding of biblical motifs and traditional African worldview. The course addresses these issues in light of the African Diaspora by looking at the transmigration of culture from such places as West Africa and the Caribbean.

This course is designed to introduce students to the evolution of black religious thought and culture in America during the 20th century. It emphasizes the rise of the Black Church and its expanding role within black urban communities in America. Another component of the course addresses the emergence of other religious belief systems in contemporary Black culture such as Voodoo, Santeria, Spiritist churches, the Nation of Islam and even Black Judaism. Issues of race, class, gender, identity, and violence will be points of discussion in light of black religious life.

REL 320 The Philosophy of Religion 4 hrs.
An examination of the place of religion in human experience with special attention to the nature of religious language, the role and structure of religious concepts, the relation between religion and theology, and the logic of religious symbols.

REL 323 Religion and Revolution 4 hrs.
This course will explore, investigate and compare different religions in different cultures as driving forces of social and cultural change. The course will examine the conservative and progressive roles the religions of the world play in familial, social, economic, and political stability and change. Different approaches to analyzing these forces and roles will be examined, but particular emphasis will be placed upon the contribution of critical theory and its dialectical method of thinking. The course will stress communicative ethics and discourse theory of rights and of the democratic constitutional state.

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 more contemporary psychological approaches to religion.

REL 332 Religion and Social Ethics 4 hrs.
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 and attitudes toward the social world intrinsic to these different ethical norms. While the course will emphasize the variety of ethical responses to social problems provided by the religions of the world as well as to secular approaches it will pay particular attention to problems raised and solutions proposed by critical theorists about issues such as abortion, euthanasia, artificial insemination, race, gender, class, war and peace, poverty and ecological catastrophes. The course will stress communicative ethics, the discourse theory of rights, and of the democratic constitutional state.
REL 334 Religion in Modern Society
4 hrs.
Whereas a major focus of the systematic study of religion is upon religious traditions, or aspects of them, it is important that attention also be paid to the questions raised by the various contexts in which religion occurs as well as to questions raised by the methods developed in studying religion in such contexts. The specific context of religion to be studied in this course is that of industrial society. For religion to be understood in more than historical terms, it is important that attention be paid to this kind of context. As a consequence of such a focus questions also are raised about the methods developed to specify and delineate such contexts and the role that religion plays in them. This provides an occasion for raising questions about the assumptions underlying such methods and about their relationship to the systematic study of religion.

REL 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; Buddhism; Taoism; Shinto; New Religions of Japan; Religion in Japanese Literature, Islam in the Modern World, Christian Theology 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 men 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 religious 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 598 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

Economics

Bassam E. Harik, Chair
Donald L. Alexander
Eskander Alvi
Sisay Asefa
Kelly DeRango
Matthew L. Higgins
Emily P. Hoffman
Kevin M. Hollenbeck
Susan N. Houseran
Wei-Chiao Huang
James Huang
William S. Kern
Jean Kimmel
Donald J. Meyer
Debasri Mukherjee
Jon R. Neill
Christopher J. O'Leary
Susan Pozo
Michael Ryan
Werner SicHEL
Edward Van Westep
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 Economic Statistics (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
- 100 Economics for Elementary Education
- 107 Economic Issues in the U.S. Today
- 108 Contemporary International Economic Issues
- 109 History of Modern Economic Society

PRINCIPLES OF MICROECONOMICS
- 201 Principles of Microeconomics
- 202 Principles of Macroeconomics
- 301 Economic Issues: Variable Topics
- 400 Managerial Economics
- 402 Introductory Economic Statistics
- 403 Intermediate Microeconomics
- 406 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 Environmental Economics
- 515 Economics of Human Resources

MONEY, CREDIT AND FINANCE
- 320 Money and Banking
- 324 Public Finance
- 507 Monetary Theory and Policy
- 525 State and Local Government Finance

INDUSTRIAL ORGANIZATION AND PUBLIC CONTROL
- 334 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
- 596 Readings in Economics

Economics Courses (ECON)

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

ECON 100 Economics for Elementary Education
3 hrs.
This course is designed to provide students with an understanding of fundamental economic concepts that are the building blocks of the fields of microeconomics and macroeconomics. These are necessary for understanding and analyzing problems from an economic perspective.

ECON 107 Economic Issues in the U.S. Today
3 hrs. Fall, Spring
A nontechnical 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.
A nontechnical economic approach to 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.
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, Spring, Summer I, Summer II
An introduction to microeconomics, the study of the price system and resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system.

ECON 202 Principles of Macroeconomics
3 hrs. Fall, Spring, Summer I, Summer II
An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and introduction to international trade and development. For students who plan to take 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, tax reform, and NAFTA. Prerequisite: One college-level economics course.

ECON 304 The Organization of Industries
3 hrs. Fall, Spring, Summer I or Summer II
This course examines the various ways in which the organization of industries affects pricing and other business behavior and more generally, competition and resource allocation. The topics covered will include the theory of competitive markets, the theory of monopoly and the theories of oligopoly. The course will address the policy implications of various horizontal and vertical agreements among firms in industries. Prerequisite: ECON 201.

ECON 309 Women and the Economy
3 hrs. Fall, Spring
This course studies the role of women in the economy, both in the labor force and the household, and women's economic status. Topics covered include gender discrimination, the feminization of poverty, and the effects of public policies on the economic status of women. Prerequisite: A college-level economics class.

ECON 310 Labor Economics
3 hrs. Fall, Spring, Summer I or Summer II
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisite: ECON 201.

ECON 318 The Economics of Medical Care
3 hrs.
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 319 Environmental Economics
3 hrs. Fall, Spring, Summer I or Summer II
The study of economic aspects of environmental problems. Benefit-cost analysis is introduced and applied to problems in the management of air, water and other natural resources. Environmental problems of selected industries—including transportation and electric power—economic growth, population and environmental quality are analyzed. Prerequisite: ECON 201.

ECON 320 Money and Banking
3 hrs. Fall, Spring, Summer I or Summer II
An analysis of the role of money and its impact on the economy-on inflation, unemployment, interest rates, income, and foreign exchange. The operations and relationships of commercial banks and the Federal Reserve are examined. Prerequisites: ECON 201 and ECON 202.

ECON 324 Public Finance
3 hrs. Fall, Spring, Summer I or Summer II
Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation. Prerequisite: ECON 201.

ECON 345 Business, Government, and Society
3 hrs. Fall, Spring, Summer I or Summer II
This course examines the interrelationships among business, government and society. The course attempts to provide insights into how, when and why government policy towards business firms can either benefit or harm society. Topics covered include antitrust policies, economic regulation and social regulation. Prerequisite: ECON 201.

ECON 380 International Economics
3 hrs. Fall, Spring, Summer I or Summer II
A study of the fundamentals of international trade and related problems, with special reference to the implications of the international economic policies of the United States both for the economy and for the firm. Prerequisites: ECON 201 and ECON 202.

ECON 385 Central and East European and Central Asian Economies
3 hrs.
This course examines the interaction between economic and cultural changes emerging during periods of transition in Central and Eastern Europe and the former Soviet Union. Prerequisite: A college-level economics course.
ECON 388 African Economies
3 hrs. Fall or Spring
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 class.

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, 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; MATH 116 or MATH 216 or equivalent.

ECON 403 Intermediate Microeconomics
3 hrs. Fall, Spring, Summer I or Summer II
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 404 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.

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.

ECON 501 Studies in Economic Problems: Variable Topics
3 hrs. Fall or Spring
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.
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.
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.
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.
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 591, 592 Guest Economist Seminar
1 hr. Fall, Spring
Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary and courses may be repeated. Prerequisites: ECON 201 and 202.

ECON 598 Readings in Economics
1-3 hrs. Fall, Spring
An independent program of study for qualified advanced students to be arranged in consultation with the instructor. Prerequisite: Consent of instructor and department chairperson.
ENGLISH

W. Arnold Johnston, Chair
Thomas Bailey
Miriam Bat-Ari
Ellen Brinkley
Jonathan E. Bush
J.D. Dolan
Rollin Douma
Margaret Dupuis
Stuart Dybek
Philip Eggan
Nancy Elmers
Stephanie Gauper
C.J. Gianakaris
Jarny Gordon
Georgina Hill
Robert Hinkel
Paul Johnston
Katherine Joslin
Jill Larson
Christopher C. Nagle
Ilana Nash
William Olsen
Gwen Raaberg
Eve Salisbury
John Saillant
Jana Schulman
Herbert Scott
Gwen Tarbox
Larry tenHarmsel
Grace Tiffany
Karen Vocke
Daneen Wardrop
Constance Weaver
Allen Webb
Nicolas S. Witschi

The Department of English serves students in two principal ways: In developing their power to communicate and express themselves and especially writing, are important.

Major and Minor Requirements

1. The requirements for the English majors (listed below) allow students some choices in their courses of study. As soon as students decide to major in English they should confer with one of the English advisors, who can help plan the major. All major programs must be approved by an English advisor. Minor slips are required for all minors. Students minorning in English should see the advisor as soon as possible after they begin work on the minor.

2. A minimum of 34 hours is required for a major in English, 20 hours are required for a minor, and 21 hours for students in the Elementary Education curriculum. Students are urged, however, to take as many additional hours as they can. In particular, students planning to teach or attend graduate school should consider taking additional work in preparation.

3. Only courses in which a grade of “C” or better is earned may be applied to an English major or minor. Moreover, all majors and minors in the Department of English need to earn at least a 2.5 grade point average in the major or minor to graduate.

4. Foreign Language Requirement: Eight semesters hours of a foreign language with a grade of “C” or better, or two years of foreign language in high school with a final semester grade of “B” or better, or appropriate score on a placement exam. The department recommends as much additional work in the language as students can manage. Students planning to do graduate work beyond the M.A. ought to develop competence in at least one foreign language.

5. Special Note to Transfer Students. All transfer students majoring or minoring in English should consult with one of the department’s undergraduate advisors (387-2575) about transferring credit in English courses. An early conference will enable students to avoid duplication of courses and possible loss of transfer credit and may enable them to bypass some of the department’s basic requirements as listed below. It is departmental policy to accept no more than 20 hours of transferred credit toward a major or minor and 21 hours for students in the Elementary Education curriculum. Students who use ENGL472 to satisfy requirement 3.B. may not use that course to satisfy this requirement.

C. Two courses at the 400 level, including at least one of the following four:

ENGL 415 Practical Literary Writing
ENGL 442 Studies in Drama
ENGL 531 British Literature II
ENGL 532 Renaissance Literature

ENGL 452 Shakespeare Seminar
ENGL 522 Studies in American Literature
ENGL 536 Romantic Literature
ENGL 537 Victorian Literature
ENGL 555 Studies in Major Writers

Special Note to Non-Majors

The Department of English offers many courses, including a variety of writing courses, suitable for students not majoring in English: 106 Thought and Writing, 107 Good Books, 110 Literary Interpretation, 111 Myd and Folk Literature, 112 Literary Classics, 150 Literature and Other Arts, 210 Film Interpretation, 222 Literatures and Cultures of the United States, 225 Black American Literature, 252 Shakespeare, 266 Writing Fiction and Poetry, 282 Children’s Literature, 305 Practical Writing, 307 Literature in Our Lives, 308 Quest for Self, 311 Our Place in Nature, 312 Western World Literature, 313 Asian Literature, 314 African Literature, 315 The English Bible as Literature, and certain advanced courses that may be appropriate to the interests and background of the student. Many of these English courses may be used to satisfy General Education requirements.

D. At least two of the following courses:

ENGL 212 Styles of World Literature
ENGL 312 Western World Literature
ENGL 313 Asian Literature
ENGL 314 African Literature
ENGL 539 Post-Colonial Literature
ENGL 581 Multicultural Literature for Adolescents

English Major—Secondary Education Curriculum

34 hours plus 4-hour Professional Component

1. Required Entry-Level Course (4 hrs.)

2. Required Courses (24-26 hrs.)

Choose one course from each category

A. British Literature (3 hrs.)

B. American Literature (3 hrs.)

C. Adolescents Literature (3 hrs.)

D. Multicultural American Literature** (3-4 hrs.)

3. Elective Courses

At least one additional English Department course at the 200, 300, 400, or 500 level 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 100, 105, 107, 111, 112, 307, 308, 311 or 480.

Foreign Language Requirement

Minimum of two semesters of a modern or classical foreign language at the college level with a grade of “C” or better, or two years of such study at the high school level. 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—Liberal Education Curriculum

34 hours

1. Required English Major—Liberal Education

1. Required Entry-Level Course (4 hrs.)

ENGL 110 Literary Interpretation

2. Required Courses (27/28 hrs.)

A. Three of the following four:

ENGL 320 American Literature I
ENGL 321 American Literature II
ENGL 330 British Literature I
ENGL 331 British Literature II

B. One of the following three:

ENGL 371 Structures of Modern English
ENGL 372 Development of Modern English
ENGL 472 American Dialects

ENGLISH 73
5. Foreign Language Requirement

Minimum of two semesters of a modern or classical foreign language at the college level with a grade of "C" or better, or two years of 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.

"When approved as a cognate by the departmental advisor, SPAN 275 Latino Literacy and Culture can be used to meet foreign language requirement D above; LANG 375 Foreign Language in Translation or any foreign language literature class at or above the 300-level can meet requirement E above.

English Major—Creative Writing Emphasis

34 hours

1. Required Entry-Level Course (4 hrs.)
   ENGL 110 Literary Interpretation 4

2. A. Required Writing Courses (14 hrs.)
   ENGL 266 Writing Fiction and Poetry 4
   ENGL 506 Creative Writing Workshop 4

   B. Plus six (6) hours of credit from the following courses. Any of these courses may be repeated one time for credit.
   ENGL 366 Advanced Fiction Writing 3
   ENGL 367 Advanced Poetry Writing 3
   ENGL 368 Playwriting 3

3. Literature and 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
      ENGL 332 British Literature III 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 one additional English Department course 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, or 480.

5. Foreign Language Requirement

Minimum of two semesters of a modern or classical foreign language at the college level with a grade of "C" or better, or two years of such study at the high school level. 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 332 British Literature III 3

3. 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.)
   (Prerequisite: Grade of "B" or better in ENGL 105 or equivalent)
   ENGL 100, 105, 107, 111, 112, 307, 308, 311, or 480.

2. Required Advanced Courses (9-11 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. One of the following courses:
      ENGL 320 American Literature I 3
      ENGL 321 American Literature II 3

   C. One course in multicultural American literature and/or language, selected from the following:
      ENGL 222 Literatures and Cultures of the United States 3
      ENGL 223 Black American Literature 4
      ENGL 472 American Dialects 4
      ENGL 583 Multi-Cultural American Literature 4

3. Professional Component

   A. ENGL 479 Writing in the Secondary School (4 hrs.)
   B. ENGL 480 Teaching Literature in the Secondary Schools (4 hrs.)
   Or
   ENGL 574 Grammar in Teaching 4

English Minor—Elementary Education Curriculum

21 hours

1. Required Entry-Level Courses (8 hrs.)
   ENGL 110 Literary Interpretation 4
   ENGL 372 Literature for the Young Child 4
   OR
   ENGL 383 Literature for the Intermediate Reader 4

2. Required Literature Course (3-4 hrs.)
   One of the following courses:
   ENGL 223 Black American Literature 4
   ENGL 252 Shakespeare and the Young 4
   ENGL 312 Western World Literature 3
   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.)

3. Required Advanced Courses (8 hrs.)
   These courses are restricted to students who have been admitted to the College of Education.
   ENGL 369 Writing in the Elementary School 4
   ENGL 373 Reading as a Psycholinguistic Process 4

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
English Minor with Writing Emphasis

20 hours

1. Required Entry-Level Courses (8 hrs.)
   - ENGL 110 Literary Interpretation
   - ENGL 266 Writing Fiction and Poetry

2. Literature Course (3 hrs.)
   - One course chosen from the following:
     - ENGL 320 American Literature I
     - ENGL 321 American Literature II
     - ENGL 330 British Literature I
     - ENGL 331 British Literature II

3. Advanced Writing Courses (6-8 hrs.)
   - Two of the following courses:
     - ENGL 365 Practical Writing
     - ENGL 364 Feature and Article Writing
     - ENGL 366 Advanced Fiction Writing
     - ENGL 367 Advanced Poetry Writing
     - ENGL 462 Advanced Writing
     - ENGL 365, 367, and 366 may be repeated one time for credit.

4. Electives
   - At least one additional English Department course.
   - The following courses cannot be used for this purpose: ENGL 100, 105, 107, 111, 112, 307, 308, 311, 375, 376, 479 or 480.

Practical Writing Minor

20 hours

1. Required Entry-Level Course (4 hrs.)
   - ENGL 110 Literary Interpretation

2. Required Courses (14 hrs.)
   - ENGL 305 Practical Writing
   - ENGL 364 Feature and Article Writing
   - ENGL 366 Advanced Fiction Writing
   - ENGL 367 Advanced Poetry Writing
   - ENGL 462 Advanced Writing

3. Literature Courses (3 hrs.)
   - One course chosen from the following:
     - ENGL 312 World Literature
     - ENGL 313 Asian Literature
     - ENGL 314 African Literature
     - ENGL 315 The English Bible as Literature
     - ENGL 320 American Literature I
     - ENGL 321 American Literature II
     - ENGL 330 British Literature I
     - ENGL 331 British Literature II

4. Electives
   - At least one additional English Department course.
   - The following courses cannot be used for this purpose: ENGL 100, 105, 107, 111, 112, 307, 308, 311, or 480.

English Courses (ENGL)

A list of approved General Education courses can be found in "Graduation 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 experience and ideas, and to develop imagination, thought, organization, and clarity in their written work. Does not count as credit toward 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.

ENGL 110 Literary Interpretation
4 hrs.
An introduction to the study of literature. Credit toward English major or minor.

ENGL 112 Literary Classics
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.

ENGL 111 Myth and Folk Literature
3 hrs.
Exploration of myth and folklore 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 Homer to the present. The works studied are chosen to introduce students to the rich and diverse literary traditions which represent an invaluable aspect of their heritage. Recommended for the general student as well as for potential English majors or minors, does not, however, count for English major or minor credit.

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 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. Prerequisite: ENGL 110. Theatre majors exempt from the prerequisite.

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 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). 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 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 towards 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 towards 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 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 Apocalypse. 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 Boswell. Prerequisites: ENGL 105 (or equivalent); ENGL 110.

ENGL 331 British Literature II 3 hrs.
A survey of British literature from the Romantics 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 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 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 thorough 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 the syntactic analyses 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 their 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 relationships between the development of reading and writing ability. Emphasizes the application of current research in the elementary classroom.

ENGL 382 Literature for the Young Child 4 hrs.
An exploration of human and literary values in the best of children's works for the very young through age nine. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature. Discussion will focus on how literature is first learned through adult-child interaction and how interaction creates and forms and on how the more experienced reader comes to prose and poetry. Novels will be explored both in terms of literary structure and content and in terms of what makes a piece of literature work for children. Genres such as historical fiction, realistic fiction, nonfiction, fantasy, and survival literature will be considered. Ever-growing complexity in structure and content will be evaluated as they relate to child's biological, psychological, and mental development, and in the context of cultural and historical change. How media influence literature will be explored as well as the changing population of child-readers and what that means for book production.

ENGL 384 Adolescent Literature 3 hrs.
This course focuses on an analysis of literature for adolescents from a variety of critical and culturally diverse perspectives. It emphasizes the adolescent experience as reflected in literature, the history of adolescent literature and media, and the distinguishing features of classical and contemporary works.

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 studies. 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 relationship to theories of poetry. Attention shall be paid to 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. 
Prerequisites: ENGL 110 or 252.

ENGL 482 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 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 4 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 of course work in English, including ENGL 382 or 383.

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 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 to 500 level courses are: 18 hours of English courses including eight or more hours 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, Milt, Dickens, Thackeray, George Eliot, Tennyson, Robert Browning, Elizabeth Barrett Browning, and Arnold.

ENGL 538 Modern Literature 3 hrs.
Readings in representative writers of 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 566 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. 
Prerequisites: Six hours of creative writing, graduate standing, or permission of the department.

ENGL 574 Grammar in Teaching Writing 4 hrs.
Dealing with issues and methods in the teaching of grammar, this course for teachers focuses on grammar to develop content, style, and voice, and skill in revising and editing writing. 
Prerequisites: 16 hrs of English course work, including 8 or more hours at the 300- or 400-level, and second semester junior status.

ENGL 582 Studies in Children's Literature 3 hrs.
A study in depth of significant themes, movements, types in children's literature. 
Prerequisites: ENGL 382 or 383 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 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 161 Acquiring Fluency and Accuracy in English: Emphasis on Speaking and Listening 5 hrs.
This course will help international students develop fluency in speaking and effectiveness in listening to English by completing a series of tasks designed to develop their grammatical, sociolinguistic, and discourse competence in oral language. Attention will be paid to developing interpersonal interaction skills, both social and classroom, and basic lecture-listening skills. 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 their academic world. The course promotes further development in the ability to read academic prose and to write in the genres needed for academic success, including the research paper. Attention will be paid to critical reading and editing for grammatical correctness in writing. Prerequisite: 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.

FOREIGN LANGUAGES

Cynthia Running-Johnson, Chair
Hideko Abe
Peter Bickler
Vincent Desroches
Ako Fukushima
Diethe H. Hasnicke
Rand H. Johnson
Peter W. Krawutschke
David Kutzko
Mustata Mughazy
Dasha Nisula
Molly Recchia
Eric Rustell-Webb
Herman Teichert
Xiaojun Wang
Lindsey Wilhite

The Department of Foreign Languages offers undergraduate instruction in Arabic, Chinese, French, German, Greek, Italian, Japanese, Latin, and Russian, including course work in culture, literature, linguistics, and pedagogy.

Students (either entering or advanced) who wish to continue in a language they have studied in high school need to include travel or residence abroad 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 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 a foreign language, they should confer with the advisor for that language in order to plan their program. Major slips are required for all majors. Minor slips are required for all minors.

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

For students majoring or minoring in a modern foreign language, a course in modern European, Asian, or Middle Eastern history is desirable. For Latin majors and minors, a course in Roman history is recommended. 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.
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 or 453. Neither GER 400 nor 401 can be counted toward the minor. LANG 558 cannot be included in this minor.

German Minor: Education Curriculum
Twenty-three hours beyond the 100-level to include GER 200, 201, 316, 317, 322, 325, 452 or 453, and LANG 558 and one 500-level literature course. Neither GER 400 nor 401 can be counted toward the minor.

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

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) courses or equivalent; remaining hours from RUSS 200-500 series. Teaching minors must elect LANG 558.

World Literature Minor
The Departments of English, Foreign Languages, and Spanish 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, 387-3118.

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 by 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 Latin or a minor in Russian. The course may be taken in more than one language area.

CLASSICS COURSES IN ENGLISH
LANG 350 Classical Greek and Roman Mythology 3 hrs.
Investigates the origins, elements, and interpretations of the principal myths and legends of Greece and Rome and their preservation not only in literature, but also in painting, music, and sculpture. No prerequisite.

LANG 351 The City of Gods: Power and Morality in the Roman World 3 hrs.
The foundation myth of Rome combines elements of the sacred with the profane and fraticide. This course explores the complex and often paradoxical relationship between Rome's power and morality as portrayed by prominent writers. The evolving sense of Roman morality provides a perspective for understanding and appreciating morality, or moralities, today. Works from a variety of genres may be studied, including biography, epic poetry, satire, political oratory, and essays.

LANG 550 Independent Study in Classics 1–3 hrs.
Directed, individual study of a specific topic related to Classical languages, literature, and/or culture. Prerequisite: Completion of four courses or equivalent in classics; minimum grade point average of 3.0 in the major, departmental approval required. May be repeated for credit.

LANGUAGE TEACHING COURSE
LANG 558 Modern Language Instruction (in French, German, Spanish, or other language) 3 hrs.
Required for modern language teaching majors and minors. This course acquaints prospective language teachers with various approaches and strategies involved in modern
language teaching. Specifically, in a performance oriented program, students will learn theory and practice related to teaching the listening, speaking, reading and writing skills, as well as the culture component. Students must complete this course before beginning directed teaching.

Prerequisite: Minimum of four courses including a language at the 316 and 317 level, or equivalent, or permission of instructor. This course will be offered regularly. The comparable methods course for Latin is LAT 557 Teaching of Latin.

FOREIGN LANGUAGES FOR SPECIAL PURPOSES

LANG 580 Foreign Language for Special Purposes
1–12 hrs.
The study of or practice in a specialized area in the field of foreign language and culture such as court interpreting, medical or engineering terminology, or public school administration. The content of this course may vary from semester to semester. Students may repeat the course for credit, provided the subject matter differs. Prerequisite: Completion of four courses in area of specialization, departmental approval required.

Arabic Courses (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, religion, 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.

Asian and Middle Eastern Languages Course (AMEL)

AMEL 500 Special Topics in World Languages
3 hrs.
This topic to be announced in the Schedule of Course Offerings. 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.

Chinese Courses (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 210 Business Chinese
3 hrs.
This course is designed to introduce students to various aspects of Chinese business culture and to provide basic business Chinese training. By linking the relationship between business culture and business language, this course will equip students with basic language skills and knowledge to do business in Chinese speaking countries and areas or with Chinese companies. Topics such as the following will be studied: The first business meeting, business negotiation, business connection; signing a contract, shipping and handling, and foreign trade corporations. The prerequisite for taking this course is one year of basic Chinese or the equivalent. We will emphasize communicative activities, and combine the language training with the introduction of Chinese business culture.

Although students have different language background, all students are required to make a good faith effort to speak the target language at every relevant opportunity. It is our goal to use as much Chinese as possible while participating in this program. By the end of the course, students should be able to actively participate in basic business conversations.

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 main themes covered by this course are mostly literary, linguistic, 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, morphology 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 oral activities. Emphasis on both listening and speaking of the language. Prerequisite: CHIN 201 or equivalent.

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

CHIN 550 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.

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.
Continuation 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.

FREN 201 Intermediate French II
4 hrs.
The continued development of spoken and written expression in the French language through readings and discussions of civilization and culture materials. Prerequisite: FREN 200 or equivalent.

FREN 275 Francophone Culture
3 hrs.
This course, taught in English, is an introduction to various aspects of the culture of non-European countries and regions in which the French language plays a significant role. It will offer a critical and historical perspective on the cultural and social effects of colonialism and decolonialism. This course does not count toward a French major or minor.

FREN 316 French Composition
3 hrs.
Emphasis upon increasing the student's command of written French. Prerequisite: FREN 201 or equivalent.

FREN 317 French Conversation
4 hrs.
Exercises to develop ease and accuracy in the use of everyday French. Emphasis on oral aspects of the language. Prerequisite: FREN 201 or equivalent.

FREN 320 French Phonetics
3 hrs.
Study and practice to correct typical and other oral activities. Emphasis on both listening and speaking of the language. Prerequisite: FREN 200 or
equivalent. (FREN 320 may be taken concurrently with FREN 201.)

FREN 322 Life and Culture in France 3 hrs.
A study of French civilization based on historical, geographical, literary considerations and art and how those factors illustrate the character and traditions of French people from the medieval period through the present day. Prerequisites: FREN 316 and FREN 317.

FREN 323 Life and Culture in the Francophone World 3 hrs.
An introduction to French-speaking culture outside of France, as seen primarily through literary texts. Students will become acquainted with various aspects of life in French-speaking communities both past and present. Prerequisite: FREN 316 and FREN 317.

FREN 324 French Language and Society: Business in France 3 hrs.
Course on contemporary French language and society as they relate to commerce, including written and oral French. Taught in French. Prerequisites: FREN 316 and 317.

FREN 325 Close Reading in French 3 hrs.
Prose and verse readings of intrinsic literary merit, with emphasis on literary analysis. Prerequisites: FREN 316, 317, or permission of Department.

FREN 326 Introduction to the Study of French Linguistics 3 hrs.
A general survey of the different fields of French linguistics, both theoretical (e.g., phonology, morphology) and applied (acquisition, sociolinguistics, dialectology). Prepares student for more specialized studies. Prerequisites: FREN 316 and 317 (317 may be taken concurrently with FREN 325 with French advisor’s permission).

FREN 344 Summer Study in France 6 hrs.
A summer study program of French language, literature, and culture. The course consists of formal study at a French university with regularly scheduled lectures and discussions in the French language. University study is supplemented by an organized tour of Paris with full explanations by an instructor of all points visited. Each student submits a term paper investigating one phase of his/her experience. Prerequisite: FREN 200 or equivalent or permission of instructor.

FREN 400 Elementary French for Reading Proficiency 4 hrs.
Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. Undergraduates must secure permission of Department. No oral work. This course does not count toward a major or minor in French.

FREN 401 Intermediate French for Reading Proficiency 4 hrs.
Readings in the language at intermediate and advanced levels for translation and research purposes. Special attention will be given to students’ major fields. Completion of FREN 401 with a minimum of "B" constitutes graduate proficiency in the language. Undergraduates must secure permission of the Department. This course does not count toward a major or minor in French. Prerequisite: FREN 400 or equivalent.

FREN 452 Advanced French Grammar and Composition 3 hrs.
Intensive review of French structure and practice in composition. Prerequisite: FREN 316 and 317 or equivalent.

FREN 453 Advanced French Conversation 3 hrs.
Intensive practice with spoken French. Prerequisite: FREN 316 and 317 or equivalent.

FREN 477 Foreign Study 1–16 hrs.
Fall/Winter 1–8 hrs. Spring/Summer 1–16 hrs. Fall/A/Winter
Student participation in a 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, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional requirements.

FREN 510 Studies in French and Francophone Culture 3 hrs.
An intensive study of selected aspects of French and Francophone culture. Course varies according to topic and may be repeated for credit with permission of advisor. Representative topics might include Women in French Society, The French Tradition in Quebec, Francophone Cinema. Prerequisites: FREN 316, 317, either 322 or 323, plus one additional French course at the 300, 400 or 500 level.

FREN 528 French Literature from the Middle Ages to the Revolution 3 hrs.
The study of selected literary texts from the Middle Ages to the end of the eighteenth century. Prerequisites: FREN 316, 317, and 325.

FREN 529 French Literature from the Revolution to the Present 3 hrs.
The study of selected literary texts from the late eighteenth century to the present. Prerequisites: FREN 316, 317, and 325.

FREN 550 Independent Study in French 1–3 hrs.
Directed individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One 500-level course in the major; a minimum grade point average of 3.5 in the major. Not open to minors.

FREN 560 Advanced Readings in French 3 hrs.
Topics of literary, cultural, or linguistic merit will be analyzed. Topics will vary from semester to semester. May be repeated for credit. Prerequisites: FREN 316, 317, 325, or permission of instructor.

**German Courses (GER)**

A list of approved General Education courses can be found elsewhere in this catalog.

**GER 101**

**Basic German I**
4 hrs.
Continuation of 100. Prerequisite: GER 100 or equivalent. Does not count toward a major or a minor.

**GER 200**

Intermediate German I 4 hrs.
The development of spoken and written expression in the German language with an emphasis on grammar review. Prerequisite: GER 101 or two years of high school German, or equivalent.

**GER 201**

Intermediate German II 4 hrs.
The continued development of spoken and written expression in the German language through readings and discussions of civilization and culture materials. Prerequisite: GER 200 or equivalent.

**GER 316**

German Composition 3 hrs.
Emphasis upon increasing the student’s command of written German. Prerequisite: GER 201 or equivalent.

**GER 317**

German Conversation 3 hrs.
Emphasis upon increasing the student’s command of spoken German. Prerequisite: GER 201 or equivalent.

**GER 322**

German Life and Culture 3 hrs.
Investigates cultural aspects necessary for an understanding of Germany. Historic, geographic, social and religious factors are treated. Prerequisite: GER 201 or equivalent.

**GER 325**

Introduction to the Study of German Literature 3 hrs.
An appreciation of German literature through reading and critical interpretation of selected works of various literary types. Prerequisite: GER 201 or equivalent.

**GER 400**

Elementary German for Reading Proficiency 4 hrs.
Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate student who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. Undergraduates must secure permission of Department. No oral work. This course does not count toward a major or minor in German.

**GER 401**

Intermediate German for Reading Proficiency 4 hrs.
Readings in the language at intermediate and advanced levels for translation and research purposes. Special attention will be given to students’ major fields. Completion of GER 401 with a minimum of "B" 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 1–6 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, applicable 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 1–2 hrs.
Directed individual study of a specific topic in German literary or linguistic area. 
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 minors.

GER 559 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.

Japanese Courses (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 kana , or Chinese characters, and some aspects of the Japanese culture and people. Introduction to computer-assisted Japanese language learning, including basic word-processing in Japanese.

JPNS 101 Basic Japanese II 4 hrs.
Continuation of JPNS 100. Acquisition of another 75 kana . 

JPNS 200 Intermediate Japanese I 4 hrs.
Continuation of JPNS 200. Learning of another 75 kana . Completion of basic Japanese grammar and structures. 

JPNS 201 Intermediate Japanese II 4 hrs.
Continuation of JPNS 200. Learning of another 75 kana . Completion of basic Japanese grammar and structures. 

JPNS 210 Business Japanese 3 hrs.
This course emphasizes the effective use of the Japanese spoken language in contexts likely to be encountered by a career-oriented professional in Japan and the U.S. Topics may include business ritual, business travel, meetings, bureaucracy, annual reports, socializing, and other. The course includes practice in newspapers reading, business-letter writing, transcription/dictation of texts, and news broadcasts. The course will have guest lecturers who are practicing business in the Japanese environment. Moreover, the course includes visits to some companies where actual business interaction both in Japanese and English can be observed. 
Prerequisite: First year of Basic Japanese.

JPNS 275 Japanese Life and Culture 3 hrs.
This course is designed to introduce selected themes of Japanese life and culture, past and present. The main themes covered by this course are mostly linguistic, literary, philosophic, artistic, and religious. The course will be offered in English with no prerequisites and open to all students. The aim is to provide students new to the subject with an informed and balanced first impression of some of the fundamental components of Japanese culture, and to do so in such a way as to demonstrate its differences from the Western heritage while also noting their universal human value.

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 kana . 
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 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, applicable toward 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.

Italian Courses (ITAL)

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 with an emphasis on grammar review. 
Prerequisite: ITAL 101 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.

ITAL 477 Foreign Study 1–16 hrs. Fall/Winter 1–8 hrs. Spring/Summer
Student participation in departmentally approved program of study abroad. 
Prerequisite: Prior permission of departmental advisor and chairperson.

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.
Latin Courses (LAT)

A list of approved General Education courses can be found elsewhere in this catalog.

LAT 100 Basic Latin I
4 hrs.
Fundamentals of Latin; readings emphasize Roman thought, culture, and civilization.

LAT 101 Basic Latin II
4 hrs.
Continuation of 100. Prerequisite: LAT 100 or equivalent.

LAT 200 An Introduction to the Study of Latin Literature
4 hrs.
A study 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 201 Latin Composition
4 hrs.
The course will cover fundamentals of writing Latin correctly and well, including grammar, idiom, word-choice, clarity, and elegance. While the course will emphasize ancient models of Latin writing, later examples may be studied. Topics for composition may include contemporary as well as ancient subjects. Prerequisite: LAT 200.

LAT 202 Cicero
4 hrs.
Selections from the writing of Cicero with special attention to improving reading skills while studying the thought and style of one of Rome's leading statesmen and orators.

LAT 204 Vergil
4 hrs.
Readings from the works of Vergil especially the Aeneid, with particular attention to improving language skills while exploring Vergil's thought and style. Prerequisite: LAT 200 or equivalent.

LAT 324 Latin Literature
4 hrs.
Selections from Latin prose and poetry. Since specific readings vary according to genre, author, or period, this course may be repeated for credit. Prerequisite: LAT 200 or equivalent.

LAT 477 Foreign Study
1–16 hrs. Fall/Winter
Prerequisite: LAT 200 or equivalent. 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 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.

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.

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.

RUSS 316 Russian Composition
4 hrs.
Emphasis on increasing the student's command of written Russian. Prerequisite: RUSS 201 or equivalent.

RUSS 317 Russian Conversation
4 hrs.
The course includes exercises to develop ease and accuracy in the use of everyday Russian. Emphasis on oral aspects of the language. Prerequisite: RUSS 201 or equivalent.

RUSS 325 Introduction to the Study of Russian Literature
4 hrs.
Study of selected topics in Russian literature. Topics vary according to genre, author, or period and will be announced. May be repeated for credit. Prerequisite: RUS 201 or equivalent, or permission of instructor.

RUSS 344 Summer Study in Russia
4 hrs.
A summer study-abroad program of Russian language, literature, and culture. The course includes a series of lectures and discussions prior to departure. The tour will be accompanied by full explanations of all areas visited. Students plan and outline a project which they complete and submit after their return. Specific language tasks are assigned during the program. In addition, each student submits a term paper and takes an examination at the end of the study program. May be repeated for credit. Prerequisite: Instructor's permission.

RUSS 477 Foreign Study
1–16 hrs. Fall/Winter
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, applicable toward a major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

RUSS 550 Independent Study in Russian
1–3 hrs.
Directed individual study of a specific topic in Russian language, literature, or culture. May be repeated for credit. Prerequisites: Completion of four courses in Russian, or equivalent; minimum grade point average of 3.0 in Russian; department and instructor approval required.
### GEOGRAPHY

**GEOG 412** is strongly recommended.

Planning agencies. A professional internship prepares for careers in small-to-medium size planning organizations. In addition, students should complete at least two of the following courses: GEOG 412, 566, 567, 569, or 580. Remaining hours are elective, but students should not take more than one regional geography course.

### ELECTIVES (12 hrs.)

In the remaining 12 hrs. of coursework, students should complete at least two of the following courses: GEOG 412, 566, 567, 569, or 580. Remaining hours are elective, but students should not take more than one regional geography course.

### REQUIREDS (20 hrs.)

<table>
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<tr>
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<tr>
<td>GEOG 303</td>
<td>Geographic Inquiry*</td>
</tr>
<tr>
<td>GEOG 366</td>
<td>Introduction to City and Regional Planning</td>
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<tr>
<td>GEOG 556</td>
<td>Studies in Urban and Regional Planning</td>
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*Prerequisite: A course in statistics (STAT 160, 216, 260, or 366 or equivalent)

### ELECTIVES (12 hrs.)

Students should complete at least two of the following courses: GEOG 102, 244, 311, 361, 375, 381, 382, 386, 389, 390, 569, 570, 582, and 597. At least one GIS course about the 200-level is recommended. The following majors or minors are recommended with this major: Earth Science, English (Practical Writing), Economics, Environmental Studies, Geology, History, Hydrogeology, Political Science, Public Administration, Public History, Real Estate, Recreation, and Sociology.

### Geography Major—Environmental Analysis and Resource Management (32 hrs.)

A variety of environmental careers exist in business and government. Students prepare for particular career paths by the curricular choices they make. Students should consult with geography faculty or the geography advisor about the courses they choose.

### REQUIREDS (20 hrs.)

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<tr>
<td>GEOG 303</td>
<td>Geographic Inquiry*</td>
</tr>
<tr>
<td>GEOG 350</td>
<td>Conservation and Environmental Management</td>
</tr>
</tbody>
</table>

*Prerequisite: A course in statistics (STAT 160, 216, 260, or 366)

### ELECTIVES (12 hrs.)

Students are to select 18 hrs. of course work in the areas identified below in consultation with the geography advisor.

At least 3 hours from the following list below:

- At least one course in Regional Geography
- At least one course in Geographic Methods

### Geography Major—Urban and Regional Planning (32 hrs.)

Students prepare for careers with private consulting firms and/or city, township, county, or regional governments. This program prepares for careers in small-to-medium size planning agencies. A professional internship (GEOG 412) is strongly recommended.
Students select the remaining 13-14 hours
GEOG 205 Human Geography 3 hrs.
also elect to emphasize urban and regional
GEOG 105 Physical Geography 4 hrs.
geography, one regional geography, and one
systematic geographic methods course. Students may
teach a minor in the Haworth College of Business (Business Communication
Computer Information Systems, Insurance,
Real Estate, Management, Advertising and
Promotion, Marketing, General Business,
International Business) or in the College of Arts
and Sciences (American Studies, Foreign
Languages, Spanish, History, International
Studies, Journalism, Political Science, or
Comparative Religion).

Geography Minor (20 hrs.)
GEOG 105 Physical Geography 4 hrs.
GEOG 205 Human Geography 3 hrs.
GEOG 265 Map, Chart and Air Photo Reading 3 hrs.
Students select the remaining 13-14 hours
usually with a minimum of one systematic
geography, one regional geography, and one
geographic methods course. Students may
also elect to emphasize urban and regional
planning, environmental analysis and resource
management, or GIS in their minor.

Geography Minor—Secondary
Education (22 hrs.)
GEOG 105 Physical Geography 4 hrs.
GEOG 205 Human Geography 3 hrs.
GEOG 265 Map, Chart and Air Photo Reading 3 hrs.
GEOG 380 U.S. and Canada 3 hrs.
GEOG 460 Concepts and Strategies in the Teaching of Geography 3 hrs.
Students should take two additional courses
(six hours) to complete the minor.

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 comprised of the following:
ECON 201 and 202 (6 hrs.); two courses in
History selected from among HIST 210, 211,
212 (6 hrs.), and PSCI 200 and either PSCI
202 or PSCI 300 (6 hrs.). Further, at least two
of the following courses (6 hrs.) must be
selected from two different departments:
HIST 276, 302, 303, 314, 316, 326, 328, 370, 384,
385, 388, PSCI 240, 250, ECON 309, 367, 388,
and APS 300, 301.

Group Social Studies Minor
Students in the elementary/middle
school/junior high school curricula who
choose a Group Social Studies minor should
refer to the “Interdisciplinary Programs”
section of the College of Arts and Sciences.

Science And Mathematics
Teaching Minor
This program is only for students in elementary
or special education. It is described in the
“Interdisciplinary Programs” section of the
College of Arts and Sciences.

COURSES BY TOPIC
SYSTEMATIC GEOGRAPHY
GEOG 100 World Ecological Problems and Man
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 521 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
GEOG 555 Contemporary Issues in Resource and Planning
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, Japan, and Korea: Lands and Cultures

Geography Courses (GEOG)
A list of approved General Education courses can be found in “Graduation and Academic Advising” earlier in this catalog.

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. The introductory course combines scientific and non-technical analyses of processes and problems dealing with the question of environmental quality. Therefore, humanity will be studied in the physical as well as the social setting. Though major issues may vary for developing and developed nations, topics concerned with population pressure, pollution, and urbanization will be among those considered.

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 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; 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.

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 the 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 occurrence, 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 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 collection, 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 266 for students majoring in the Geographic 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 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 relating to diffusion and effects of locations on flow 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 with 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 mapping 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
1 hr.
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 following 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.
Systematic review of the physical and cultural environments of Mexico, Central America and the West Indies. Economic, social and political issues will be examined from a spatial viewpoint.

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 the derivative cultural elements 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 may 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, Environment, 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 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 North Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, petroleum, Arab reunification movements, and the impact of the Muslim World on the current political scene.

GEOG 389 Monsoon Asia
3 hrs.
Systematic survey of the physical and human (socio-economic) environments of the southeastern rim of Asia (Pakistan in the west to Japan in the east). Geographical background necessary to interpret present conditions is included.

GEOG 390 China, Japan, and Korea: Lands and Cultures
3 hrs.
An introduction to the contemporary landscapes, cultures, and economies of the countries of East Asia, specifically China, Japan, and Korea. A basic survey of the interactions over time between the physical environments of East Asia and the cultures, the political conditions, the economies, and societies of these three main nations.
GEOG 408 Geography of Travel and Tourism 4 hrs.
The study studies global environments and transport systems to analyze tourism and travel trends and opportunities. An examination of resort areas, tourist frequency patterns to various resorts, cultural opportunities, and the perception of places through travel brochures and literature are included in the course. Theoretical assumptions underlying perceptions of place and mental maps of tourism and travel preferences are examined. For Tourism and Travel majors only.
GEOG 412 Professional Practice 2-6 hrs.
Provided for an advanced student to benefit by supplementary practical experiences in a particular branch of geography, either by assisting faculty engaged in research or by working in a departmentally-approved off-campus agency. Specific assignments are arranged in consultation with departmental advisors during the semester preceding that in which it is offered. Each specialization may be repeated for credit in 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 requirements 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 the 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. Presents world patterns of agriculture, manufacture, or transportation which link global production and consumption. In any term, the course focuses on one of these three economic sectors.
1. Agriculture. Describes and analyzes the distribution of major crops and livestock, and their combinations in common farming operations. The spatial organization of agriculture through time is analyzed for selected areas.
2. Industry. Evaluates the general distribution and locational factors associated with selected industries, giving particular attention both to models of industrial location and to the empirical interrelation of economic, technological, and political elements affecting the locational decision.
3. Transportation. Emphasizes the historical evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport problem, and competitive and complementary characteristics of transport modes in differing political systems.
Prerequisites: GEOG 205 and GEOG 244 or consent of department.
GEOG 545 Studies in Human Geography 2-3 hrs.
Each course listed under this general title is a concentrated study of one of the principal subdivisions of human geography. The scope and principal themes of each specialized field are reviewed, with consideration given to current research on selected problems.
Prerequisites: GEOG 303, or GEOG 205 or GEOG 244, or by consent of instructor. Course may be repeated for credit.
1. Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion, and present distribution of cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth's surface.
2. Historical Geography. Studies of geographic and related features which have combined to influence the course of historical development. This course will concentrate on a particular region and/or period of time during each semester in which it is offered. Each specialization will be designated in the class schedule.
3. Political Geography. General survey of the principles and the applied aspects of political geography; primary emphasis on the physical, 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. Prerequisite: Junior, senior, or graduate student standing.
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 planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and student-designed and executed individual studies provide professional orientation.
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, legislative planning, 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 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 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 582, 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 elaborate 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 nature and accuracy 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 GEOG 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, archaeology, 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 285 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 a member of the departmental staff Repeatable for credit. Prerequisite: Consent of department advisor and instructor.

GEOSCIENCES

David Barnes, Interim Chair
Daniel Cassidy
Ronald B. Chase
G. Michael Grammer
Johnson R. Hasas
Duane Hampton
Alan E. Kehew
Michelle Koninz
Carla Korstesky
R. V. Krishnamurthy
William A. Sauck
Christopher J. Schmidt

Geology Major
Minimum 38–39 hours

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>GEOS 130 Physical Geology</td>
<td>4</td>
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<tr>
<td>GEOS 131 Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 335 Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 336 Optical Mineralogy</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 430 Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 439 Geologic Mapping</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose two electives from the following:

- GEOS 440 Petrology/Petrography 3 hrs.
- GEOS 460 Geologic Communications 1 hr.
- GEOS 560 Introduction to Applied Geophysics 3 hrs.

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 Geology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- GEOS 432 Geomorphology
- GEOS 433 Invertebrate Paleontology
- GEOS 512 Principles of Hydrogeology

COGNATE REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110 and 111, CHEM 112 and 113, PHYS 113/114 and 115/116 or 205/206 and 207/208, BIOS 112 or 150 or as arranged by advisor; and MATH 122 and 123 and CS 105 Introduction to Computers. Some modification of these requirements may be made in consultation with the student's departmental advisor.</td>
<td>18</td>
</tr>
</tbody>
</table>

Geology majors should elect minors in mathematics, computer science, chemistry, physics, or biology. Students electing one of the above minors must still complete all other cognate required courses. Students not electing one of the above minors may elect the group science minor for Geology majors (see below).

Suggested four-year program of study for Geology majors including all required cognate courses.

**Freshman Year**

- Fall: GEOS 130 MATH 122 (Students with insufficient high school mathematics may have to take MATH 118 prior to 122.)
- Spring: GEOS 131 MATH 123 BIOS 112 or 150

**Sophomore Year**

- GEOS 335
- CHEM 110 and 111
- GEOS 433
- CHEM 112 and 113

**Junior Year**

- GEOS 336
- GEO 430
- PHYS 113, 114 or 205, 206
- GEOS 440
- PHYS 115, 116 or 207, 208
- CS 105

**Summer I**

- Field Course in Geology

**Senior Year**

- GEO 432
- GEO 435
- GEO 560

Geology Minor
Minimum 18 Hours

The Geology minor is designed as a supporting minor for students preparing to do professional work in the fields of chemistry, physics, engineering, zoology, botany, and geography. It cannot be combined with earth science as a major-minor or double minor relationship. A student may design a Geology minor for his/her specific need.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>GEOS 130 Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 131 Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 335 Mineralogy</td>
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</tr>
<tr>
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</tr>
<tr>
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<td>3</td>
</tr>
</tbody>
</table>

<table>
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<th>Course</th>
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</thead>
<tbody>
<tr>
<td>GEOS 335 Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 336 Optical Mineralogy</td>
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<tr>
<td>GEOS 440 Petrology/Petrography</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 301 Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td>GEO 433 Invertebrate Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>Additional hours in Geology</td>
<td>6</td>
</tr>
</tbody>
</table>

Course substitution from other Geology offerings can be made with the consent of advisor (e.g., a geography major minoring in Geology might elect Geomorphology and/or Glacial Geology).

Geochemistry Major

The Geosciences and Chemistry Departments offer a program of study leading to a major in geochemistry. Students choosing this major will not be required to complete an additional minor. The geochemistry major is designed to meet the needs of students preparing for a professional career in geochemistry or environmental chemistry. Students contemplating a geochemistry major should contact the Geosciences Department as early as possible for advising.

**Total Major:** 68 hours

**GEOSCIENCES CORE (19 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>GEO 130 Physical Geology I</td>
<td>4</td>
</tr>
<tr>
<td>GEO 131 Historical Geology I</td>
<td>4</td>
</tr>
<tr>
<td>GEO 132 Earth Systems</td>
<td>3</td>
</tr>
<tr>
<td>GEO 335 Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEO 555 Introduction to Geochimistry</td>
<td>3</td>
</tr>
<tr>
<td>GEO 460 Geologic Communications</td>
<td>1</td>
</tr>
</tbody>
</table>

**CHEMISTRY CORE (12 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>CHEM 110, 111 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 112, 113 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 225, 226 Quantitative Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

**Course substitution from other Geology offerings** can be made with the consent of advisor (e.g., a geography major minoring in Geology might elect Geomorphology and/or Glacial Geology).
GEOSCIENCES ELECTIVES (Choose at least 9 hours)

- GEOS 336 Mineral Analysis 2
- GEOS 435 Sedimentation and Geology 3
- GEOS 439 Geologic Mapping 3
- GEOS 460 Geologic Communications 1
- GEOS 560 Introduction to Applied Geophysics 3
- Physics (PHYS) (17-18 hours)
  - PHYS 205 Mechanics and Heat Laboratory 1
  - PHYS 206 Mechanics and Heat Laboratory 1
- PHYS 207 Electricity and Light 4
- PHYS 208 Electricity and Light Laboratory 1
- GEOS 432 Geomorphology 3

ELECTIVES: 9-12 hours
Three electives from upper-level geosciences, physics, and engineering courses to be chosen with consent of advisor (9-12 hours).

REQUIRED MATHEMATICS MINOR (22 hours)

MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 272 Multivariate Calculus & Matrix Algebra 4
MATH 374 Linear Algebra and Differential Equations 4
CS 111 Computer Science I 4

BACCAULAUREATE WRITING REQUIREMENT
Students who have chosen the Geophysics major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
- GEOS 432 Geomorphology
- GEOS 435 Sedimentation and Stratigraphy

REQUIRED SUPPORTING COURSES
CHEM 110 and 111 or 112 and 113 (4 hours)

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
- BIOG 150 Molecular Biology 4
- PHYS 103 Sky and Solar System
- PHYS 104 Introduction to the Sky and Solar System
- PHYS 106 Introduction to Stars and Galaxies
- PHYS 205 Mechanics and Heat Laboratory 1
- PHYS 206 Mechanics and Heat Laboratory 1
- PHYS 207 Electricity and Light Laboratory 1
- PHYS 208 Electricity and Light Laboratory 1

Electives 3

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
- GEOS 130 Physical Geology 4
- GEOS 131 Historical Geology 4
- GEOS 301 Minerals and Rocks 4
- GEOS 432 Geomorphology 3
- CHEM 110 and 111 or 112 and 113 (4 hours)

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.)

BACCAULAUREATE WRITING REQUIREMENT
Students who have chosen the Earth Science Education major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
- GEOS 432 Geomorphology
- GEOS 435 Sedimentation and Stratigraphy

REQUIRED SUPPORTING COURSES
- GEOS 130 Physical Geology 4
- GEOS 131 Historical Geology 4
- GEOS 301 Minerals and Rocks 4
- CHEM 110 and 111 or 112 and 113 (4 hours)

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
- BIOG 150 Molecular and Cellular Biology 4
- PHYS 103 Sky and Solar System Laboratory 1
- PHYS 104 Introduction to the Sky and Solar System Laboratory 1
- PHYS 205 Mechanics and Heat Laboratory 1
- PHYS 206 Mechanics and Heat Laboratory 1
- PHYS 207 Electricity and Light Laboratory 1

Electives 3

ELECTIVES
At least 4 credit hours selected from the physical or biological sciences with approval of student's advisor.

Earth Science Major: Major and Minor

The earth science major and minor program is a flexible course of instruction for students desiring a broad understanding of the earth and environmental processes. The program is interdisciplinary in nature and offers students an opportunity to select approved courses from several science departments, including Geosciences, Engineering, Biological Science, Geography, Chemistry, and Physics. Courses are selected in consultation with the earth science advisor to design programs that
are tailored to the individuals' needs and professional objectives. Elective courses must be approved by the advisor.

Major (36 hours)  Hrs.

REQUIRED COURSES
GEOS 130 Physical Geology 4
GEOS 131 Historical Geology 4
GEOS 132 Integrated Earth Systems Studies 3
GEOS 301 Minerals and Rocks 4
GEOS 438 Field Studies in Geology 3
GEOS 460 Geologic Communications 1

ELECTIVES
Seventeen (17) hours must be selected in consultation with the advisor. A minimum of six (6) elective hours for the major must be taken in the Geosciences Department.

REQUIRED COGNATE COURSES FOR THE MAJOR
A college-level chemistry course (CHEM 110/111 recommended), a college-level physics course (PHYS 107/108), and MATH 118 are required.

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:

- GEOS 432 Geomorphology
- GEOS 435 Sedimentation and Stratigraphy

Minor (21 hours)  Hrs.

REQUIRED COURSES
GEOS 130 Physical Geology 4
GEOS 131 Historical Geology 4
GEOS 132 Integrated Earth Systems Studies 3
GEOS 301 Minerals and Rocks 4

ELECTIVES
Six (6) hours must be selected in consultation with the advisor. A minimum of three (3) elective hours for the minor must be taken in the Geosciences Department.

Hydrogeology Major

Total: 75–76 hours

The hydrogeology major is designed to give individuals at the bachelor’s level a strong background in Geology, hydrogeology, supporting sciences, mathematics and computer science. This program will prepare students to enter graduate programs and the job market as hydrogeologists.

REQUIRED CORE

- GEOS 130 Physical Geology 4
- GEOS 131 Historical Geology 4
- GEOS 301 Minerals and Rocks 4
- GEOS 438 Field Studies in Geology 3
- GEOS 460 Geologic Communications 1
- GEOS 512 Principles of Hydrogeology 3
- GEOS 525 Surface Geophysics 1
- GEOS 526 Principles and Practices of Ground-Water Sampling 1
- GEOS 545 Hazardous Waste Remediation 3

Students must elect two (2) of the following courses:

- GEOS 506 Introduction to Soils 3
- GEOS 536 Glacial Geology 3
- GEOS 563 Geologic Methods 3
- GEOS 562 Shallow Exploration Geophysics 3
- GEOS 564 Field Geophysics 3
- GEOS 567 Remote Sensing of the Environment 3
- PAPP 348/548 Water Qual. & Microbiol. 3
- PAPP 353 Water Treatment Sys. 4

Required Supporting Courses

- MATH 122 Calculus I 4
- MATH 123 Calculus II 4
- 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
- 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
- CHEM 370 Introduction to Organic Chemistry 3
- CHEM 371 Introduction to Organic Chemistry Laboratory 1
- CS 111 Computer Science I 4

REQUIRED MINOR

Students must elect one of the following minors: Biology, Computer Science, Chemistry, Mathematics, Geography, and Physics, or Group Science for Geology Majors.

RECOMMENDED ADDITIONAL COURSES

- CHEM 225 Quantitative Analysis 3
- CHEM 226 Quantitative Analysis Laboratory 1
- CHEM 525 Techniques in Water Analysis 3
- STAT 364 Statistical Methods 4
- CS 201 Programming in FORTRAN 2
- COM 104 Public Speaking 3
- COM 170 Interpersonal Communication I 3

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:

- GEOS 432 Geomorphology
- GEOS 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.

Geosciences Courses (GEOS)

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

GEOS 100 Earth Studies 4 hrs.

Students are introduced to the origin of the solar system and the earth-moon system with emphasis on humankind's place in the universe. Students will investigate the major 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. Fullfills General Education Area 6.

GEOS 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.

GEOS 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. Fullfills General Education Area 6.

GEOS 131 Historical Geology 4 hrs.

Geologic time, evolution of prehistoric life, and principles of earth history with case examples from North America. Prerequisite: GEOS 130 or GEOS 100.

GEOS 132 Integrated Earth System Studies 3 hrs.

The course will view the whole earth as a single system and focus on the interrelations and interactions among different subsystems and changes that occur in these with time. Topics covered will include basic laws of physics and chemistry that operate on the earth, evolution, biogeochemical cycles, global changes (natural and anthropogenic) and human interactions with the environment. Construction of models of systems will be explored to determine possible impact of a change on the system as a whole. Prerequisite: GEOS 130 and GEOS 131.

GEOS 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. Fullfills General Education Area 7.

GEOS 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. Fullfills General Education Area 6.

GEOS 290 Earth Science for Elementary Educators II 3 hrs.

This laboratory-based course is a continuation of GEOS 190 and is specifically designed for prospective elementary teachers.
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 problems solving environments that facilitate insight in the nature of science as an intellectual activity; to explore alternative conceptions of scientific phenomena; to help students develop more positive attitudes about science and increase their confidence in their ability to do science. 

Prerequisite: GEOG 190.

GEOS 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. Prerequisites: GEOS 100 or 131, a course in college-level chemistry, or consent of instructor.

GEOS 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.

GEOS 322 Ocean Systems 3 hrs.
The ocean system encompasses over seventy percent of the world's surface, and comprises one of the most 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 benefits and benefits of the past, present, and future use of the world ocean will be considered in the context of competing values and interests.

GEOS 335 Mineralogy 4 hrs.
Introduction to crystallography, crystal chemistry, and determinative mineralogy. Physical and chemical properties, occurrence, uses and determinative identification of about 100 minerals. Lecture 3 hours a week, Laboratory 3 hours a week. Prerequisite: GEOG 100 or GEOG 130; CHEM 110 and 111, or consent of instructor.

GEOS 336 Optical Mineralogy 3 hrs.
Principles and methods of optical crystallography. Study of minerals in crushed grains and in thin sections. Prerequisite: GEOS 335 or consent of instructor.

GEOS 412 Introduction to Hydrogeology 3 hrs.
This general survey course in hydrogeology introduces the occurrence, movement, and contamination of ground and surface water. Prerequisites: GEOS 301, MATH 122 or MATH 123. CHEM 110 and 111, and PHYS 107 and 108 or PHYS 113 and 114.

GEOS 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: GEOS 131, GEOS 301 or GEOS 335, MATH 116, or consent of instructor.

GEOS 432 Geomorphology 3 hrs.
Detailed consideration of the earth's surficial processes including transformation of fluvial, glacial, marine, desert, 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. Prerequisite: GEOS 131 or consent of instructor.

GEOS 433 Invertebrate Paleontology 4 hrs.
Morphology, classification, evolution, and stratigraphic distribution of major invertebrate fossil groups. Prerequisite: GEOS 131 or consent of instructor.

GEOS 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.

GEOS 435 Sedimentation and Stratigraphy 4 hrs.
Processes, characteristics, and relationships among fluvial, deltaic, strand plain, lagoon, shelf, and slope terrigenous depositional systems. Laboratory includes textural 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: GEOS 131; GEOS 301 or GEOS 335.

GEOS 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: GEOS 301 or consent of instructor.

GEOS 439 Geologic Mapping 3 hrs.
Field observations and Geologic mapping. Rock-oriented mapping projects will be completed. Prerequisite: GEOS 301; laboratory work requires observations and synthesis of rock descriptions, structural analyses, stratigraphic interpretations, and compilations of the Geologic history of assigned study areas. Prerequisites: GEOS 301 or GEOS 440; GEOS 430; or consent of instructor.

GEOS 440 Petrology and Petrography 3 hrs.
Classification, origin, and description of igneous, sedimentary, and metamorphic rocks. Laboratory study of rocks and thin sections. Prerequisites: GEOS 336; CHEM 110 and 111.

GEOS 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 to 500-level courses are:

- Junior status and 12 hours of college work in Geology or consent of instructor. There may be specific prerequisites to individual courses.

GEOS 502 Problems in Geology and Earth Science 1-3 hrs.
Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisites: GEOS 130, GEOS 300, GEOS 301, GEOS 440, and consent of department.

GEOS 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.

GEOS 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: GEOS 301, MATH 122, and CHEM 100/111; Corequisite is MATH 123.

GEOS 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.

GEOS 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. Prerequisite: GEOS 301 or GEOS 335; MATH 122. MATH 123 may be taken concurrently.

GEOS 514 Isotope Hydrology 3 hrs.
Principles of isotope fractionation. Experimental techniques in isotope mass spectrometry. Carbon, oxygen, and hydrogen isotope systematics in the hydrologic cycle. Application of stable isotope techniques to study ground water—surface water interaction. Use of nitrogen isotope measurements in understanding round water nitrogen cycling and fate of nitrate load. Introduction to developments in the application of chlorine isotopes in hydrology. The course will include a seminar style approach requiring summarizing of recent research papers. Prerequisite: Instructor's consent.

GEOS 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: GEOS 512.

GEOS 516 Geochronology and Global Change 3 hrs.
Application of the concepts of nuclear physics and chemistry to Geologic problems. Topics to include absolute and relative dating, formation of the elements, global change and causes of glacial change. Prerequisites: GEOS 335 and basic knowledge of Chemistry, Physics, and Math.

GEOS 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: GEOS 301 or GEOS 335.

GEOS 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
GEOS 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. Prerequisite: GEOS 412 or GEOS 512.

GEOS 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 electrical methods, and ground-penetrating radar. Prerequisite: GEOS 412 or GEOS 512.

GEOS 526 Principles and Practices of Aquifer Testing
1 hr. Introduction to the methods of aquifer testing with an 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 electronic level measuring equipment. Prerequisite: GEOS 412 or GEOS 512.

GEOS 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; cutting, split spoon, and Shelby tube, borehole geophysics, and installation and development of wells. Prerequisite: GEOS 412 or GEOS 512.

GEOS 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 and surface water-groundwater interactions. Includes quality control and assurance procedures, ground-water sampling equipment and procedures, field hydrogeologic equipment and procedures, and vadose zone sampling of water and gas. Prerequisite: GEOS 412 or GEOS 512.

GEOS 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: GEOS 301 or GEOS 335, GEOS 430 or consent of instructor.

GEOS 535 Numerical and Spatial Data Analysis in the Geosciences
3 hrs. Application of various of elementary statistical methods (including elementary geostatistics) and computer-based software applications, including Arctview (GIS) to the management, analysis, and display of multidimensional, solid earth, geosciences data through completion of a special project using established geodetic data sources or original, research project data. Prerequisites: MATH 160, GEOG 375.

GEOS 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. Prerequisite: GEOS 301 or GEOS 335.

GEOS 540 Igneous and Metamorphic Petrology
4 hrs. Advanced discussion of origins and positions of igneous and metamorphic rocks in light of recent experimental evidence and concepts of global tectonics. Prerequisite: GEOS 440 or equivalent.

GEOS 545 Hazardous Waste Remediation
3 hrs. Content includes chemical, physical, and biological processes affecting contaminants in the subsurface. Topics include environmental regulations, remediation, site characterization, contaminant management, detailed engineering and management considerations related to the design and operation of hazardous waste remediation systems involving water pollution, air pollution, soil waste, and groundwater pollution. Prerequisites: MATH 122 and corequisite MATH 123, CHEM 112/113.

GEOS 555 Introduction to Geochemistry
3 hrs. An introduction to high and low temperature geochemistry. Topics to be discussed include cosmochemistry, crystal chemistry, thermodynamics and kinetics, aqueous geochemistry, stable and radiogenic isotope geochemistry, organic geochemistry, and biogeochemistry. Three hours lecture per week with weekly problem sets. Prerequisites: GEOS 335, CHEM 112/113.

GEOS 560 Introduction to Applied 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: GEOS 301 or GEOS 440, GEOS 430, MATH 122, two semesters of college physics, or consent of instructor.

GEOS 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: GEOS 560, MATH 123.

GEOS 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: GEOS 560, MATH 123.

GEOS 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: GEOS 560, MATH 123, and (PHYS 440 recommended).

GEOS 564 Field Geophysics
3 hrs. Field studies demonstrating the use of seismic reflection, gravity, and electrical resistivity methods for glacial Geology and ground-water problems in the Kalamazoo area. Prerequisite: GEOS 560.

HISTORY
HISTORY
Marion Gray, Chair
Dmiter Angelov
Timothy Berg
Robert F. Berkohefer, III
Amos Beyer
Linda Borish
Jose Brandao
Andrew Carlson
Michael Chiarappa
Janet Coryell
Ronald Davis
Juanita DeBarros
Frederick J. Dobrey
Howard Dooley
E. Rozanne Elder
Nora Faires
Frankel
Ralph Gordon
Ross Gregory
Bruce Haight
Barbara Havira
Catherine Julien
Mitch A. Kachun
Cheryl H. Lyon-Jennens
Paul Maier
John Norman
R. Patrick Norris
James Palmietessa
Carolyn Podruchny
Patricia Rogers
Adam Sabra
Peter Schmitt
Larry Simon
Judith F. Stone
Kristin Styvian
Luis Toledo Pereyra
Wilson Warren
Gray Whaley
Victor Xiong
Takashi Yoshida

The Department of History offers several academic and professional programs with varying requirements. Students intending to major in history should meet at least once a semester with their faculty advisor. Information on advising can be obtained by calling 387-4650. HIST 190 is an orientation course to the historical professions, and to basic research and presentation skills in the discipline, and should be taken as early as possible.

History majors lead to the degree of Bachelor of Arts. A minimum of 8 hours of 100/200-level course work and/or course work 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.

The Department of History strongly encourages foreign study at one of WMU's international centers or in similar programs, and acquisition of foreign language skills beyond minimum program requirements.

History Major—Liberal Education Curriculum

MAJOR REQUIREMENTS:
1. HIST 190, 390
2. HIST 496 OR 499
3. Minimum of 36 hrs. in history including
   18 hrs. at the 400/500 level, with at least
   12 hrs. at the 300 level or above in courses
dealing specifically with European history
before 1789, American history before 1877,
ancient/medieval history, or courses on the pre-modern history of other civilizations.

**BACCALAUREATE WRITING REQUIREMENT**
Students who have chosen the History major will satisfy the Baccalaureate Writing Requirement by successfully completing HIST 390 Introduction to the Study of History.

**COGNATE REQUIREMENTS:**
1. At least one approved course in a laboratory science ........................................... 4
2. Three approved courses in allied social sciences and/or humanities disciplines pertinent to an emphasis or focus in the history major ................................................................. 9–12
3. A foreign language through the 201-level by course work or by examination ...... 16

**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.

**MAJOR REQUIREMENTS:**
1. HIST 190, 390, 494 ........................................... 9
2. United States history including at least 6 hrs. at the 400/500 level .................. 9
3. Non-Western history including at least 3 hrs. at the 400/500 level .................. 9
4. European and/or General history including at least 3 hrs. at the 400/500 level .... 9
5. Minimum of 36 hrs. in history including at least 18 hrs. at the 400/500 level ...... 6

**BACCALAUREATE WRITING REQUIREMENT**
Students who have chosen the History major will satisfy the Baccalaureate Writing Requirement by successfully completing HIST 390 Introduction to the Study of History.

**ADDITIONAL REQUIREMENTS**
In addition to the history major, students must complete the following:

1. A Group Social Studies minor of at least 24 hours including the following:
   - ECON 201 and 202 ........................................... 6
   - Two courses in Geography selected from among GEOG 102, 105, 205 ........... 6–7
   - Two courses in Political Science selected from among PSCI 200 and either PSCI 202 or 300 ........................................... 6–12
   - Two courses total from two different departments, selected from among: GEOG 311, 380, 381, 382, 383, 386, 387, 389, 390; PSCI 240, 250, ECON 309, 397, 398; and AFS 300, 301 ........................................... 6
2. One approved literature course in the Department of English at the 300 level or above (or ENGL 252) ........................................... 6
3. One approved course in philosophy or religion, or in the history of political, economic, or ethnographic theory, at the 300 level or above ........................................... 6
4. A foreign language through the 101 level by course work or by placement examination.

**NOTES:**
1. Each student must complete at least two approved courses in American Indian history or culture, women’s history or women’s studies, African-American history or culture, or Hispanic-American history or culture. These courses may be included within the history major or group social science minor course work if selected from the appropriate disciplines. Certain courses in item two of the humanities cognate requirements similarly may be included in the major or minor.
2. All course work at the 300 level or above in the History major, group social science minor, and required cognates must be completed within ten years of commencing a directed teaching assignment. History majors must have completed at least six hours of History in courses numbered 420–596 with grades of “B” or better to be approved by the department for directed teaching.

**Public History Major**

**MINOR REQUIREMENTS:**
1. Three courses from the Public History Core: HIST 404, 406, 408, 410, 412 ....... 9
2. One course from HIST 315, 318, 515, 592, 595, 596 ........................................... 3
3. One course from another department (check with faculty advisor) ................. 3
4. North American History, two courses, including one at the 400/500 level ........ 6
5. History electives: two courses ........................................... 6
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
101 Modern Western World ........................................... 102
103 Western Civilization ........................................... 103
105 History and Current Events ...........................................
106 Historical Writing ........................................... 145
145 Heroes and Villains in the Middle Ages ........................................... 190
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204 Business History ........................................... 210
210 American History to 1877 ........................................... 211
211 American History since 1877 ........................................... 212
212 American Culture ........................................... 230
230 Introduction to Canadian Studies ........................................... 250
250 Michigan History ........................................... 298
398 Directed Reading in History ........................................... 426

**NORTH AMERICA**

313 American Diplomatic History ........................................... 314
314 American Minorities ........................................... 315
315 Popular Art and Architecture in America ........................................... 316
316 Women in United States History ........................................... 318
318 Environment and the American Experience ........................................... 320
320 American Military History ........................................... 322
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326 Native American History and Culture ........................................... 327
327 U.S. Spanish Borderlands: History and Culture ........................................... 328
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420 Colonial America ........................................... 421
421 The New Nation: American Revolution and Independence ........................................... 422
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425 United States, 1877–1919 ........................................... 426
426 United States 1920–1940 ........................................... 427
427 United States 1945–1960 ........................................... 428
428 United States since 1960 ........................................... 430
430 American Maritime History ........................................... 432
432 Women in America to 1870 ........................................... 433
433 Women in America since 1870 ........................................... 434
434 Native Americans to 1870 ........................................... 435
435 Native Americans since 1873 ........................................... 436
436 Topics in African-American History ........................................... 439
439 Topics in United States History ........................................... 530
530 Studies in Early American History ........................................... 535
535 Studies in Recent American History ........................................... 536

**EUROPE**

336 Women in European History ........................................... 349
349 Ancient Near East ........................................... 350
350 Ancient Greece and the Hellenistic World ........................................... 351
351 Ancient Rome ........................................... 360
360 The Medieval World: Society and Culture ........................................... 362
362 History of England ........................................... 363
363 History of Modern Britain ...........................................
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 both HIST 145 and MDVL 145.

HIST 190 Historians in the Modern World
3 hrs.
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.
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 276 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 296 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 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.
Themes in American art 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-American Indians, 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 many 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. The survey of United States in a pan-Diaspora context.

HIST 330 Canadian History and Culture
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 339 Ancient Near East
3 hrs.
Ancient history of Near Eastern lands which also figure prominently in biblical accounts. Archaeology, prehistory, and the prehistory 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 History of Modern Britain
3 hrs.
The course surveys modern British history from the early eighteenth century to the late twentieth century. It traces the transformation of British economic, political, and social life, and the gradual expansion of the formal political sphere. The course addresses the influence of the British Empire on this process. Students will be introduced to key primary and secondary sources.

HIST 364 Modern Europe: Culture and Society
3 hrs.
Social and cultural history of Europe in the late nineteenth and twentieth centuries with emphasis on the post-World War II period: reconstruction, era of the Cold War; the dilemma of economic integration and cultural fragmentation; Europe in the wider world; modern European cultural life.

HIST 366 Russia Yesterday and Tomorrow
3 hrs.
Historical survey of Russia and the regions included in the former Soviet Union. Emphasis on the Russian cultural core and its potential for the reformulation of the Russian republic. Consideration of the ideals and realities of the Soviet Union, and the triumph of culture over ideology in its collapse.

HIST 368 History of European Nations
3 hrs.
Surveys of selected European national histories. Emphasis on the growth of national consciousness and national cultures as both positive and destructive forces. Topics listed in Schedule of Course Offerings. May be repeated under different topics.

HIST 370 History of Latin America
3 hrs.
Sources of the traditions of Latin American societies and national cultures, and the response of Latin America to the challenges of the twentieth century.

HIST 374 History of the Caribbean
3 hrs.
This course surveys Caribbean history from the time of European contact to the latter half of the twentieth century. It addresses key themes in Caribbean history, namely the impact of colonialism and slavery and the nature of post-emancipation adjustments. The format of the course will be lecture and discussion.

HIST 375 East Asian Societies and Cultures
3 hrs.
Social and cultural history of East Asian civilizations with emphasis on source readings of social, political, and philosophical thought. The course covers China, Japan, Korea, and Vietnam. Students will study the ways in which peoples in East Asia have made their livings, organized their societies, expressed their world views, and shaped their diverse cultures.

HIST 364 Islamic Civilization
3 hrs.
Surveys the origins and development and Islamic societies from the rise of Islam in the seventh century to modern times. Emphasis on the Islamic Middle East (Arab world, Iran, Turkey), with additional units on South and Southeast Asia and Sub-Saharan Africa.

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 thematic of the clash 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. The course is cross-listed with AFS 388.

HIST 390 Introduction to the Study of History 3 hrs.
Major themes and developments in historiography and historical thought. Ideas and interpretations 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 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 and abilities; use of interactive media; the role of history in social science and humanities education; and the techniques of 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 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 406 Archives Administration 3 hrs.
Theory, techniques, and practice in the development and administration of archives and archival materials.

HIST 408 Museum Studies 3 hrs.
History, philosophy, organization and administration of general history, science, technology and art museums. Discussion of collecting theory, conservation and security, display and interpretation, and the role of museums in culture and education.

HIST 410 Historic Preservation 3 hrs.
Development, conservation, and interpretation of historic sites and districts: documenting historical registration procedures, preservation laws, funding sources, history of the preservation movement, social and political issues in urban rehabilitation.

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 416 Topics in Michigan History 1–3 hrs.
Topics listed 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 421 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.

HIST 422 Antebellum America 3 hrs.
Society and culture of the United States in the 19th century before the Civil War.

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-situated movement (people, commodities), networks (intercultural contact, economic/political linkage), culture (maritime communities), and resource use (fisheries, 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 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 437 American Working Class History 3 hrs.
This course will explore the history of the American working class from its emergence during the first industrial revolution through the present. It will examine the history of working people's experiences in the workplace and communities. Special attention will be given to the history of workers in Michigan and the upper Midwest.

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 443 The Crusades 3 hrs.
A survey of the history of the crusades from Pope Urban II's call to arms in 1095 until the fifteenth century. Focus on the high tide of the crusading movement during the Twelfth century. Emphasis on military history, the formation of the crusading ideology, and the cultural and political interactions between the medieval West and the worlds of Orthodox Byzantium and Islam.

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 3 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 478 Traditional Japan (to 1860) 3 hrs. This course traces the history of Japanese civilization from its origins to the beginning of the 19th century. It examines the evolution of the idea of “Japan” in distinction to “China” and “the West” and demonstrates how the definition of “Japan” and “Japanese” changed not only political history, but also the social history of Japan.

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. Topics listed in Schedule of Course Offerings. Prerequisite: 24 hours of course work in history.

HIST 490 Topics in Asian 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 and abilities; 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 a faculty member and the Department Chair. Prerequisite: 18 hours of history at the 300-level. 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 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 topics. 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.

MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 145 Discrete Mathematical Structures 3
MATH 314 Mathematical Proofs 3
MATH 230 Elementary Linear Algebra 4
MATH 272 Multivariate Calculus and Matrix Algebra 4
MATH 374 Differential Equations and Linear Algebra 4
MATH 402 Mathematical Modeling 3
MATH 507* Numerical Analysis I 3
Three of: MATH 330, 408, 440, 445, 490, 527, (510 or 530), 570, 572, 574, STAT 362, 567, 568 9–12

COGNATE SCIENCE REQUIREMENTS:
1. CS 111 Computer Science I 4
OR
CS 201 Programming in FORTRAN 2
OR
CS 204 Programming in C++ 2
2. STAT 364 Statistical Methods 4
3. PHYS 235/206 Mechanics and Heat and Lab 4, 1
4. PHYS 207/208 Electricity and Light and Lab 4, 1
OR
HEM 110/111 General Chemistry I and Lab 3, 1

MINOR REQUIREMENT: Students must complete a minor in one of the following areas: Astronomy, 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 wherever applicable. The minor requirement will be waived for students completing one of the following engineering curricula: Aeronautical Engineering (AER), Chemical Engineering (CHG), Computer Engineering (CPE), Construction Engineering (CEN), Computer Science-General (CSG), Computer Science—Theory and Analysis (CST), Electrical Engineering (EE), Industrial Engineering (IEN), Manufacturing Engineering (MFE), Materials Engineering (MME), Mechanical Engineering (ME), Paper Engineering (PAE), or Paper Science (PAS).

NOTE: Graduate study in mathematics typically requires MATH 314, 330, 408, and MATH 570.

BACCALAUREATE WRITING REQUIREMENT: Students who have chosen the Applied Mathematics Option will satisfy the Baccalaureate Writing Requirement by successfully completing MATH 402 Mathematical Modeling.

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 basic science. 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.
**_STAT 364 Statistical Methods 4**  
**_STAT 362 Probability 4**  
**_MATH 522 Introduction to Topology 3_**  
**_MATH 430 Modern Algebra II 3_**  
**_MATH 440 Graphs and Mathematical Models OR_**  
**_MATH 445 Algorithmic and Applied Combinatorics 3_**  
**_MATH 570 Advanced Calculus I 4_**  

**ELECTIVES (select three)**  
**_MATH 340 Fundamental Concepts of Geometry_** 3  
**_STAT 362 Probability_** 4  
**_MATH 374 Differential Equations and Linear Algebra_** 4  
**_MATH 402 Mathematical Modeling_** 3  
**_MATH 408 Linear Programming_** 3  
**_MATH 430 Modern Algebra II 3_**  
**_MATH 490 Topics in Mathematics_** 3  
**_MATH 507 Numerical Analysis I_** 3  
**_MATH 510 Applied Matrix Algebra_** 3  
**_MATH 522 Introduction to Topology_** 3  
**_MATH 527 Differential Geometry of Curves and Surfaces_** 3  
**_MATH 530 Linear Algebra_** 3  
**_MATH 571 Advanced Calculus II 3_**  
**_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 530, MATH 571, MATH 580)  

**BACCALAUREATE WRITING REQUIREMENT**  
Students who have chosen the General Mathematics option may plan their program using the information below. An advisor’s approval is not necessary unless a change in the requirements is requested.

**Core Requirements**  
**_MATH 122 Calculus I_** 4  
**_MATH 123 Calculus II_** 4  
**_MATH 230 Elementary Linear Algebra OR_**  
**_MATH 374 Differential Equations and Linear Algebra_** 4  

**Electives (Choose two)**  
**_MATH 272 Multivariate Calculus and Matrix Algebra_** 4  
**_MATH 145 Discrete Mathematical Structures_** 3  
**_MATH 314 Mathematical Proofs_** 3  
**_MATH 330 Modern Algebra I_** 4  
**_MATH 340 Fund Concepts of Geometry_** 3  
**_MATH 350 Teaching of Middle School Mathematics_** 3  
**_MATH 351 Computing Technology in Secondary School Mathematics_** 3  
**_MATH 354 Combinatorics_** 3  
**_MATH 440 Graphs and Mathematical Models OR_**  

**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.

**Core Requirements**  
**_MATH 122 Calculus I_** 4  
**_MATH 123 Calculus II_** 4  
**_MATH 230 Elementary Linear Algebra OR_**  
**_MATH 374 Differential Equations and Linear Algebra_** 4  

**Electives (Choose two)**  
**_MATH 272 Multivariate Calculus and Matrix Algebra_** 4  
**_MATH 145 Discrete Mathematical Structures_** 3  
**_MATH 314 Mathematical Proofs_** 3  
**_MATH 330 Modern Algebra I_** 4  
**_MATH 340 Fund Concepts of Geometry_** 3  
**_MATH 350 Teaching of Middle School Mathematics_** 3  
**_MATH 351 Computing Technology in Secondary School Mathematics_** 3  
**_MATH 354 Combinatorics_** 3  
**_MATH 440 Graphs and Mathematical Models OR_**  

**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—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 340 Fund Concepts of Geometry_** 3  
**_MATH 350 Teaching of Middle School Mathematics_** 3  
**_MATH 351 Computing Technology in Secondary School Mathematics_** 3  
**_MATH 354 Combinatorics_** 3  
**_MATH 440 Graphs and Mathematical Models_** 3  

**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.

**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 350 Teaching of Middle School Mathematics_** 3  
**_MATH 351 Computing Technology in Secondary School Mathematics_** 3  
**_MATH 354 Combinatorics_** 3  
**_MATH 440 Graphs and Mathematical Models_** 3  

**Elementary And Middle School Teaching Minor**  
Students in an Elementary School and Middle School curriculum must contact a mathematics advisor to seek enrollment in this minor.

**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 100 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 enroll in 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 intercollegiate mathematics competition.

**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) an upper-level theoretical course an approved independent study project leading to a paper or presentation Interested students should see the Coordinator of Undergraduate Programs in their junior year or early in their senior year to plan an "honors program."

**Putnam Seminar**  
The Putnam Seminar is a problem-solving seminar 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 intercollegiate mathematics competition.
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, linear equations and 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 a 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 a 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, gambling, voting, fair division, 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. It will be a discussion of: sets, relations and functions, systems of linear equations and inequalities; vectors and matrices; concepts of probability; random variables; and decision 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, trigonometric, logarithmic and exponential functions. Prerequisite: MATH 118, or at least 3-5 years of college preparatory mathematics, including trigonometry and satisfactory score on 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 of definite integral, 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 course is a survey of these concepts with a computer science emphasis. 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 calculation. 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
4 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, congruence, and similarity; and an overview of measurement. The course also includes an introduction to the use of computers in the teaching and learning of informal geometry. 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 investigated will include sets, relations and functions; systems of linear equations. Credit for MATH 111 will not be granted to anyone having already received credit with a grade of "C" or better.

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 1-3 years high school algebra and 1 year high school geometry and satisfactory score on placement test. Students who take both MATH 122 and MATH 200 will receive only 4 hours of credit toward graduation.

MATH 203 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 products, determinants. Some emphasis on proofs. Prerequisite: MATH 122 (MATH 123 recommended).

MATH 205 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 314 Mathematical Proofs
3 hrs.
The prime objective of this course is to involve the students in the writing and presenting of mathematical proofs. The 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, parity and the relation of 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 task of finding roots of polynomials. Topics include: Properties of the integers, congruences, the Euclidean algorithm, groups, subgroups, cosets, Lagrange's theorem, 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 structures 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 uses of computing technology to enhance and extend the learning of mathematical topics in grades
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 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. Case studies considered will involve many areas of application and several different mathematical techniques. The computer will be used as a tool in 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. Prerequisite: MATH 374 and a computer programming course.

MATH 408 Linear Programming
3 hrs.
Linear programming and its applications. This course will cover basic theory and applications of linear programming. The topics will include convex geometry, the simplex algorithm, and duality. The applications may include problems in the areas of network optimization, the transportation problem, the assignment problem, the diet problem, cluster analysis, L_1 fits, game theory, and scheduling. Prerequisite: 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. Prerequisites: 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. Prerequisite: 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 the undergraduate programs. May be taken more than once with the approval of the student's advisor. Prerequisite: Approval of Department.

MATH 510 Advanced Calculus II
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 metrizability. 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 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
4 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 explore the connections among numeric, graphic, and symbolic representations of mathematical ideas; and to model and solve problems involving quantitative variables. Prerequisites: MATH 150, 151, 265, and 352 with grades of "B" or better or consent of instructor.

MATH 555 Mathematical Modeling and Problem Solving in the Elementary/Middle School Curriculum
4 hrs.
This course provides experiences in mathematical modeling and problem solving for elementary/middle school teachers. Problem contexts are selected to deepen students' understanding of important ideas in number theory, algebra, geometry, probability, statistics, and the conceptual underpinnings of calculus. Calculators and computers are used extensively. Prerequisites: MATH 554 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-Stieljes 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.
PHIL 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: Permission of instructor.

102 COLLEGE OF ARTS AND SCIENCES

PHILOSOPHY

Marc Alspector-Kelly
Kent Baldner
Sylvia Culp
John Dilworth
Joseph Elin
Arthur Falk
Stephen Jefferson, Adjunct
Timothy McGrew
Michael Pritchard
Quentin Smith

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 PRE-REGISTRATION EACH SEMESTER, 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.WMNICH.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.

Honors Program
Applications to the departmental honors program are invited from qualified students. A student wishing 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—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 252. 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, 255, or some upper-level courses. 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 255, 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 included are argument identification and argument structure, definitions and disputes, deductive 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 everyday 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 recognized as societal concerns will be emphasized. The detailed analysis of a case study will include reading of the relevant science and technology.

**300-LEVEL COURSES**

Each semester, detailed course descriptions are posted outside room 320 Moore Hall prior to pre-registration. If you are in doubt about whether you have adequate background for taking a course, talk with the instructor.

**PHIL 300 Ancient and Medieval Philosophy**

4 hrs. A study of the history of selected philosophical topics up to the sixteenth century. Great thinkers, such as Plato, Aristotle, Augustine, and Aquinas will be emphasized. This course 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**


**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, Robert 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; ethics.

**PHIL 314 Philosophy and Public Affairs**

3 hrs. A philosophical examination of principles and values underlying contemporary social issues. The course will focus on specific issues such as environmental concerns, animal rights, abortion, privacy, censorship, world hunger, economic justice, business ethics, violence, war, peace, and utopian ideals. Topics to be announced in the Schedule of Classes. May be repeated for credit when topics vary.

**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, harassment, 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 in 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 need 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 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 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: existence, 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 people make sense of their world and themselves. Topics may vary from term to term, but will include a philosophical study of the physical, biological or social sciences and some areas in the humanities that reflect changes in values associated with the modern worldview.

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. 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.
Seminar may be set up to be taken for 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. Prerequisite: 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 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. Prerequisites: 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 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 model logic, aritic logic, tense logic, relevance logic and counterfactuals. In addition, the course will address salient issues in the philosophy of logic and may include an investigation of the logical paradoxes and 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 just 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 aims of the health sciences; the interplay of fact and value in healthcare; competing images of humankind 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, laws, 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 556 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
Paul Pancella, Chair
Nora Berna
Clement Burns
Sung Chung
Thomas Gorczyca
Dean Halderson
Gerald Hardie
Charles Henderson
Emmanuel Kamber
Kirk Korista
Arthur McGum
Lisa Paulus
Robert Pont
Alvin Rosenthal
David Schuster
Robert Shamu
John Tanis
Alan Wuosmaa
Aletta Zietsman

The Department of Physics offers four programs of study leading to a major in physics. 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) programs are designed to prepare students to teach physics at the high school level. A Geophysics Major, supported 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 210 with a grade of "C" or better in each course.

Physics Major

**REQUIRED COURSES**

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat</td>
<td>4</td>
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<tr>
<td>PHYS 206</td>
<td>Mechanics and Heat Laboratory</td>
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<tr>
<td>PHYS 207</td>
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<tr>
<td>PHYS 209</td>
<td>Introductory Modern Physics</td>
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<tr>
<td>PHYS 309</td>
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<tr>
<td>PHYS 310</td>
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<tr>
<td>PHYS 330</td>
<td>Thermodynamics and Kinetic Theory</td>
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<td>PHYS 420</td>
<td>Lasers and Modern Optics</td>
<td>3</td>
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<tr>
<td>PHYS 562</td>
<td>Atomic and Molecular Physics</td>
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<td>PHYS 564</td>
<td>Nuclear and Particle Physics</td>
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<td>ECE 320</td>
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<td>Linear Systems</td>
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<td>ECE 380</td>
<td>Probabilistic Methods of Signal and System Analysis</td>
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<td>ECE 420</td>
<td>Power Electronics</td>
<td>3</td>
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<td>ECE 430</td>
<td>Electrical Power Systems</td>
<td>3</td>
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<td>ECE 452</td>
<td>Digital Systems II</td>
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<tr>
<td>ECE 455</td>
<td>Digital Signal Processing</td>
<td>3</td>
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<td>ECE 460</td>
<td>Communication Systems</td>
<td>3</td>
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<tr>
<td>ECE 470</td>
<td>Feedback Systems</td>
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**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.

**REQUIRED COGNATES**

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<thead>
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<tr>
<td>MATH 120</td>
<td>Calculus I</td>
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<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
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<td>MATH 272</td>
<td>Vector and Multivariate Calculus</td>
<td>4</td>
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<td>MATH 374</td>
<td>Introduction to Linear Algebra and Differential Equations</td>
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<td>MATH 572</td>
<td>Vector Calculus and Complex Variables</td>
<td>4</td>
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<td>CHEM 110</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>CHEM 112</td>
<td>General Chemistry II</td>
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**COMPUTER PROGRAMMING REQUIREMENT**

The Department requires Physics majors to be proficient in a programming language. This requirement can be met by demonstrating proficiency or by passing CS 104 or CS 107 with a grade of "C" or higher.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Physics major with Electrical Engineering option must 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**

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<td>ECE 460</td>
<td>Communication Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 470</td>
<td>Feedback Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**COMPUTER PROGRAMMING REQUIREMENT**

The Department requires Physics majors to be proficient in a programming language. This requirement can be met by demonstrating proficiency or by passing CS 104 or CS 107 with a grade of "C" or higher.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Physics major with Electrical Engineering option must satisfy the Baccalaureate Writing Requirement by successfully completing PHYS 466 Advanced Laboratory.

**Physics Major with Electrical Engineering Option**

This program is designed for those students who wish to pursue a physics degree with a concentration in Electrical Engineering.

**REQUIRED COURSES**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208</td>
<td>Electricity and Light Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 309</td>
<td>Introductory Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 310</td>
<td>Introductory Modern Physics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 330</td>
<td>Thermodynamics and Kinetic Theory</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 420</td>
<td>Lasers and Modern Optics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 440</td>
<td>Analytical Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 460</td>
<td>Quantum Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 466</td>
<td>Advanced Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 563</td>
<td>Solid State Physics</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>General Chemistry II</td>
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</tr>
<tr>
<td>CHEM 113</td>
<td>General Chemistry II</td>
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<tr>
<td>ECE 210</td>
<td>Circuit Analysis</td>
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<tr>
<td>ECE 221</td>
<td>Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 310</td>
<td>Network Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**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.

**REQUIRED COGNATES**

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<tr>
<th>Course</th>
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<tr>
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<td>4</td>
</tr>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Algebra and Differential Equations</td>
<td>4</td>
</tr>
<tr>
<td>MATH 572</td>
<td>Vector Calculus and Complex Variables</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
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**COMPUTER PROGRAMMING REQUIREMENT**

The Department requires Physics majors to be proficient in a programming language. This requirement can be met by demonstrating proficiency or by passing CS 104 or CS 107 with a grade of "C" or higher.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Physics major with Materials Physics option must satisfy the Baccalaureate Writing Requirement by successfully completing ENGL 305 Practical Writing.

**Physics Major—Secondary Education**

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS 103</td>
<td>Sky and Solar System Laboratory</td>
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</tr>
<tr>
<td>PHYS 104</td>
<td>Introduction to the Sky and Solar System</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat</td>
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</tr>
<tr>
<td>PHYS 206</td>
<td>Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208</td>
<td>Electricity and Light Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 209</td>
<td>Introductory Modern Physics</td>
<td>3</td>
</tr>
</tbody>
</table>

**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.

**REQUIRED COGNATES**

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**COMPUTER PROGRAMMING REQUIREMENT**

The Department requires Physics majors to be proficient in a programming language. This requirement can be met by demonstrating proficiency or by passing CS 104 or CS 107 with a grade of "C" or higher.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Physics major with Materials Physics option must satisfy the Baccalaureate Writing Requirement by successfully completing ENGL 305 Practical Writing.
PHYS 310 Introductory Modern Physics Laboratory 1
PHYS 320 Problems in Mechanics 2
PHYS 331 Problems in Thermodynamics 1
PHYS 342 Electronics 4
PHYS 352 Lasers and Modern Optics 3
PHYS 404 Teaching of Secondary Science 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
CHEM 110 and 111 General Chemistry I 4
CHEM 112 and 113 General Chemistry II 4

Refer to the College of Education section of this catalog for additional curriculum requirements for this program. Students should meet with the undergraduate advisor to plan a course of study as soon as possible.

BACCALAUREATE 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 1
GEOL 460 Geologic Communications 1
GEOL 560 Introduction to Geophysics 3

Physics (PHYS) (17-18 hours)
PHYS 205 Mechanics and Heat Laboratory 1
PHYS 206 Mechanics and Heat Laboratory 1
PHYS 207 Electricity and Light 4
PHYS 208 Electricity and Light Laboratory 1
PHYS 342 Electronics 4

One of the following
PHYS 330 Thermodynamics and Kinetic Theory 3
PHYS 352 Laser 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

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 433 Geomorphology
GEOL 435 Sedimentation and Stratigraphy
ENGL 395 Practical Writing

REQUIRED SUPPORTING COURSES
CHEM 110 and 111 or 112 and 113 (4 hours)

Physics Minor

REQUIREMENT

In addition, two physics courses numbered above 300 and totaling a minimum of six hours of credit are required.

Physics Minor—Secondary Education

REQUIREMENT 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

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.

Physics Courses (PHYS)

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

PHYS 100 How Things Work 4 hrs.
This is a course in the physics of everyday life employing a minimum of mathematics. It explores the principles of automobiles, ice skating, roller coasters, CD/DVD players, television receivers, electronic computers and other common devices and situations. The course emphasizes basic physical principles rather than details of operation. The laboratory shows students how to ask questions, and how to collect and analyze data.

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 problems, air 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 constellations; the historical development of astronomy; basic properties of light and telescopes; nature and properties of the planets and the Sun; asteroids, meteorites, and comets; and the origin and evolution of the solar system. Students must take PHYS 103 concurrently with PHYS 104 if they wish to fulfill the requirement of General Education Area VI. Prerequisite: MATH 110 or equivalent.

PHYS 105 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 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 105 concurrently with PHYS 106 if they wish to fulfill the requirements of General Education Area VI. Prerequisite: MATH 110 or equivalent.

PHYS 107 Elementary Physics 4 hrs.
This course surveys physics from mechanics to modern physics in one semester. It is designed for students in curricula requiring one semester course at the level of general college physics. A student cannot receive credit for both PHYS 107 and any of the following: PHYS 113, PHYS 205, or PHYS 207.
Prerequisite: MATH 110 or equivalent. Corequisite: PHYS 108.

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 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 non-calculus course in physics. Many schools of engineering will not accept PHYS 113-116 for transfer credit. Prerequisite: MATH 110 (or equivalent) and either a satisfactory score on the physics placement exam, or a grade of "C" or higher in PHYS 107. A student cannot 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 can receive credit for only one of the following courses: PHYS 113 or PHYS 205.

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 180 Physical Science for Elementary Educators I 3 hrs. This is the 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 the physical concepts covered in the course 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.

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. Prerequisites: PHYS 105 and either a satisfactory score on the physics placement examination, or a grade of "C" or higher in PHYS 107. A student can receive credit for only one of the following courses: 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 student can receive credit for only one of the following courses: PHYS 107, PHYS 115, or PHYS 207.

PHYS 208 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 208 and PHYS 116. Corequisite: PHYS 207.

PHYS 214 Mechanics and Heat Problems 1 hr. This course is intended for those who have had 115 General Physics I, or its equivalent at another school, and who need to show credit in 205 Mechanics and Heat. The emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 205. This course plus PHYS 113 is equivalent to Physics 205. 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 115 General Physics II, or its equivalent at another school, and who need to show credit in 207 Electricity and Light. 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 115 General Physics II or equivalent, MATH 123, and MATH 272 (or MATH 230) concurrently.

PHYS 309 Introductory Modern Physics 3 hrs. This course, with PHYS 205/206 and PHYS 207/208, completes the sequence making up the introductory courses in physics with calculus. Topics include special relativity, quantum physics, and atomic, nuclear, and solid state physics. This course consists of three lectures per week. Prerequisites: PHYS 207, MATH 272 or MATH 230.

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 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 205. This course plus PHYS 113 is equivalent to Physics 205. Prerequisites: PHYS 115 General Physics II or equivalent, MATH 123, and MATH 272 (or MATH 230) concurrently.

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 supernova; physics of white dwarf stars, neutron stars, and black holes; and basic cosmology. 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 systems of interest in physics and chemistry. Introductory kinetic theory with selected topics is also included, as 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 205.

PHYS 342 Electronics 4 hrs. Winter This course deals with analyses of transistor and integrated circuits and includes practical experience in the laboratory. There are three lectures and one 3-hour laboratory per week. A student cannot receive credit for both PHYS 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-hundred 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 those in secondary education who intend to be certified to teach 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 work in a certifiable science discipline and ED 369 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 MATH 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 magnetostatics, including Maxwell's equations, and electromagnetic radiation are treated. Prerequisites: PHYS 207 and MATH 374, and MATH 572. MATH 572 may be taken concurrently.

PHYS 480 Quantum Mechanics 3 hrs. Winter This is a first course in quantum theory. It treats the historical basis of the quantum concept in the theory of cavity radiation and the photoelectric effect. Topics include the...
Schroedinger wave equation, hydrogenic atoms, two-electron atoms, angular momentum coupling, and perturbation theory. 

**Prerequisites:** PHYS 309 and 420 or consent of instructor.

**PHYS 465 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 465.)

**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 affords 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.

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**POLITICAL SCIENCE**

David G. Houghton, Chair

James M. Butlerfield

John A. Clark

Paul Clements

J. Kevin Corrider

Sushanthi Datta-Sanchiu

Emily Hauptmann

Gunther M. Hegi

Susan Hoffmann

Alan C. Isaak

Peter Kobrak

Ashlyn Kuersten

Neil Pinney

Peter G. Renstrom

Sybil D. Rhodes

Brian F. Schaffer

Murray Scott Tanner

Lawrence Ziring

Courses in the department are 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 as well as the ability to evaluate political information critically; (6) understand the role that individuals and organized groups can play in the political process; and (7) appreciate the relationship of the study of government and public affairs to other social sciences.

Students who wish to major or minor in political science or public administration should come to the department office as soon as possible to complete the appropriate declaration form and to consult with a departmental advisor.

**Institute of Government and Politics**

The Department of Political Science houses and administers the Institute of Government and Politics (IGP). The mission of IGP is multidimensional. It 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 chartered with the development of relationships between the Department of Political Science and the various colleges, departments, and programs comprising the University.

**Foreign Study**

Study abroad is encouraged by the Political Science Department. University funds are available to assist students who would like to spend a semester studying abroad. Credit toward any of the majors in political science can be obtained while studying in other countries. To explore these opportunities, talk with one of the faculty in the Political Science Department or contact the Study Abroad Director or Coordinator, B-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 a grade point average of at least 3.5, and have completed two of the following courses:

1. PSCI 360, 361, 362, 363, or 562
2. PSCI 445, 446, 447, or 448
3. PSCI 340, 341, 344, 345, 346, 347, or 348
4. PSCI 250 International Relations
5. PSCI 255 Quantitative Methods for Political Scientists
6. One course in comparative politics (to be chosen from PSCI 340, 341, 342, 344, 345, 346, 347, or 348)
7. One course in political theory (to be chosen from PSCI 360, 361, 362, 363 or 562)

**Programs of Study**

**Political Science Major**

The major consists of a minimum of 33 semester hours of work in the department. A grade of "C" or better is required in all courses in the major, including courses in all concentrations of the major (i.e., international and comparative politics, public law, American public policy, and the secondary education curriculum). It is expected that transfer students will take at least one-half of the minimum required 33 hours in the department.

**REQUIRED CORE COURSES**

1. PSCI 200 National Government
2. PSCI 240 Introduction to Comparative Politics
3. PSCI 250 International Relations
4. PSCI 365 Scope and Methods of Political Science
5. PSCI 385 Quantitative Methods for Political Scientists
6. One course in comparative politics (to be chosen from PSCI 340, 341, 342, 344, 345, 346, 347, or 348)
7. One course in political theory (to be chosen from PSCI 360, 361, 362, 363 or 562)

**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:

1. PSCI 421 Gender and Law
2. PSCI 450 Seminar in International and Comparative Politics
3. PSCI 490 Political Science Honors Seminar
4. PSCI 494 Seminar in Political Science

**International and Comparative Politics Concentration**

This concentration is available within the political science major for students with particular career and/or advanced degree interests that would require concentrated knowledge of foreign politics and/or international business. 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
- ONE course in political theory (to be chosen from PSCI 360, 361, 362, 363 or 562)
- PSCI 366 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 (6-7 hrs.)**

- PSCI 450 Seminar in International and Comparative Politics (Prerequisites: PSCI 250, one of the 340's, and approval of the instructor or the advisor)

**BACCALAUREATE WRITING REQUIREMENT**

PSCI 457

**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**

Student must complete two years of the same foreign language, and this can be met in one of the following 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 Examination 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:

**REQUIRED CORE COURSES (24 hrs.)**

- PSCI 200 National Government
- PSCI 240 Introduction to Comparative Politics
- OR PSCI 250 International Relations
- PSCI 320 American Judicial Process
- PSCI 366 Scope and Methods of Political Science
- PSCI 395 Quantitative Methods for Political Scientists

**TWO OF THE FOLLOWING COURSES (9 hrs.)**

- PSCI 300 Urban Politics
- PSCI 304 Introduction to Public Policy
- PSCI 310 Political Parties/Elections Politics
- PSCI 311 Politics and Media
- PSCI 312 Interest Groups
- PSCI 314 Presidency
- PSCI 315 Politics of Congress

**ONE OF THE FOLLOWING COURSES (4 hrs.)**

- PSCI 340 W. European Political Systems
- PSCI 341 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 348 Religion and Politics

**ONE OF THE FOLLOWING COURSES (3 hrs.)**

- PSCI 360 History of Public Thought I
- PSCI 361 History of Public Thought II
- PSCI 362 Contemporary Political Theory
- PSCI 363 American Political Theory

**BACCALAUREATE WRITING REQUIREMENT**

ONE course to be chosen from PSCI 421, 450, 490, 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 240 Introduction to Comparative Politics
- OR 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, 366 or 562)

Requirements may be waived with the written permission of the chairperson of the department.

**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:

REQUIRED COURSES

PSCI 200 National Government
PSCI 202 State and Local Government
PSCI 240 Introduction to Comparative Politics
OR PSCI250 International Relations

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 366)

Baccalaureate Writing Requirement (to be chosen from PSCI 411, 450, 450, 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 teaching 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:

REQUIRED COURSES

PSCI 200 National Government
PSCI 202 State and Local Government
PSCI 240 Introduction to Comparative Politics
OR PSCI250 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 366)

One 3-hour elective

Group Social Studies Minor For Majors In Political Science

Secondary Education Curriculum

Students in the secondary education curriculum who major in Political Science must also complete a minor in Group Social Studies of at least 24 hours, comprised of the following:

ECON 201 and 202 6 hrs.
Two courses selected from GEOG 102, 103, 105, 201, 202, 203, 204, 905 6-7 hrs.
Two courses selected from HIST 210, 211, 212 6 hrs.
Two courses from different departments, selected from among: GEOG 311, 380, 381, 382, 383, 384, 387, 388, 389, 390, HIST 276, 302, 303, 314, 316, 326, 328, 370, 384, 385, 386; ECON 309, 387, 386; and AFS 300, 301 6 hrs.

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 Their Role in 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
405 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
350 Problems in Public Administration
531 Administration in Local and Regional Governments
532 Administration in Developing Countries
534 Administrative Theory
535 The Politics of Governmental Structures
544 Problems of Foreign Political Systems

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 Thought I: Political Theory to Thomas Hobbes
361 Introduction to the History of Political Thought 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
494 Seminar in Political Science
598 Studies in Political Science

Political Science Courses (PSCI)

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

PSCI 100 Introduction to Political Science 3 hrs.
An introduction to the 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 policies 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 approaches. The bulk of the course is a broad introduction to the major types of political systems in the modern world (liberal democratic, communist, fascist, and developmental authoritarian systems), including their guiding ideologies, historical/social origins, key institutions, and their comparative 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 prior 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 role of 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, techniques of lobbying, and a critical examination 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 process. 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 is 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, 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 future 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 in the many ways that religious beliefs influence politics and the ways in which religions are in turn shaped by political context and events. Includes country case studies 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 Reformation and the Renaissance. Emphasis placed on comparative analysis of political philosophies as they reflect the richly diverse 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 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 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.
Emphasis on judicial review, federalism, separation of powers, commerce and taxation. Decisions of the U.S. Supreme Court.

**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 be the responsibility of the instructor. **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. **Prerequisite:** 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 varies and 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.

**PSCI 506 Problems of American Government**
3-4 hrs.
A critical examination of major problems facing national, state, or local government with emphasis upon contemporary efforts and studies designed to understand or solve such problems. May be repeated for credit when topics vary.

**PSCI 526 Administrative Law and Public Regulation**
3 hrs.
A study of the requirements for, and the limits on, 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 generalist and specialist is explored.

**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.
PSYCHOLOGY

R. Wayne Fuqua, Chair
Mark Alavousis
Galen J. Alessi
John Austin
Lisa E. Baker
James E. Carr
Alyce M. Dickinson
Scott T. Gaynor
Bradley E. Huitema
Linda A. LeBlanc
Richard W. Malott
Amy Naugle
Cynthia Pietras
Alan 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. 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. 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

3-4 hrs.

Course will consider selected problems of the governments 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.

Examine selected topics within the field of international relations. Topics will vary and will be announced each semester. May be repeated for credit.

PSCI 553 United Nations

3 hrs.

A study of the United Nations in action. Attention is focused on significant political problems confronting world organization, i.e., functional and dysfunctional aspects of the UN Charter; nationalism vs. internationalism within the UN; and the role of UN peacekeeping efforts. Specific UN accomplishments in maintaining a dynamic international equilibrium, UN weakness and the future of world organization.

PSCI 555 International Law

3 hrs.

The theory, sources, development, and general principles of international law, and the relationship of law to the dynamics of international politics. Decisions of international and municipal tribunals and the practices of states will be used to demonstrate the basic rights and obligations of states in time of peace and war. Such topics as recognition of states, diplomatic practice, treaties and neutrality will also be discussed.

PSCI 562 Modern Democratic Theory

3 hrs.

The course consists of two parts. First, a consideration of traditional democratic theories, and the criticism of these theories emanating from modern theorists such as Mosca, Michels, Pareto and Ostrogorski. Second, an analysis of the attempts by contemporary economists, political scientists, and sociologists to meet these criticisms by revising democratic theory.

PSCI 563 Theories of Revolution

4 hrs.

Examines significant classical and contemporary theories of revolution with reference to the development of the working-class movement in Europe and the political and economic conditions leading to the revolutions of 1848. The students will write one major paper each semester on their study of the various political and economic systems that have emerged from various types of revolutionary upheavals.

PSCI 568 Studies in Political Science

1-4 hrs.

An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students. Approved applications required.

METHOD AND THEORY CORE (13 hrs.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</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>
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<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 Behavior Analysis Research</td>
<td>3</td>
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</table>

PRACTICUM OR LABORATORY EXPERIENCE (3 hrs.)

Take one of the 3 hour practicum or laboratory courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PSY 347</td>
<td>Practicum: Learning and Self-Management</td>
<td>3</td>
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<tr>
<td>PSY 357</td>
<td>Practicum: Special Populations</td>
<td>3</td>
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<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</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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<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>PSY 324</td>
<td>Abnormal Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 372</td>
<td>Physiological Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 398</td>
<td>Independent Study</td>
<td>1-5</td>
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<tr>
<td>PSY 428</td>
<td>Psychology of Aging</td>
<td>3</td>
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<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>
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<td>PSY 526</td>
<td>Human Drug Use and Abuse</td>
<td>3</td>
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<td>PSY 540</td>
<td>Psychology of Safety</td>
<td>3</td>
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<tr>
<td>PSY 560</td>
<td>Behavioral Medicine</td>
<td>3</td>
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<tr>
<td>PSY 561</td>
<td>Introduction to Clinical Psychology</td>
<td>3</td>
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<tr>
<td>PSY 570</td>
<td>A Behavior Analysis Approach to the Area of Developmental Disability</td>
<td>3</td>
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<td>PSY 574</td>
<td>Cross Cultural Psychology</td>
<td>3</td>
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<tr>
<td>PSY 585</td>
<td>History of Psychology</td>
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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 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>
<th>Hours</th>
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<tr>
<td>PSY 100</td>
<td>General Psychology</td>
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<tr>
<td>PSY 160</td>
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<td>PSY 250</td>
<td>Abnormal Psychology</td>
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REQUIRED COURSES (9 hrs.)

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approves electives (6 hrs.)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>PSY 324</td>
<td>Abnormal Child Psychology</td>
<td>3</td>
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<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>
</tr>
<tr>
<td>PSY 426</td>
<td>Introduction to Human Drug Use and Abuse</td>
<td>3</td>
</tr>
<tr>
<td>PSY 463</td>
<td>Health Psychology</td>
<td>3</td>
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NOTE: Three (3) hours of practicum (PSY 347, 357, 387, or 397) can substitute for 3 hours of elective.

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, Spring
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 160 Child Psychology
3 hrs. Fall, Spring
An introduction to behavior principles in the analysis of complex behavior with an emphasis on early childhood learning and the techniques for enhancing children's development. Topics include mental retardation, behavioral problems in childhood, emotional development and language learning. Prerequisite: PSY 100.

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, Spring
An introduction to the description, classification and interpretation of human behavior labelled 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 300 Statistics for the Behavioral Sciences
3 hrs. Fall, Spring
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 324 Abnormal Child Psychology
3 hrs.
This is a course for psychology majors and minors. The course provides a topical survey of the area of abnormal child psychology. The lectures introduce description, classification, and treatment of behaviors considered "abnormal" or atypical for children and adolescents. Topics include common childhood problems like ADHD, oppositional behavior, eating disorders, and depression. Prerequisites: PSY 100, 160.

PSY 330 Behavioral Research Methods
3 hrs.
An examination of the quantitative methods utilized in behavioral research. Topics include behavioral observation, interobserver agreement, 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. Within 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 (EAPs). 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 Psychology
2–4 hrs.
A laboratory course in the instructional methods of teaching psychology. May be repeated for credit, but does not fulfill major/minor requirements. Prerequisites: Consent of instructor.

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 educational program for the developmentally-disabled and the multiply-handicapped. Students serve as tutors in behavior change and training programs. Prerequisites: PSY 160, 250, and 360.

PSY 360 Concepts and Principles of Behavior Analysis
4 hrs.
Concepts and principles of behavior analysis are derived from basic human and non-human research. Empirical and theoretical issues related to operant conditioning, operant conditioning, and the control of operant behavior by motivational and emotional variables. An introductory laboratory accompanies the lecture portion of the course. Prerequisites: PSY 100, 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 with 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, surgical skills and research methodology in physiological psychology and brain behavior interactions. Laboratory procedures, research methodology, data analysis and professional writing are stressed. Concurrent 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 methods 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. Course may be repeated for credit. Prerequisite: Permission of the instructor.

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 experiences 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 is a course for non-majors and for minors in Psychology only. It cannot be applied towards the requirements for the Psychology major. The course provides a topical survey of the area of human sexual functioning. Lectures are supplemented by directed discussions, invited guest presenters, and exercises designed to prompt students to explore their own assumptions and experiences in 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.
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 428 Psychology of Aging** 3 hrs.
This is a course for psychology majors and minors. The course provides a topical survey of the area of human aging. Lectures are supplemented by course projects, invited speakers, and in-class activities designed to increase student familiarity with social, psychological, and physiological issues associated with human aging. Topics include physical health, mental health, and dementia. **Prerequisites:** PSY 100, 160, 250, and declared major or minor.

**PSY 444 Industrial/Organizational Behavior Analysis** 3 hrs.
This course focuses on conducting effective performance improvement projects in organizations. Topics include identifying performance targets worthy 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, development, and geriatrics. **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 reading, hand-outs, and film. Included also are 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 level 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, Spring
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 medicinal and recreational drugs, and surveys the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, non-human research findings will be emphasized where appropriate.

**PSY 540 Psychology of Safety** 3 hrs.
The purpose of this course is to teach students about current research and trends in the psychology of safety. Students review, critically analyze and discuss current trends in safety research, including behavior-based safety, injury/illness prevention and other relevant topics. Students receive training in the application of behavioral principles to solve specific safety problems in organizations through changing behavior and improving performance. Students gain valuable, practical experience by completing behavior-based safety assessments in business settings under the supervision of the course instructor. The assessment site is obtained by the student, with the assistance of the instructor. **Prerequisite:** Consent of instructor.

**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 critically evaluate the results. The practicum site is obtained by the student, and with the assistance of the instructor. Practicum students meet as a group with the instructor to discuss and troubleshoot the projects. **Prerequisite:** Permission of 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 regimen 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 career. In addition to coverage of contemporary professional activity engaged in by specialists in this field, like practice and research, it addresses career development issues such as selecting graduate schools, training models used by universities and private schools, internship training, licensure, and the types of degrees granted. It is a course appropriate for mid to upper level undergraduates and graduate students who are returning to study after having been away from the field for some time. **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, Arabic, and African cultures. This course is specifically not a course in American ethnicity. It will instead explore a variety of world cultures in search of an understanding of how human behavior is interpreted according to cultural tenets that are unique to a region's history and evolution. The course will also examine the importance, especially in contemporary Western society, of professional psychologists developing more than casual familiarity with predominant indigenous psychologies. The plight of persons undergoing increasing pressures to migrate for credit 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. **Prerequisites:** For undergraduates—having declared a psychology major; for 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. Course may be repeated for credit although the total number of credits may be limited by the degree program. Students should consult the program advisor. **Prerequisites:** Permission of instructor.
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 100 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
Eric Austin
Peter Kobrak
Keon-Hyung Lee
Barbara Liggett
L. Robert McConnell
Janice Maatman
Matthew S. Mingus
Victoria Ross
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)

PADM 200 Introduction to Nonprofit Leadership
3 hrs.
An overview of American nonprofit organizations, including historical and philosophical foundations of nonprofit organizations, career development and exploration, attributes of successful nonprofit leaders, youth and adult development and program planning.

PADM 210 Introduction to Nonprofit and Public Sector Leadership
3 hrs.
This course provides an overview of public administration, introduces the characteristics and environments of the public and nonprofit sectors, and examines the relationships among the public, private, and nonprofit sectors.

PADM 500 Nonprofit Advancement
3 hrs.
Study and practice of nonprofit advancement, including stakeholder assessment, development of nonprofit communication plans, project management, and fund-raising. Prerequisite: PADM 200.

PADM 510 Hard Choices in Public Policy
3 hrs.
This course examines ethical, constitutional, resource availability, political, and other issues that are raised in relation to America's most challenging public policy dilemmas. Examples of policies to be discussed include environment/economic development tradeoffs, drug legalization, inter-generational equity, social welfare, education reform, and medical ethics. Prerequisite: PADM 210.

PADM 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. Prerequisites: PADM 200 and senior status.

PADM 410 Internship in Nonprofit Leadership
3 hrs.
The goal of the internship is to provide students with a work experience that will afford realistic exposure to nonprofit leadership. The internship also allows students to complete their core competencies for American Humanics Certification. This course is graded on a Credit/No Credit basis. Prerequisites: PADM 200 and 300. Ideally, the internship will coincide with PADM 400.

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 grantmanship 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 of 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 value-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 583 Grant Writing for Nonprofit Organizations
2 hrs.
This course takes students through a proactive grant proposal writing process. The course is conducted in a workshop format with emphasis on writing a grant proposal and on logical relationships between sections of a proposal.

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 market, customer, and clients in order to 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 588 Endowment Development/Investments
2 hrs.
This course will provide students with the working knowledge of permanent endowment funds. The course will address the appropriate rationale for creating an endowment, endowment management, investment strategy, and utilization of earnings in the nonprofit environment.

PADM 589 Accounting and Financial Reporting by Nonprofit Organizations
3 hrs.
A study of the accounting and financial reporting standards applicable to nonprofit organizations. Primary topics in the course include an overview of the fund structure used by different types of nonprofit organizations, basic fund accounting entries, and a review of financial reporting models for nonprofit organizations. Additional topics to be studied include budgeting and financial analysis techniques, applicable internal controls components, as well as the organization’s relationship with internal and external auditors.

PADM 598 Readings in Public Administration
1–3 hrs.
This course offers a program of independent study to provide well qualified MPA candidates with an opportunity to explore in depth a topic or problem of interest under the guidance of a faculty member. Planning a topic for investigation is the joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits of the proposal. Consent of both the supervising faculty member and the School Director is required prior to enrolling in this course.

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 enrolment. 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.

SOCILOGY

Thomas L. Van Valey, Chair
Paula Brush
Susan Caringella-MacDonald
Susan M. Carlson
Susan L. Caufield
Paul S. Cicciante
Charles E. Crawford
Douglas V. Davidson
Thomas E. Ford
Barry Goetz
David J. Hartmann
Gregory Howard
Vycheslav Karpov
Ronald C. Kramer
Richard R. MacDonald
Gerald Marble
Angela Moe
Victoria Ross
Zoann Snyder
Sushbik R. Somnad
Robert Waid
Rachel Whaley
Paul L. Wienir

Courses are designed to give students a better understanding of the significant factors and processes of modern life; to provide study useful for particular applied fields, such as social work, criminal justice, market research, opinion polling, city, state, and federal governmental service, and social research; to meet the needs of students preparing to teach in the social science field; and to prepare students for graduate work in sociology or criminal justice.

The Kercher Center for Social Research, as the research arm of the department, provides facilities and services available to students as well as faculty for instructional and research purposes. The center maintains computer and other research facilities that are used in research course instruction. Research conducted through the center has dealt with subjects such as: criminal justice, marital roles, race relations, voting behavior, alcoholism, mental health, demography, and education.

Department Advisor
2401 Sangren Hall, 387-5286. Students must consult the department advisor for major/minor slips in Sociology, Criminal Justice, the Social Psychology Concentration, and for the evaluation of transfer credits, or for any other questions involving majors or minors.

Undergraduate Assistantships
Students interested in becoming more involved in the department’s activities and projects may wish to apply for undergraduate assistantships which are available fall and spring semesters. Department assistants receive a moderate stipend and are assigned to work for a faculty member or department project. Applicants for these awards are also considered for the Kercher Award. For further information and application forms, see the department advisor. Further information and application forms may be obtained at the Sociology Office, 2420 Sangren Hall.

American Humanities Certificate Program
Sociology majors and minors may choose to participate in the American Humanities Certificate Program. This program is designed to prepare students for employment, service, and leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major/minor that meet the American Humanities competency requirements, by taking the required American Humanities courses, and by meeting the 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. AKD is open to all students who have completed at least ten hours in sociology with a grade point average of 3.0 or better, and whose overall average is at least 3.0.
2. Leonard C. Kercher Fund Awards are made each year for outstanding student achievement. Dr. Kercher was head of the department from 1940 to 1972.
3. Membership in Alpha Phi Sigma, the national criminal justice honor society. Alpha Phi Sigma is open to all criminal justice students who have completed at least one third of the course hours required for graduation with an overall grade point average of 3.0 or better, and whose criminal justice average is at least 3.2.

Sociology 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 320 Introduction to Social Psychology
SOC 282 Methods of Data Collection
SOC 283 Methods of Data Analysis
SOC 480 Advanced Sociology

Electives (12 hours)
Students may choose their twelve hours of electives from the many offerings in the Department. At least two of the elective courses must be at the 300- to 500-level, only one at the 100-level, and SOC 182 is not an allowable elective.

American Humanities Certificate Program
Sociology majors and minors may choose to participate in the American Humanities Certificate Program. This program is designed to prepare students for employment, service, and leadership in nonprofit organizations. Students qualify for the certificate by taking courses in their major/minor that meet the American Humanities competency requirements, by taking the required American Humanities courses, and by meeting the 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.

Sociology Major—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 professional 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 411 Child Abuse
SOC 421 Childhood Socialization
SOC 422 Adolescent Socialization
SOC 479 Female/Male Interaction
SOC 500 Studies in Social Psychology
Variable Topics

At least three (3) hours of other electives within the Sociology department.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Sociology Major—Sociology Concentrations 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 300-level or above; (3) no more than one 100-level course may be included. Minor slips are required.

Sociology Minor—Social Psychology Concentration
Social Psychology is the study of the impact of group life on individual behavior, thought, and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in more applied fields such as social work, counseling, public administration and criminology. Since this is a concentration, students cannot major/minor in this concentration and have a sociology major/minor.

REQUIREMENTS
SOC 200, 210, and 320. Two electives (6 hours) from among the following are required:
SOC 412, 421, 422, 479, and 520. The student may include any other sociology course to complete the required eighteen (18) hours.

Criminal Justice Major
This program is designed to provide perspective on the entire criminal justice system: crime as a social problem and society's reactions to it, the organization and operation of the criminal justice system, and the correctional process, as well as causes of crime and delinquency and other current issues. While the goal of the program is to provide knowledge and skills necessary for students interested in careers in criminal justice, it will support a number of related areas. In addition, students will be well prepared to pursue professional or graduate work in law, criminology, or other areas.

Students should consider internships. Not all students are guaranteed internships and some placements require the applicant to undergo security checks. Applications are required. 33 hours

REQUISITE PREREQUISITES
The following courses are required before taking any of the core courses. These hours are not included in the 33-hour requirement for the major.
SOC 200 Principles of Sociology
SOC 210 Modern Social Problems
SOC 260 Introduction to Criminal Justice

Writing Expectation
Students should complete ENGL 105 or equivalent and write at the college level before enrolling in the following advanced courses.

BACCALAUREATE WRITING REQUIREMENTS
Students who have chosen the Criminal Justice major will satisfy the Baccalaureate Writing Requirement by successfully completing SOC 468 Advanced Criminology

REQUIRED CORE COURSES
All of the following courses (18 hours) are required. It is important to check with the advisor to ensure all courses are taken in proper sequence.
SOC 362 Criminology
SOC 363 Criminal Justice Process
SOC 364 Sociology of Law Enforcement
SOC 365 Correctional Process
SOC 454 Juvenile Delinquency
SOC 466 Advanced Criminology

REQUIRED RESEARCH METHODS
SOC 262 Methods of Data Collection
SOC 263 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
SOC 314 Ethnic Relations
SOC 320 Introduction to Social Psychology
SOC 412 Child Abuse
SOC 456 Social Stratification
SOC 495 Special Topics in Sociology and Criminal Justice (when applicable)
SOC 560 Corporate and Governmental Crime
SOC 561 Violence and the U.S. Society
SOC 562 Victimization
SOC 563 Gender and Justice
SOC 568 Race, Ethnicity, and Justice
SOC 576 U.S. Society
SOC 598 Sociology Internship (2-8 hrs.)

Corrections
SOC 465 Non-Institutional Corrections

Criminal Justice Minor
An 18-hour criminal justice minor is available, patterned after the major. Minor slips are required.

REQUIRED CORE (9 hours)
SOC 200 Principles of Sociology
SOC 210 Modern Social Problems
SOC 260 Introduction to Criminal Justice
SOC 362 Criminology

THREE OF THE FOLLOWING ARE REQUIRED
SOC 363 Criminal Justice Process
SOC 364 Sociology of Law Enforcement
SOC 465 Non-Institutional Corrections
SOC 454 Juvenile Delinquency

Sociology Courses (SOC)
A list of approved General Education courses can be found in “Graduation Requirements and Academic Advising” earlier in this catalog.

SOC 100 American Society
3 hrs.
An analysis of contemporary American society, including continuity and change in value systems, major institutions and their interrelationships, and other aspects of social life.

SOC 122 Death, Dying, and Bereavement
3 hrs.
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.)

SOC 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.
SOC 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, SOGS, MINITAB, plus introducing students to microcomputer systems. 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 SOC 182 and either BIS 102 or 110, FCS 225, PEPR 149, or CS 105.

SOC 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.

SOC 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.

SOC 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.

SOC 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 roles required to process suspects from arrest to release.

SOC 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.

SOC 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.

SOC 283 Methods of Data Analysis
3 hrs.
This course is an examination of data analytic methods in the social sciences. Major topics include frequency distributions, graphic presentation of data, measures of central tendency, measures of variability, cross-tabulation, statistical inference (significance tests), and bivariate regression and correlation.

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
3 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 class struggle of humankind to (1) come to terms with nature (cultural evolution), (2) come to terms with one another (social evolution), and (3) raise consciousness (the evolution of "universalizing" values). This enables the student to compare and contrast African, Asian, and "Western" cultures; to analyze the impact of these cultures on one another; and to understand the "indivisible nature of the human condition." This course is cross-listed with A-S 304.

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 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 modernization. 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 extent of crime and law, to causal theories of criminal behavior, to types of crimes and victims. Particularly stressed is an analysis of the relationship between law and society and social structure to crime.

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, 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, psychiatric, legal, and treatment perspectives are considered 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 adolescence. The course will focus on the child's interactions 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 patterns and group allegiances, social class membership, biological maturation, sex roles and self-awareness on adolescent behavior, personality development, and orientation toward adulthood.

**SOC 454 Juvenile Delinquency**
3 hrs.
A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment, and programs of prevention and control are considered. 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 justice system with concentration on the philosophy and functioning of juvenile courts. Personological, 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 attention is directed at 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. It examines the intersection of criminological theory, public policies, and political ideology. A number of important crime control policies are analyzed. Students are asked to review the political philosophy and theoretical ideas which underlie these policies, the research evidence on their effectiveness, and the policy implications. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: 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 looking at the public's perceptions, knowledge, and expectations, and the police's responsibilities in community relations. This course stresses the practical application of knowledge to contemporary issues facing police such as the use of deadly force, police performance, neighborhood patrols, publics, police of law enforcement, minority relations, victimless crime, and the resolution of police/community disputes. 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 techniques and programs 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 in 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 292, 293, 300, and 300.

**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 projecting what might be in the future. This sociological, historical, social psychological analysis examines current patterns of beliefs and behavior in terms of their immediate and potential 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 changes and comparative analysis. Prerequisite: SOC 200 or equivalent.

**SOC 495 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**
2-8 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 seminar sessions by advanced undergraduates. May be repeated for credit with a different topic.

**SOC 500 Computer Application in Social Research**
3 hrs.
An introduction to computer applications for graduate students in the social sciences. Students will learn the essential software needed for quantitative research, so that they can be productive researchers throughout their careers. While there is a focus on SPSS, students are made aware of other software packages, including Stata and SAS. The course is intended for students in all disciplines as well as practitioners in the fields of psychology, education, and social work. Enrollment requires the permission of the 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 kinds 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 230.

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 self, the role of group norms in defining situationally appropriate emotional feeling and expression, the management of emotions, and the ways that emotions function as both determinants and consequences of patterns of interpersonal activity. 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 topics of their choice. 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 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 disease, illness as a social process, health care professionals, the sociology of health care delivery. Prerequisite: SOC 373.

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, examines the structural and organizational force which give rise to such crimes and analyzes the problem of controlling organizational offenders. The course also examines the political process whereby corporations and governments come to be defined as deviant or criminal. Prerequisites: SOC 200 or 210, SOC 260, and SOC 362, and one other upper-level (300- or 400-level) course.

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. Possible topics could include feminist theory, sampling and survey design, poverty, and cultural studies. May be repeated for credit with a different topic.

SOC 598 Directed Individual Study 2-6 hrs.
A program of independent study (reading or research) to provide the unusually qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The initiative for planning the topic for investigation must come from the student. Approval is contingent on the merit of the proposal. Two to 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.

SOCIOLOGY 121
The Department of Spanish offers courses in Spanish language at all levels, as well as courses in culture, literature, and linguistics. In language courses emphasis is placed on developing practical communication skills which will be of interest and value to students in a wide variety of disciplines and careers. Cultural courses, through the use of authentic materials in Spanish, provide knowledge and insights into the life of the Spanish-speaking people of Spain, Spanish America, and the United States. Courses in literature and linguistics, at intermediate and advanced levels, facilitate a deeper understanding of both language and culture.

Placement
Students who have studied Spanish in high school or who have learned Spanish through travel or residence abroad must take a placement evaluation before enrolling in their first Spanish class at Western Michigan University. In addition to being used to place students in the proper class, the evaluation may serve to exempt students from foreign language requirements that exist for the College of Arts and Sciences or for specific major programs. Freshmen should take the examination during their freshman orientation session. For other students, the evaluation is offered during each registration period and scores are used in registration.

Placement courses beyond the intermediate level. We encourage them to do so, whether or not they intend to major or minor in the language. It is quite common for students who major or minor in Spanish to have an additional major or minor in a related or entirely different field. All students having questions about a Spanish major or minor are welcome to speak with an advisor during walk-in hours (for specific hours, check with the department secretary or see www.wmich.edu/spanish).

As soon as students decide to major or minor in Spanish, they should confer with the Spanish advisor 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.

Students who complete a major or minor in Spanish may be eligible for some retroactive credit based on the results of the placement examination. Questions about this matter should be referred to the Spanish advisor or department chair.

Teaching certification is approved for majors or minors in Spanish in secondary and middle school education. A course in the methods of teaching Spanish is required for all teaching majors and minors.

Baccalaureate Writing Requirement for Majors
Students who have chosen to major in Spanish will satisfy the Baccalaureate Writing Requirement by successfully completing LANG 375 Foreign Literature in English Translation.

Residency Requirement for Majors and Minors in Spanish
Majors in 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 Spanish must take at least three courses (of the total required for the minor) at the 200-level or above at Western Michigan University.

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, 528, 529, 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, 528, 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 100-level to include LANG 558; SPAN 316, 317; and six hours from SPAN 321, 322, 323, 324, or 325. 400- or 500-level Spanish courses are appropriate for the particular foreign language. Prerequisite: LANG 101 or equivalent in the same language.

Spanish Minor: Translation
Three hours beyond the 100-level to include LANG 275, 375, and 558, and one 400-level Spanish course.

MAJORS AND MINORS
Given the increasing importance of Spanish as an international language and within the United States, many students wish to take Spanish courses as electives. While the study of Spanish is not required for any major or minor, it can fulfill a baccalaureate-level writing requirement in Spanish. Representative topics which may be treated in this course include:

FOREIGN LANGUAGES

The Departments of English, Foreign Languages, and Spanish 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, 387-3018.

FOREIGN CREDITS

Credits for language study at a foreign university may be granted upon 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)

LANG 100 Basic Foreign Languages I
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 Spanish. 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 in Spanish.

The Departments of English, Foreign Languages, and Spanish 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, 387-3018.
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 Hauptmann to the present, including Mann, Brecht, Kafka, and Borchert.

Russian Literature in English Translation
A survey of the development of major Russian prose in its historical and cultural context. The course will include but not be restricted to works by Pushkin, Gogol, Turgenev, Dostoevski, Tolstoy, Gorki, Sholokhov, Pasternak, and Solzhenitsyn.

Spanish-American Literature in English Translation
A study of major Spanish prose and poetry from the Spanish-American Literature in English Translation
English translation. Possible themes include: the Tragic Outlook; Ancient Epic; the Philosophic-Satirical Tradition in Russian Literature in English Translation
Hauptmann to the present, including Mann, Brecht, Kafka, and Borchert.

Spanish Literature in English Translation
Selected Spanish prose and poetry from the Middle Ages to Calderon de la Barca, Unamuno, and Garcia Lorca, as well as the Anonymous Poem of the Cid 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 Spanish. The course may be taken in more than one language area.

LANGUAGE TEACHING COURSE
LANG 558 Modern Language Instruction (in French, German, Spanish, or other language) 3 hrs.
Required for modern language teaching majors and minors. This course will acquaint prospective language teachers with various approaches and strategies involved in modern language teaching. Specifically, in a performance-oriented program, students will learn theory and practice related to teaching the listening, speaking, reading and written skills, and the culture component.

Students must complete this course before beginning directed teaching. Prerequisite: Minimum of four courses including a language at the 316 and 317 level, or equivalent, or permission of instructor.

This course will be offered regularly.

FOREIGN LANGUAGES FOR SPECIAL PURPOSES
LANG 580 Foreign Language for Special Purposes 1-12 hrs.
The study of or practice in a specialized area in the field of foreign language and culture such as court interpreting, medical or engineering terminology, or public school administration. The content of this course may vary from semester to semester. Students may repeat the course for credit, provided the subject matter differs. Prerequisite: Completion of four courses in a area of specialization, departmental approval required.

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 conversations, compositions 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 the 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 275 Latino Writing/Latino Culture 3 hrs.
This course, taught in English, emphasizes the diverse nature of Latino writing and Latino culture by focusing on representative literary texts illustrating the Hispanic role within contemporary United States society. It seeks to explain not only the relevance of this presence, but also the complexities inherent to bilingualism and biculturalism as experienced by those communities depicted in the works of prominent authors. This course does not count toward a 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. Prerequisites: 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 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 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 in 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 expressions. Prerequisites: SPAN 316, 317, and one additional 300-level course.

SPAN 454 Spanish Phonetics 3 hrs.
An alternative 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 comparative 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
4-6 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.

SPAN 490 Studies in Spanish Linguistics
3 hrs.
Topics vary according to area and will be announced. Each of these courses carries separate credit, although all are listed under 490. Thus, a student may take any or all of the offerings at various times. Prerequisites: SPAN 316, 317, and 324.

SPAN 510 Studies in Hispanic Culture
3 hrs.
An intensive study of various aspects of Spanish and Spanish American culture. Emphasis is on cultural understanding as an avenue to increased proficiency in the Spanish language. Since specific topics will vary each semester, this course may be repeated for credit. Prerequisites: SPAN 316, 317, 322, 323, or 324; plus one additional course at the 300-level or above.

SPAN 526 Survey of Spanish Literature to the 18th Century
3 hrs.
A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 316, 317 and 325.

SPAN 527 Survey of Spanish Literature from the 18th Century to the Present
3 hrs.
A survey of Spanish literature from the eighteenth century to the present. Prerequisites: SPAN 316, 317 and 325.

SPAN 528 Survey of Spanish American Literature to Modernismo
3 hrs.
A survey of Spanish American literature from its origin to the era of Modernismo (late 19th century). Prerequisites: SPAN 316, 317, and 325.

SPAN 529 Survey of Spanish American Literature from Modernismo to the Present
3 hrs.
A survey of Spanish American literature from late 19th century to the present. Prerequisites: SPAN 316, 317, and 325.

SPAN 550 Independent Study in Spanish
1–3 hrs.
Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One 500-level literature course in the major; a minimum grade point average of 3.0 in the major. Not open to minors.

SPAN 560 Studies in Spanish Literatures
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. Prerequisite: SPAN 316, 317, and 325.

Representative topics which may be treated in this area include:
- Cervantes—Don Quijote and other works of Cervantes, together with his life and thought.
- Seventeenth Century Theater—Main works of Lope de Vega through Calderon de la Barca.
- Nineteenth Century—The Romantic Movement.
- Nineteenth Century Novel—Development of the regional novel from Fernan Caballero through Blasco Ibanez.
- Generation of '98—Thought and works of typical representatives such as Unamuno, Azorin, Baroja, and A. Machado.

Contemporary Spanish-American Short Story—Significant short stories along with the cultural and social background.

Contemporary Spanish-American Novel—The new Spanish-American novel along with the cultural and social background.

STATISTICS

Daniel Minako, Chair
Loren Heun
Joseph McKean
Joshua Naranjo
Magdelenia Niewiadomska-Bugaj
Gerald Sievers
Michael Stoline
Jung Chao Wang
Esteban Wondmagegnehu

Statistics is the science of data analysis and inference. The Department of Statistics offers a variety of courses in applied and theoretical statistics. Course work is designed to enable students to function professionally as statisticians in industry or government and to prepare them for graduate study in statistics. Shortages of qualified statisticians are anticipated through the next decade.

The department offers a major in statistics and two minors, one in applied 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 their first year, 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" can 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. Statisticians frequently work in government and industry as part of a team of specialists, in areas such as business, biology, pharmaceutics, demography, economics, and the health sciences.

COGNATE REQUIREMENTS

MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 230 Elementary Linear Algebra 4
MATH 272 Multivariate Calculus and Matrix Algebra 4
Plus CS 111 and one computer language course (e.g., CS 104, 107, 201, 203, 204, 205, 206)

CORE REQUIREMENTS

STAT 362 Probability 4
STAT 364 Statistical Methods 4
STAT 462 Introduction to Mathematical Statistics 3
STAT 464 Introduction to Statistical Computing 3
STAT 481 Communicating Statistical Results 3
STAT 567 Statistical Design and Analysis of Experiments 4
STAT 568 Regression Analysis 3
One of STAT 561, 563, 565, 566, MATH 570 3

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Statistics major will satisfy the Baccalaureate Writing Requirement by successfully completing STAT 481 Communicating Statistical Results.
Statistics Minor

STAT 364 Statistical Methods 4
STAT 362 Probability 4
STAT 464 Introduction to Statistical Computing 3
STAT 568 Regression Analysis 3
Approved Elective* 3

*The elective would normally be selected from the following list of courses: STAT 561, STAT 563, STAT 565, STAT 566, STAT 567. An approved calculus-based introductory course in statistics may be substituted for STAT 364 with the approval of the department.

Applied Statistics Minor

STAT 366 or equivalent 4
STAT 464 3
STAT 568 3
Two of STAT 561, 563, 565, 566, 567, or one of these courses and an approved statistics course from the student's area of major or related area 6-7.

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 leading to a paper or presentation

Interested students should see their advisor in their junior year or early in their senior year to plan an "honors program."

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 sampling methods.
Prerequisite: MATH 110 or satisfactory score on Western Michigan University's computer literacy requirement and an introductory statistics course.

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 260 Elementary Statistics 4 hrs.
The purpose of this course is to introduce students to the rudiments of statistics. Basic concepts, rather than detailed derivation, are stressed. Topics include probability, discrete random variables, means and variances, binomial, hypergeometric, normal, chi-square, F distributions, interval estimates, and tests of hypotheses.

Prerequisites: MATH 200 or 122.

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 303 Data Analysis with Excel 3 hrs.
A course in statistical computing using the Excel software. Topics will include data management and manipulation, numerous types of graphical presentation, descriptive statistics for one and several variables, categorical variables and tables, multiple analyses, macro programming, and simulations. Excel results to be organized in high quality reports and presented on the web.

Prerequisite: MATH 110 or satisfactory score on the mathematics department placement exam.

STAT 362 Probability 4 hrs.
Discrete probability spaces, conditional probability, discrete and continuous random variables, expectations, joint 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 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, means, medians, standard deviation, percentiles, correlation and regression—interpretation and prediction problems; the normal and binomial distributions; simulation; 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 non statistical 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, 566, 567, or 568.

STAT 462 Introduction to Mathematical Statistics 3 hrs.
Topics to be included are multivariate probability distributions, sampling distributions, asymptotic theory, theory of estimation, and likelihood ratio.

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, SPSS, and BMDP packages with particular emphasis on SAS and MINITAB. The statistical graphics capabilities of SAGSAGRAPH 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 481 Communicating Statistical Results 3 hrs.
The emphasis of the class will be the reporting of statistical analysis so that all relevant information is conveyed, avoiding the use of jargon and enhancing the text with use of informative tables or graphs. Examples of statistical reports will be examined and discussed. Students will be assigned projects involving data gathering and analysis. Written and oral reports on the methodology used and the results of the analysis will be required of each student. Student reports will then be discussed and critiqued by the class for content and clarity of writing as well as appropriateness of the methodology used. This course is approved as a writing intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum.

Prerequisites: STAT 362, 364, 464, and approval of instructor.

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

STATISTICS 125
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. Prerequisites: 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 statistical methods commonly referred to as nonparametric or distribution-free methods. Topics include: inferences for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing based on ranking methods, measures of rank correlation, efficiency. Emphasis will be on the application of nonparametric statistical methods to data from many different applied fields. 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.
Academic Advising

Students should contact an advisor as early as possible. Advisors are available to assist in the individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and special transfer credit must be approved by the advisor, the curriculum committee, or the Faculty Chair. Academic advising is available in room 5330 McCracken Hall, phone (269) 387-0347. Because of the practice due to 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. 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.

Students are required to have their own tools for courses required for the Airframe and Powerplant Certificate. Class-related charges are assigned for laboratory courses. Refer to current semester course offerings booklet for course fees.

Air Force Reserve Officers' Training Corps (AFROTC) Program

Western Michigan University, Michigan State University, and the United States Air Force have an agreement that enables WMU students to attend AFROTC classes at MSU while earning their degree at WMU. The AFROTC program provides pre-professional preparation for future Air Force officers. The program is designed to develop men and women who can apply their education to their initial assignments as commissioned officers. In order to receive a commission, ROTC cadets must complete all requirements for a degree in accordance with University requirements, as well as complete certain courses specified by the MSU Department of Aerospace Studies. Depending on the student's program of study, such courses may supplement or serve as electives with the approval of the appropriate academic unit. For an undetermined amount of time all AFROTC classes will only be offered on the campus of Michigan State University, and students must register through Michigan State University's Lifelong Education program.

For more information about the AFROTC program and or scholarship opportunities call (517) 355-2168 or visit www.afrotc.com or www.mus.edu/user/afrotc.

For more information about how these courses may be applied to your aviation degree at WMU, contact a College of Aviation academic advisor at (269) 387-0347.

For students enrolled in other colleges at WMU, contact your academic advisor to find out how these courses might be applied to your specific degree requirements.

CURRICULA

The College of Aviation offers the following curricula:
- Aviation Flight Science—Bachelor of Science (Option A; Option B)
- Aviation Science and Administration—Bachelor of Science
- Aviation Maintenance Technology—Bachelor of Science

Admission to the Pre-Aviation Curricula

Admission criteria for all curricula in the College of Aviation are a high school grade point average of 3.0 and an ACT score or 21. These criteria will apply to first-time college enrollees only.

The Office of Admissions and Orientation will admit all incoming freshmen who seek a major in the College of Aviation to a Pre-Aviation (PAV) curriculum. The Pre-Aviation admission codes are PAV/AFL for Aviation Flight Science, PAV/AVA for Aviation Science and Administration, and PAV/MTE for Aviation Maintenance Technology. Students who meet the College of Aviation admission criteria will be placed in their major by the College of
Aviation. Students who do not meet the criteria will be kept in PAV status. The student in this status must then complete certain course work with a minimum of "C" in each course and have achieved a 2.5 overall grade point average. Once the student meets these requirements they will be placed in their major by the College of Aviation Academic Advising office. The course curricula of PAV students must complete satisfactorily follow:

**AVS 120 Introduction to Aviation** 2 hrs.
**AVS 121 Aerodynamics and Performance** 2 hrs.
**IME 102 Technical Communication** 3 hrs.
**PHYS 107 Elementary Physics** 4 hrs.
**PHYS 108 Elementary Physics** 4 hrs.
**PSY 100 Psychology** 3 hrs.
**COM 170 Interpersonal Communication** 3 hrs.

**AVIATION FLIGHT SCIENCE—OPTION A**

**Required Courses**

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<th>Course Code</th>
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<th>Credit Hours</th>
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<td>Introduction to Aviation</td>
<td>2</td>
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<tr>
<td>COM 170</td>
<td>Interpersonal Communications</td>
<td>3</td>
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<td>Technical Communication</td>
<td>3</td>
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<td>PHYS 107</td>
<td>Elementary Physics</td>
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<td>Psychology</td>
<td>3</td>
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**Option A: 122 hours**

**Option B: 128 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 ensures that students learn essentials that are required by the commercial airline industry. Concepts emphasized include Crew Resource Management (CRM), Line Oriented Flight Training (LOFT), international flight, and airline regulations, profitability, management and administration, and marketing. Equipment includes a modern fleet of single- and multi-engine aircraft and state-of-the-art Flight Training Devices (FTD) which provide exposure to current Electronic Flight Instrumentation Systems (EFIS) and Flight Management Systems (FMS). Graduates of this curriculum earn their Federal Aviation Administration (FAA) Commercial Pilot Certificate with Instrument and Multi-engine Land ratings.

**FAA MEDICAL CERTIFICATE**

Students considering this curriculum are highly encouraged to obtain 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 criteria of hours 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 option will satisfy the Baccalaureate Writing requirement by successfully completing AVS 427 Airline Administration.

**AVIATION FLIGHT SCIENCE, CERTIFIED ACCELERATED PILOT TRAINING—OPTION B**

This option contains the same content as Option A with the addition of a jet orientation class and the inclusion of the flight instructor rating as a part of the curriculum rather than an elective. The primary difference is the compressed format of the core flight program. In this core, courses will be conducted approximately six hours daily, five days per week. This nontraditional format may not be suitable for all students. Acceptance into this option is by College of Aviation recommendation only.

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<tr>
<td>IME 102</td>
<td>Technical Communication</td>
<td>3</td>
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<tr>
<td>BIS 102</td>
<td>Introduction to Information Processing</td>
<td>3</td>
</tr>
<tr>
<td>GEG 105</td>
<td>Introduction to Meteorology (AREA VII)</td>
<td>4</td>
</tr>
<tr>
<td>COM 170</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>
**Aviation Science Courses (AVS)**

**AVS 120 Introduction to Aviation 2 hrs.**
Development of aviation, fundamentals of flight, 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:** PHYS 107 and 108, or taken concurrently.

**AVS 122 Aircraft Systems 3 hrs.**
Flight, navigation, and electrical systems. Maintenance and airworthiness requirements.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVS 120</td>
<td>Introduction to Aviation</td>
<td>2</td>
</tr>
<tr>
<td>CS 105</td>
<td>Introduction to Computers</td>
<td>3</td>
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<tr>
<td>PHYS 107</td>
<td>Elementary Physics</td>
<td>4</td>
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<tr>
<td>PHYS 108</td>
<td>Laboratory</td>
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<tr>
<td>IME 102</td>
<td>Technical Communication</td>
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<tr>
<td>PSY 100</td>
<td>General Psychology</td>
<td>3</td>
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<tr>
<td>AVS 121</td>
<td>Aerodynamics and Performance</td>
<td>2</td>
</tr>
<tr>
<td>AVS 205</td>
<td>Aviation Safety</td>
<td>2</td>
</tr>
<tr>
<td>MATH 200</td>
<td>Calculus with Applications</td>
<td>4</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education Elective*</td>
<td>3-4</td>
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<tr>
<td>AREA II</td>
<td>General Education Elective*</td>
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<tr>
<td>COM 170</td>
<td>Interpersonal Communication</td>
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<tr>
<td>CHEM 110</td>
<td>General Chemistry I</td>
<td>3</td>
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<tr>
<td>CHEM 111</td>
<td>General Chemistry Laboratory I</td>
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</tr>
<tr>
<td>STAT 260</td>
<td>Elementary Statistics</td>
<td>4</td>
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<tr>
<td>IME 142</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>AREA II</td>
<td>General Education Elective*</td>
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<tr>
<td>AREA VII</td>
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<tr>
<td>AVS 261</td>
<td>Maintenance Regulations</td>
<td>2</td>
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<td>AVS 262</td>
<td>Aircraft Structures I</td>
<td>3</td>
</tr>
<tr>
<td>AVS 263</td>
<td>Basic Aircraft Engines</td>
<td>4</td>
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<tr>
<td>AVS 264</td>
<td>Aircraft Electrical I</td>
<td>2</td>
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<tr>
<td>AVS 265</td>
<td>Aircraft Electrical II</td>
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<tr>
<td>AVS 360</td>
<td>Reciprocating Engine Overhaul</td>
<td>3</td>
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<tr>
<td>AVS 362</td>
<td>Aircraft Structures II</td>
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<tr>
<td>AVS 363</td>
<td>Reciprocating Engine Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVS 364</td>
<td>Aircraft Electrical II</td>
<td>4</td>
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<td>AVS 365</td>
<td>Non-Destructive Testing</td>
<td>3</td>
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<td>AVS 366</td>
<td>Avionics</td>
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<tr>
<td>AVS 367</td>
<td>Airframe Systems</td>
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<tr>
<td>AVS 369</td>
<td>Testing, Evaluation and Instrumentation</td>
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</tr>
<tr>
<td>AVS 460</td>
<td>AC Inspection and Service I</td>
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<tr>
<td>AVS 461</td>
<td>AC Inspection and Service II</td>
<td>4</td>
</tr>
<tr>
<td>AVS 462</td>
<td>Reliability, Maintainability and Supportability</td>
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<tr>
<td>AVS 464</td>
<td>AC Turbine Engine and Systems</td>
<td>4</td>
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<tr>
<td>AVS 473</td>
<td>Advanced Airframe Systems</td>
<td>3</td>
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<tr>
<td>AVS 490</td>
<td>Senior Project I</td>
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<tr>
<td>AVS 491</td>
<td>Senior Project II</td>
<td>2</td>
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<tr>
<td>AREA III</td>
<td>General Education Elective*</td>
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</tr>
<tr>
<td>AREA IV</td>
<td>General Education Elective*</td>
<td>3</td>
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<tr>
<td>AVS 141</td>
<td>VFR Operations 8 hrs.</td>
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<tr>
<td>AVS 205</td>
<td>Aviation Safety</td>
<td>3</td>
</tr>
<tr>
<td>STAT 216</td>
<td>Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 370</td>
<td>Integrated Communication in Business</td>
<td>2</td>
</tr>
<tr>
<td>AREA III</td>
<td>General Education Elective*</td>
<td>3</td>
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<tr>
<td>AREA IV</td>
<td>General Education Elective*</td>
<td>3</td>
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<tr>
<td>AVS 280</td>
<td>Transportation Technology (AREA VII)</td>
<td>3</td>
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<tr>
<td>FCL 320</td>
<td>Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>FCL 380</td>
<td>Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>ECON 304</td>
<td>The Organization of Industries</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 250</td>
<td>Marketing Principles</td>
<td>3</td>
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<tr>
<td>AVS 207</td>
<td>Crew Resource Management</td>
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<tr>
<td>AVS 307</td>
<td>Advanced Aircraft Systems</td>
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<tr>
<td>AVS 319</td>
<td>Aviation Legislation</td>
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<tr>
<td>AVS 427</td>
<td>Airline Administration</td>
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<tr>
<td>AVS 410</td>
<td>Air Traffic Administration and Finance</td>
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<tr>
<td>AVS 428</td>
<td>International Aviation</td>
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<tr>
<td>Free Elective</td>
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<tr>
<td>Approved Electives**</td>
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</tbody>
</table>

**Aviation Science (MTE)**

**Bachelor of Science**

126 hours

The Aviation Science 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, engine testing, engineering/maintenance liaison, maintenance logistics, flight test engineering, product technical support, aircraft maintenance engineering, aircraft systems reliability and maintainability, licensing requirements, and repair facility management. Satisfactory completion of all requirements prepares one to take the Federal Aviation Administration (FAA) Airframe and Powerplant written and practical examinations.

**Baccalaureate Writing Requirement**

Students who have chosen the Aviation Science Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing AVS 490 and AVS 491.
and the environment.

Transportation and how these technologies are applied. Case studies will be used to explore the impact on aviation, spatial disorientation. Prerequisite: AVS 141, PSY 100.

AVS 242 Navigation and Basic Flight
8 hrs.
Light single-engine airplane VFR navigation, basic instrument flight. Prerequisite: AVS 241 (may be taken concurrently with AVS 241).

AVS 261 Maintenance Regulations
2 hrs.
Regulatory structure and legal environment impacting aviation maintenance operations and practices. Including discussion of the Federal Aviation Regulations rules 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, PHYS 107 and 108, CHEM 110 AND 111.

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, CHEM 110 AND 111.

AVS 264 Aircraft Electrical I
2 hrs.
Laboratory study of basic electricity including electron theory, Ohm's law, Kirchoff's laws, electrical power, series and parallel circuits, and aircraft electrical wiring. Prerequisites: PHYS 107 and 108, CS 105 or BIS 102, MATH 200.

AVS 265 Aircraft Propellers
2 hrs.
Theory of propellers, constant speed propellers and turboprop propellers, propeller control systems and auxiliary systems, airworthiness inspection, maintenance and repair practices. Prerequisites: PHYS 107 and 108. Corequisites: AVS 262, AVS 263.

AVS 277 Flight Simulator Laboratory
1 hr.
Ten hours of individual ground instruction and a 10 hour block of instruction in one of the university's flight simulators applicable to initial training in instruments, flight instruction or multi-engine, for recurrency training, or for preparation of FAA and airline flight checks.

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 certificate. 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, super sonic 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, operation, monitoring, and control of transport category aircraft systems. The architecture and interaction among systems is discussed and various aircraft configurations are investigated. Prerequisites: AVS 122, 123.

AVS 308 Advanced Aircraft Systems Laboratory
3 hrs.
This is a laboratory which relates to the topics covered in AVS 307. It provides hands-on familiarization and training with the construction, operation, and control of transport category aircraft systems. Prerequisite: AVS 307 or taken concurrently (recommend 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 radar, IRS, INS, 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 aerodynamics, 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 holder. Prerequisite: Private pilot certificate.

AVS 341 Commercial Flight Operations
8 hrs.

AVS 342 Multiengine Commercial Flight Operations
8 hrs.
Light multigeneration airplane handling and applied instrument flight. Commercial multigeneration pilot certificate and instrument rating. Prerequisite: AVS 341 (may be taken concurrently with AVS 341).

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. Prerequisites: 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 introduction to 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 certificate with particular emphasis upon use of air 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, 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 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 methodologies 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, operations, and evaluation including applications of indicating and warning systems, signal processing, digital and analog data acquisition. Engine diagnosis includes the use of dynamometers, test cell thrust beds and computer based analysis. Prerequisites: AVS 363, AVS 364. Corequisite: AVS 366.

AVS 399 Field Experience

1-3 hrs.

A program of practical experience and independent study to supplement and enrich classroom learning. Written reports are required. May be repeated to a maximum of eight semester credit hours. Graded on a Credit/No Credit basis only. 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 and fundamentals of learning and teaching theory. Features instruction in proper supervision of instructional scenarios in flight situations. Prerequisite: Completion of AVS 355 with a grade of “C” or better and 356 or permission.

AVS 404 Instrument Flight Instructoring (1-1)

1 hr.

Techniques of flight instruction applied to instrument flying. Designed to upgrade an airplane flight instructor to an aircraft instructor. Instructional techniques of attitude instrument flying, flight simulator utilization, instrument enroute procedures, radio navigation, critical situations, and performance analysis. After certification, supervised teaching experience is required. 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. Involves flight and ground instruction, lesson planning and execution, and analysis of common student errors. Prerequisite: AVS 403 (may be taken concurrently). Prerequisites: 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 355, AVS 406.

AVS 410 Aircraft and Systems Performance

3 hrs.

Airplane organization and operations. Topics include aircraft airworthiness documentation, record keeping, regulations, safety, and air carrier ownership and organization. Prerequisite: FCL 300, FCL 305.

AVS 411 Airline Flight Operations

3 hrs.

Systems, performance, and regulation of transport aircraft and operations. Role of the dispatcher in flight operations. Prerequisites: Student must have completed or be taking concurrently AVS 306, AVS 307, AVS 308, and AVS 322.

AVS 412 Line Oriented Flight Crew Simulation

3 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 perspectives of 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 are discussed. Prerequisites: AVS 205 or permission of instructor.

AVS 427 Airline Administration

3 hrs.

Economic characteristics of the airline industry and air carrier ownership and organization. Revenues, costs, and productivity of airlines, structure and scheduling. International competition and regulation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: AVS 120, IME 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 agreements and opportunities. International standards and agreements and international flight operations. Prerequisites: AVS 319.

AVS 430 Jet Orientation

6 hrs.

This course provides transport category aircraft flight simulation. The student receives cockpit operation and flight training using a state of the art flight motion Boeing 737 flight simulator. Prerequisites: AVS 355, AVS 356, AVS 411, and AVS 412 (or 412 taken concurrently). Recommend taking AVS 412 concurrently.

AVS 441 Domestic and International Jet Operations

8 hrs.


AVS 442 Jet knowledge and Handling

8 hrs.

Transport category airplane electrical, hydraulic and pressurization systems. Jet engines, accessories. Glass cockpit system and flight instrumentation. Airline related simulator instructor in a multi-pilot jet airliner. Route flying and emergency situations as described in the course AVS 441. Prerequisites: AVS 319, and AVS 411 (or 411 taken concurrently). AVS 430 (may be taken concurrently with AVS 441).

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, 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. Record keeping is performed. Prerequisites: Successful completion of all 200- and 300-level aviation maintenance core courses.
AVS 491, is approved as a writing-intensive 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: Senior standing or by department approval.

AVS 491 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 students' 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: 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
1–8 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.
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 a comprehensive, high-quality student-centered undergraduate education that prepares students for business and professional careers and fosters a commitment to lifelong learning.
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.

A distinctive feature of the BBA degree program is the 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.

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 publications and practitioner seminars and workshops, and (5) foster and build interdisciplinary work among faculty and between colleges at the University.

Southwest Michigan Technical Assistance Center
The Southwest Michigan Technical Assistance Center provides information, support, and counselling to help small and medium-sized businesses become federal contractors. Clients must reside in a nine-county region in southwest Michigan.
**BUSINESS ADMINISTRATION CURRICULUM (BBA DEGREE)**

### Pre-Business Curriculum

Any entering or transfer student planning to pursue business administration as a curriculum will be admitted to the pre-business curriculum and will work with a business advisor in the development of a planned program. The minimum pre-business curriculum requirements are:

1. Completion of 42 semester hours.
2. An acceptable grade point average (minimum of 2.50).
3. Minimum grade of "C" in the following pre-business courses or approved alternatives:
   - A. CIS 110 End User Computing .......................... 1 hr.
   - B. CIS 102 Introduction to Information Processing ........................................... 3 hrs.
   - C. BUS 175 Business Enterprise ........................................... 3 hrs.
   - D. ACTY 210 Principles of Accounting ........................................... 3 hrs.
   - E. MATH 116 Finite Mathematics ........................................... 3 hrs.
   - F. MATH 118, 122*, or 200*

   *Students in the Integrated Supply Chain Management major must elect either MATH 122 or 200.

4. One behavioral science course ........................................... 3 hrs.
5. STAT 216 Business Statistics ........................................... 3 hrs.
6. ECON 201 Principles of Microeconomics ........................................... 3 hrs.
7. Completion of Career Services registration materials.

The following courses are required prior to enrollment in major area courses and may be completed as pre-business administration enrollment requirements:

- A. ACTY 211 Principles of Accounting ........................................... 3 hrs.
- B. ECON 202 Principles of Microeconomics ........................................... 3 hrs.

Additional hours will be taken in the following areas to complete minimum pre-business administration requirements:

- A. General Education Distribution Program Areas 1, 2, 3, 6, 7, and 8
- B. Non-Business Electives

After completion of not less than 28 semester hours of work, application for admission to the professional business administration curriculum must be made by native students. Actual admission will not be approved until the completion of the pre-business curriculum. Upper level transfer students will apply for admission to the professional business administration curriculum prior to their first semester of enrollment. Admission of transfer students from accredited two- and four-year institutions will be made on a similar basis. The same criteria for admission above will apply. Equivalent transfer work must be credited to the same areas listed above.

Students not meeting admission requirements will be informed of steps they can take to earn admission.

### 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 ........................................... 3 hrs.
   - B. MKTG 250 Marketing ........................................... 3 hrs.
   - C. BUS 270 Information and Communication Infrastructure ........................................... 3 hrs.
   - D. BLS 370 Integrated Communication in Business ........................................... 3 hrs.
   - E. BUS 375 Business Process Productivity ........................................... 3 hrs.
   - F. BUS 475 Strategic Solutions ........................................... 3 hrs.
   - G. FCL 320 Business Finance ........................................... 3 hrs.
   - H. BUS 380 Legal Environment ........................................... 3 hrs.
   - I. One advanced economics course (as approved by student's major department) ........................................... 3 hrs.
   - J. A "C" average grade point is required in the upper level core courses outlined above.

2. **Major, minimum beyond core requirements:**
   - Major, minimum beyond core requirements previously listed ........................................... 21 hrs.
3. **General Education to complete proficiency and distribution areas 1-8:**

4. **Transfer work towards Business Administration Core Requirements:**
   - Approval by the Office of Student Development ........................................... 3 hrs.
   - Department of Business Development and the department ........................................... 3 hrs.
   - Minimum grade of "C" ........................................... 3 hrs.
   - C. 50% of all required business course work to be completed at Western Michigan University

### BACCALAUREATE WRITING REQUIREMENT

Students who have chosen to major in any area of business will satisfy the Baccalaureate Writing Requirement through successful completion of BUS 370 Integrated Communication in Business.

### Advising

For questions regarding BBA curriculum requirements and transfer credit equivalencies, contact the Haworth College of Business Office of Student Development (616) 387-5075.

### Special Notes

1. **Major field of study and career objectives:**
   - A minimum of 50 percent of all BBA course work must be completed in areas other than business. Nine hours of economics and six hours of statistics may be included in this percentage.

2. **Departmental approval:**
   - Transfer courses from four-year schools (and appropriate lower division courses from community colleges) may be included in majors and minors. However, 50% of all required HCOB courses must be completed through Western Michigan University to include at least 50% of any business major and 50% of any business minor completed at Western Michigan University.

3. **Minor declaration:**
   - To declare a minor in Advertising and Promotion or in Marketing, a student must have completed a minimum of 56 credit hours with an overall WMU grade point average of at least 2.50. However, meeting these minimum requirements does not guarantee admission into either minor, as the Department of Marketing receives far more minor applications than it has the capacity to accept. Admission into either minor will be based on space availability, overall grade point average, and a written statement on the application about how the minor relates to the applicant's major field of study and career objectives.

4. **Enrollment in Haworth College of Business courses:**
   - Students meeting the following curriculum or declared minor status:
     - A. BIS 142 and CIS 110, open only to PBA students
     - B. BUS 270, open only to PBA and BAD students
     - C. MKTG 250, open only to PBA, BAD, and other students as identified in #4E below
     - D. CIS 260 and 261, open only to PBA, BAD, and other students as identified in #4E below
     - E. All 300+ level college courses require acceptance to the Business Administration curriculum prior to enrollment, with the following exceptions:
       - i. Declared business minors will be eligible for those business courses which are required in their minors after completing #5 above.
       - ii. Students enrolled in non-business curricula which require business courses will be eligible for required 300-level business courses as follows:
         - a. Junior status is required
         - b. College or curriculum advisor will identify for HCOB Director of Office of Student Development those students who are currently enrolled in these curricula
**ACCOUNTANCY**

**Accountancy Major (ACT)**

The accountancy program has a core of courses to be taken by all majors. The core consists of the following required courses:

- **ACTY 322** Managerial Accounting — 3
- **ACTY 516** Auditing — 3

Accountancy majors must complete a minimum of 30 credit hours of accountancy courses. Two additional courses 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 310**, **ACTY 311**, **Financial Accounting** — 6
- **ACTY 313** Accounting Information Systems — 3
- **ACTY 322** Managerial Accounting — 3
- **ACTY 324** Income Tax Accounting — 3
- **ACTY 516** Auditing — 3

**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.

The remaining six (6) hours must be selected from the following courses: FCL 320, FCL 380, MGMT 250, 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 discipline and 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.

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**BUSINESS INFORMATION SYSTEMS**

The Department of Business Information Systems offers undergraduate areas of concentration as shown below. Courses are to be taken in the sequence indicated, following prerequisites as listed after the catalog course descriptions.

**Administrative Systems Major (ADS)**

27 hours

- **CIS 102** Introduction to End-User Computing — 3
- **CIS 260** Business Programming A — 3
- **BIS 388** Advanced Office Systems — 3
- **BIS 398** Information Systems Analysis and Design — 3

**PLUS 6 hours, as advised, from:***

- **CIS 360** Systems Analysis and Design — 3
- **BIS 456** Office Management — 3
- **BIS 484** Micrographics and Reprographics — 3
- **BIS 486** Corporate Records Centers — 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** Business 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):***

- **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 Administrative Systems — 3

**Computer Information Systems Major (CIS)**

24 hours

**Core Requirements for CIS Majors . . . 18 hrs.***

- **CIS 260** Business Programming A — 3
- **CIS 261** Business Programming B — 3
- **CIS 360** Systems Analysis and Design — 3
- **CIS 460** Business Database Systems — 3

**Elective Courses for CIS Majors . . . 6 hrs.***

- **CIS 526** LAN Administration — 3
- **CIS 366** Computer Networking — 3
- **CIS 385** Business Web Architecture — 3
- **CIS 490** Electronic Commerce Development — 3

CIS 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 Either ECON 304, 310, 320, 380, or 400 is required as an economics course for the CIS Major. Baccalaureate Writing Course: BUS 370.**

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**FINANCE AND COMMERCIAL LAW**

The Finance and Commercial Law Department offers majors in finance and personal financial planning 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 completion of the curriculum requirements for all students pursuing 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, 397, 400, 403, or 406.

Proper sequencing of advanced courses allows a student in finance to study financial management (FCL 425, FCL 426, and two other advisor-approved FCL courses), investments (FCL 453 and other advisor-approved FCL courses), and financial markets (FCL 412, FCL 414, and two other advisor-approved FCL courses).
Personal Financial Planning (FNP)

Advisors: Report to department office, 3390 Schneider Hall, for assignment to an advisor. 24 hours

Requirements for FNP majors ........................................... 9 hrs.
FCL 310 Financial Markets ........................................... 3
FCL 320 Business Finance ........................................... 3
FCL 351 Investment Analysis* ........................................... 3

Elective Courses for FNP majors ........................................... 15 hrs.
FCL 330 Real Estate ........................................... 3
FCL 331 Real Estate Finance ........................................... 3
FCL 345 Computer Applications in Finance ........................................... 3
FCL 360 Risk and Insurance* ........................................... 3
FCL 371 Personal Financial Planning* ........................................... 3
FCL 372 Estate Planning* ........................................... 3
FCL 373 Retirement Planning and Employee Benefits* ........................................... 3
FCL 432 Real Estate Investments ........................................... 3
FCL 433 Real Estate Appraisal ........................................... 3
FCL 437 Real Estate Management ........................................... 3
FCL 448 Internship ........................................... 3
FCL 453 Securities Analysis ........................................... 3
FCL 483 Real Estate Law ........................................... 3
ACTY 324 Introductory Tax Accounting* ........................................... 3

*Required courses for students planning to sit for the Certified Financial Planning (CFP) designation.

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 Management ........................................... 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)

Advisors: Finance Area Faculty

Students wishing to minor in insurance are required to take 15 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 may be taken:
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)

Advisors: 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 (MG) 24 hours

Six Management Courses (18 hours)
MGMT 250 Organizational Behavior ........................................... 3
MGMT 275 Analytical Foundations ........................................... 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

Other Requirement
ECON 310 Labor Economics ........................................... 3

Management Minor (MGT) 18 hours

The minor in management requires eighteen credit hours consisting of the following four required courses and two electives:

Required Courses
BUS 175 Business Enterprise ........................................... 3
MGMT 250 Organizational Behavior ........................................... 3
MGMT 275 Analytical Foundations ........................................... 3
MGMT 301 Project Management ........................................... 3

Electives (three from among the following)
MGMT 314 Small Business Management ........................................... 3
MGMT 352 Human Resource Management ........................................... 3
MGMT 400 Topics in Management ........................................... 3
MGMT 401 Project Leadership ........................................... 3
MGMT 404 Business and Society ........................................... 3
MGMT 410 Multinational Management ........................................... 3
MGMT 414 Entrepreneurship ........................................... 3
MGMT 447 Airline Strategy ........................................... 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 career paths, such as sales and sales management, consumer/ market research, sport marketing, or international marketing.

The Advertising and Promotion (ADV) major prepares students for a variety of promotion-related positions, such as account management, media planning and scheduling, 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, Manufacturing Technology, 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 Guide issued by the College of Business Advising Office in 2130 Schneider Hall.

**Applying for a minor**

To be eligible to apply for a minor either in Advertising and Promotion or in Marketing, a student must have completed a minimum of 56 credit hours with an overall WMU grade point average of at least 2.50. However, meeting these minimum requirements does not guarantee admission into either minor, as the Department of Marketing receives far more minor applications than it has the capacity to accept. Admission into either minor will be based on space availability, overall grade point average, and a written statement on the application about how the minor will relate to the applicant's major field of study and career objectives.

To declare a minor in Advertising and Promotion or Marketing, a student must complete an application form and submit it to the Department of Marketing. This application form can be picked up in the department office (3210 Schneider Hall), and is also available on the Web at www.hcob.wmich.edu/mktg. The deadlines for submitting the application are as follows: October 15 for admission for the Spring semester; February 15 for admission for the Summer I and Summer II sessions; and July 10 for admission for the Fall semester.

Applicants will be notified by e-mail or mail about the status of their applications within four weeks of following the above deadlines. If accepted into either the Advertising and Promotion or the Marketing minor, a student must meet with a department advisor to complete a minor slip and discuss specific requirements for the minor before registering for any marketing classes. Non-business majors are limited to a maximum of 30 credit hours of business courses at the time of graduation.

**Marketing Major (MKT)**

24 hours

MKTG 250 Marketing Principles 3
MKTG 371 Marketing Research 3
MKTG 486 Marketing Strategy 3
MKTG 475 International Marketing 3
MKTG 374 Advertising and Promotion 3

**Select three courses from the following (9 hours):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 250</td>
<td>Food Marketing Systems</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 360</td>
<td>Professional Selling</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 372</td>
<td>Purchasing Management</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 373</td>
<td>Internet Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 376</td>
<td>Sales Administration</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 377</td>
<td>Sales Promotion</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 380</td>
<td>Sport Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 392</td>
<td>Applied Marketing Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 470</td>
<td>Business Marketing Strategy</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 476</td>
<td>Retail Management</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 477</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 478</td>
<td>Special Topics in Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 480</td>
<td>Franchising</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 484</td>
<td>Marketing Logistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other Requirements**

Advertising and Promotion, Food Marketing, Marketing, and Sales and Business Marketing majors may satisfy their Advanced Economics requirement through completion of any 300- or 400-level economics course.

**Advertising And Promotion Major (ADV)**

24 hours

MKTG 250 Marketing Principles 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising and Promotion 3
MKTG 472 Media Planning and Research 3
MKTG 474 Creative Strategy 3
MKTG 477 Consumer Behavior 3
MKTG 481 Integrated Marketing Communication Strategies 3
MKTG 485 Marketing Strategy 3

**Select one course (3 hours) from the following:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 373</td>
<td>Internet Marketing</td>
<td>3</td>
</tr>
<tr>
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<td>Sales Promotion</td>
<td>3</td>
</tr>
<tr>
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<td>Sport Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 392</td>
<td>Applied Marketing Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 473</td>
<td>Interactive Marketing Strategy</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 475</td>
<td>International Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 486</td>
<td>Marketing Strategy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other Requirements**

Advertising and Promotion, Food Marketing, Marketing, and Sales and Business Marketing majors may satisfy their Advanced Economics requirement through completion of any 300- or 400-level economics course.

**Food Marketing Major (FMK)**

26-27 hours

MKTG 250 Marketing Principles 3
MKTG 290 Food Marketing Systems 3
MKTG 371 Marketing Research 3
MKTG 391 Food Merchandising 3
MKTG 397 Food Marketing Field Experience 2
MKTG 484 Marketing Logistics 3
MKTG 492 Applied Marketing Analysis 3
MKTG 494 Food Marketing Strategies 3

**Select one of the following courses (3-4 hours):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCS 466</td>
<td>Institutional Management</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 360</td>
<td>Professional Selling</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 373</td>
<td>Internet Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 392</td>
<td>Applied Marketing Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 396</td>
<td>Food Industry Survey</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 476</td>
<td>Retail Management</td>
<td>3</td>
</tr>
<tr>
<td>MGM 352</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other Requirements**

Advertising and Promotion, Food Marketing, Marketing, and Sales and Business Marketing majors may satisfy their Advanced Economics requirement through completion of any 300- or 400-level economics course.

**Sales And Business Marketing Major (SBM)**

24 hours

MKTG 250 Marketing Principles 3
MKTG 360 Professional Selling 3
MKTG 371 Marketing Research 3
MKTG 372 Purchasing Management 3
MKTG 376 Sales Administration 3
MKTG 460 Advanced Selling Strategies 3
MKTG 470 Business Marketing Strategy 3

**Select one of the following courses (3 hours):**

<table>
<thead>
<tr>
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<tbody>
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<td>MKTG 392</td>
<td>Applied Marketing Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 463</td>
<td>Manufacturing Logistics</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 475</td>
<td>International Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 478</td>
<td>Special Topics in Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 484</td>
<td>Marketing Logistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other Requirements**

Advertising and Promotion, Food Marketing, Marketing, and Sales and Business Marketing majors may satisfy their Advanced Economics requirement through completion of any 300- or 400-level economics course.

Recommendation: It is strongly recommended that students considering employment in manufacturing-related industries complete one or more of the following courses either to fulfill their General Education Distribution Area 7 requirement or as an elective:

- IME 142 Engineering Graphics (elective)
- IME 510 Introduction to Manufacturing (Distribution Area 7)
- ME 220 Processes and Materials in Manufacturing (Distribution Area 7)

**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 374 Advertising and Promotion 3
MKTG 477 Consumer Behavior 3
STAT 366 or STAT 216 (or equivalent) 3-4

**Select two courses (6 hours) from the following:**

<table>
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</tr>
<tr>
<td>MKTG 475</td>
<td>International Marketing</td>
<td>3</td>
</tr>
</tbody>
</table>

**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
Select three courses (9 hours) from the following:

- MKTG 290 Food Marketing Systems 3
- MKTG 360 Professional Selling 3
- MKTG 372 Purchasing Management 3
- MKTG 373 Internet Marketing 3
- MKTG 374 Advertising and Promotion 3
- MKTG 376 Sales Administration 3
- MKTG 377 Sales Promotion 3
- MKTG 380 Sport Marketing 3
- MKTG 470 Business Marketing Strategy 3
- MKTG 475 International Marketing 3
- MKTG 476 Retail Management 3
- MKTG 477 Consumer Behavior 3
- MKTG 478 Special Topics in Marketing 3
- MKTG 480 Franchising 3
- MKTG 484 Marketing 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 coursework 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 among ECON 310, 319, 320, 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
- One of the following: ECE 101, IME 305, IME 315, IME 508, CS 104 or CS 111 3
- MATH 122 Calculus I 4
- MATH 272 Vector and Multivariate Calculus 4
- IME 328 Quality Assurance and Control 3
- MGMT 464 Production Management and Control 3
- MGMT 480 Materials Management Strategies 3
- MGMT 481 Integrated Materials Strategies 3
- MKTG 372 Purchasing Management 3
- MKTG 463 Manufacturing Logistics 3
- MKTG 485 Materials Systems Analysis 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 390 Business Finance 3

Select seven (7) courses (21 hours) from the following list of elective courses:

- ACTY 325 Managerial Accounting 3
- ACTY 326 Management Accounting 3
- ACTY 327 Income Tax Accounting 3
- ACTY 514 Institutional Accounting 3
- BUS 340 Financial Management 3
- BUS 346 Office Management 3
- FCL 330 Real Estate Fundamentals 3
- FCL 331 Real Estate Finance 3
- FCL 480 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 3
- 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 United States 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

**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 course work 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 3

Three of the following four courses:

- FCL 330 Business Finance 3
- FCL 380 Legal Environment 3
- MGMT 250 Organizational Behavior 3
- MKTG 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 engineering 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 328 Operations Planning and Control
- IME 416 Operations Control in Industry
- MKTG 372 Purchasing Management
- MKTG 483 Manufacturing Logistics

Capstone class—3 hours (take one of the following):

- MKTG 485 Material Systems Analysis
- MGMT 480 Materials Management Strategy
- MGMT 481 Integrated Materials Systems

Elective—3 hours (one of the following):

- IME 328 Quality Assurance and Control
- IME 371 Statistical Quality Control
- FCL 486 Marketing and Sales Law
- MKTG 485 Material Systems Analysis
- MGMT 480 Materials Management Strategy
- MKTG 481 Integrated Materials Systems

**Other Courses**

- 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**

**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
- One of the following: ECE 101, IME 305, IME 315, IME 508, CS 104 or CS 111 3
- FCL 486 Marketing and Sales Law 3
- IME 142 Engineering Statics 3
- IME 487 Manufacturing Productivity Techniques 3
- IME 328 Quality Assurance and Control 3
- MGMT 464 Production Management and Control 3
- MGMT 480 Materials Management Strategies 3
- MGMT 481 Integrated Materials Strategies 3
- MKTG 372 Purchasing Management 3
- MKTG 463 Manufacturing Logistics 3
- MKTG 485 Materials Systems Analysis 3
- MATH 122 Calculus I 4
- MATH 123 Calculus II 4
- MATH 230 Elementary Linear Algebra 4
- MATH 272 Vector and Multivariate Calculus 4

**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
THE HAWORTH COLLEGE OF BUSINESS

International Business (INT)
15–16 hours

Business Content Courses: Select four courses from the following list (12 hrs.). The prerequisites are shown in parentheses.

- BUS 454 International Business Seminar (Prerequisites: BUS 270, MGMT 250, and STAT 250)
- BUS 594 International Business Seminar
- FCL 422 International Finance
- FCL 484 International Business Law
- MGMT 410 Multinational Management
- MKTG 475 International Marketing

Language or Cultural Content courses: Select one course that meets one of the following:

- If you have not already completed a course meeting the requirement in Foreign Language Option below, you must complete that requirement. If you can demonstrate a medium fluency level in a foreign language—one that is neither your native language nor is English, or if you already have completed a course for your major or another minor that meets the requirement in Foreign Language Option below, you can complete either the Foreign Language Option or Cultural Content Option below. University regulations provide that a course used as a major or minor cannot be used in another major or minor.
- 1. Foreign Language Option
A foreign language course that is at the second semester or higher level meets this requirement. Such courses include, for example, the following: Arabic 101, Chinese 101, French 101, German 101, Italian 101, Japanese 101, Russian 101, and Spanish 101.

- 2. Cultural Content Option
As a wide variety of courses may fulfill this requirement, only a partial list of such classes is included. Please check with an International Business Advisor to determine if a course noted below would meet this requirement.

- ANTH 340 Cultures of Asia
- BUS 475 Strategic Business Solutions

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. Dominate international business policies will also be addressed. Prerequisite: Freshmen/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 processes 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: BUS 102 or BUS 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 students' ability to analyze an audience, adapt to the audience, and develop persuasive communication strategies reflecting the integration of written, oral, visual, and electronic modes of communication. This course is approved as a writing-intensive course which fulfills the University Baccalaureate Writing requirement for BBA degree students. Prerequisites: BUS 270, MGMT 250; enrollment open only to juniors, students credited with 56 to 87 credit hours.

BUS 375 Business Process Productivity
3 hrs.

This course examines the impact of core business processes on the efficiency and effectiveness of a firm and its supply chain allies. The techniques for the design, implementation, and evaluation of continuous process improvements comprise the body of knowledge. The course uses experiential learning to challenge students to apply the techniques of continuous improvement and innovation to production and service process. Prerequisites: BUS 270, MGMT 250, and STAT 216. Enrollment open only to juniors, students credited with 56 to 87 credit hours.

BUS 390 Business Internship
1–3 hrs.

The business internship is designed to provide practical, hands-on business work experience within an organization and may be related to a business discipline. Internships may or may not be related to a business discipline. Internships may or may not be related to the student's major field of study and are recommended for completion prior to the senior year of academic work. For each credit hour received, students are expected to participate in a minimum of 75 hours of compensated work. Internships must be approved in advance by the Haworth College of Business before credit is awarded. Graded on a Credit/No Credit basis only. Prerequisite: Students must be admitted 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.
ACCOUNTANCY

Jack M. Ruhl, Chair
Hans J. Dykhooorn
J. Patrick Forrest
Laurie E. Hayes
Charles E. Hines, Jr.
Richard L. Hodges
David N. Hurt
Jeffry G. Kreuze
Sheeladha L. Langsam
William C. Morris
Gale E. Newell
David Rozelle
Kathleen E. Sinning
Ola 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 for, 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.

Prerequisites: 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.

Prerequisites: 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, BIS 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, relevant costing, 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.

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 all 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, 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.
BUSINESS INFORMATION SYSTEMS

Brendan Han, Chair
Robert Allen, Business Communication
Program Director
Kuriakose Athappilly
Joel P. Bowman
Kuan-Chin Chen
Elizabeth Fox
Jan Gabel-Goese
Elizabeth A. Hager
Parrin Katterattanakul
Muhammad A. Razi
Alan I. Rea
Pamela S. Rooney
Nancy M. Schullery
Barbara Secrist
Andrew S. Targowski
Jo Wiley

The Department of Business Information Systems offers business courses in four fields of study: (1) Administrative Systems Major (ADS), (2) Business Communication Minor (BCM), (3) Computer Information Systems Major (CIS), and Computer Information Systems Minor (CIS).

Business Information Systems Courses (BIS)

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

BIS 100 Introduction to Business Writing
3 hrs.
A course dealing with those areas of written communication necessary for the development of basic business writing skills. Designed as a foundation for subsequent business writing/communication courses. Credit for this course will not apply toward the number of credits needed for graduation. Graded on a Credit/No Credit basis.

BIS 142 Informational Writing
3 hrs.
Development of the basic composition skills required of the competent writer in business and professions. Through continuing directed practice in writing, students develop competence in the organization and presentation of facts and information in writing. This course fulfills the University college-level writing requirement.

BIS 242 Organizational Communication
3 hrs.
A study of communication in modern organizations and the application of communication theory to information systems. Group decision-making is emphasized.

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: CIS 102 or 110 or equivalent.

BIS 343 Advanced Writing for Business
3 hrs.
Students generate a variety of written projects which go beyond those covered in BUS 370. Additional genres are covered, with emphasis on a variety of purposes and types of documents. Students write individually and in teams, often generating projects appropriate to their majors. Emphasis is also given to integrating and designing effective visual elements. Prerequisite: BUS 370 (may be taken concurrently).

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: CIS 261.

BIS 362 Advanced Programming
3 hrs.
Continuation of CIS 261, including advanced treatment of sequential access, plus index sequential and random access, report writer, library routines, precompilers, documentation, efficiency, and data-base management systems. Prerequisite: CIS 261.

BIS 380 Business Web Design
3 hrs.
This course emphasizes the theory and application of Internet-related technologies, such as World Wide Web, in various business communication situations. Combining critical thinking with design and presentation skills, students will explore, create, and implement various hypertextual and multimedia applications and presentations to effectively related information in diverse business environments. Prerequisites: CIS 102/110 (or equivalent) and BUS 142 (or equivalent).

BIS 386 Advanced Office Systems
3 hrs.
A study of the trends and impacts of automated office systems on the work process, human resources, workstations and environments, and productivity. An examination of the planning, integration, and management of electronic mail and electronic mail technology in modern business environments. Prerequisites: CIS 102/110 (or equivalent) and BUS 142 (or equivalent).

BIS 388 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
1–4 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: BUS 370.

BIS 456 Office Management
3 hrs.
Procedures of office administration with attention to supervisory patterns in development, appraisal, 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, consultation, 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 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.

BIS 486 Corporate Records Centers
3 hrs.
An examination of commercial and corporate records centers. Includes services, equipment, systems, and technology, addresses functions of planning, staffing, operating, and managing records centers. Prerequisite: BUS 388 or permission.

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.

Computer Information Systems Courses (CIS)

CIS 102 Introduction to End-User Computing
3 hrs.
Course focuses on the basic end-user computing skills needed by individuals to increase their productivity in the business workplace. This course develops students' skills through the use of software such as databases and spreadsheets, as well as presentation, communication, and information retrieval applications, and mainframe
CIS 362 LAN Administration 3 hrs.
This course provides an introduction into design, implementation, and administration of Local Area Networks (LAN). The characteristics, engineering, and economic tradeoff involving 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. Prerequisite: CIS 260 or CIS 261.

CIS 360 Systems Analysis and Design 3 hrs.
This course focuses on systems analysis and design for a computer-based information system. It covers fundamental system concept and theory, analysis of information needs and data requirements, conceptual modeling techniques, and various system design methodologies. In addition, students are required to conduct a team-based project using modern CASE tools to analyze and design an information system with some real world applications. A developed system prototype with an oral presentation is also required. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: CIS 260 or CIS 261.

CIS 385 Business Web Architecture 3 hrs.
This course applies human computer interaction theories, principles, and techniques to develop effective and usable Web applications for the business environment. Topics include WWW architecture, modern web-based languages, search engines, interactive content, multimedia, and other technologies for the WWW. Students will evaluate the effectiveness of various Web sites and develop Web applications to support Internet commerce. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: BUS 270.

CIS 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. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: CIS 360.

CIS 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. Students taking this course are required to have a laptop computer meeting the minimum specifications defined by the Haworth College of Business. Prerequisite: CIS 460.
FINANCE AND COMMERCIAL LAW

Ajay Samant, Chair
Chunru Anguagala
Robert Bailey
Nicholas C. Batch
David Burnie
James Demello
Ed Edwards
Norman Hawker
Christopher M. Korth
C. R. Krishna-Swamy
Inayat Mangla
F. William McCarty
Ale Metwalli
Gary Bankston
Ronald N. Prange
Tim F. Scheu
Leo Stevenson
Judy Swisher
Neal T. Turner
Devrim Yaman

A major may be obtained in finance and personal financial planning. Minors are available in finance, insurance, law, and real estate.

Finance and Commercial Law Courses (FCL)

FINANCE AREA

FCL 300 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 markets and more specifically how these changes are affecting all areas of finance: corporate, investments, markets and institutions, international, personal financial planning, insurance and real estate. This course provides a framework for meeting the challenges posed by this new technology. Students demonstrate proficiency through technology-related projects, exams and team presentations. Prerequisite: FCL 320.

FCL 342 Entrepreneurial Finance 3 hrs.
This course provides an understanding of the financial decision-making process facing entrepreneurs in small business firms. The course is conducted on a lecture-case discussion basis. Among the topical areas covered are the following: Financial sources available, working capital management, capital budgeting, assessment of risk and valuation techniques. These and other areas are treated from the viewpoint of the entrepreneur in a small business setting. 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, Excel, Minitab, 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 interest rates 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 attorneys, retirement and custodial accounts are discussed. The influence of federal estate and gift and state taxation laws on estate planning techniques is examined. Prerequisite: FCL 330.

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 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 will include the theoretical underpinnings of short term financial management utilizing cases and lectures to fully cover financial decision making in the area of working capital management, financial analysis, and forecasting. Prerequisite: FCL 330.

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, merger, 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 acceptable 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 department, or with a real estate firm or enterprises with a real estate department or division. Students are required to file periodic reports to the advisor. In addition, the firm's executives evaluate them. Available only to students majoring in finance or minoring 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 360 Environmental Law
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 362.

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 fails 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.

GENERAL AREA

FCL 494 International Business Seminar 1–4 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 275 Analytical Foundations 3 hrs.
This course covers the use of qualitative and quantitative techniques for research and decision-making across the business functions of production, distribution, marketing, information management, accounting, finance, and human resource management. It may include analytical techniques such as research methods, problem identification, project management, decision cycle, decision models, forecasting, etc. Prerequisite: STAT 216 or equivalent.

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 theories 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 computing applications for project management, the course advances students' understanding of the behavioral dimensions of work processes. Prerequisites: MGMT 250 and MGMT 275.

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.

MGMT 352 Human Resource Management 3 hrs.
This course covers various HRM functions including work force needs; staffing and development; organization and individual appraisal; employee compensation and benefits; safety and health; approaches to employee problems; and labor relations.

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 400 Topics in Management 3 hrs.
An examination of advanced topical problems in management. (Repeatable)

MGMT 401 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 404 Business and Society 3 hrs.
A systematic analysis and evaluation of the organizations 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. The management function abroad will be examined in light of the cultural assumptions underlying U.S. management and will deal with the necessary modification for effective operations in a cross-cultural environment.

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 250, FCL 320, 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 Airline 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 objective. Prerequisite: MGMT 352.

MGMT 454 Employment Relations 3 hrs.
This course is designed to present modern and concepts of managing employment relations. How labor unions operate and how businesses avoid them involved with labor unions are investigated. Negotiation, conflict resolution, and contract administration processes and their operation are covered. The goals, purposes, history, 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 reference assessment. Prerequisite: MGMT 275.

MGMT 463 Production and Operations Management
3 hrs.
Economic and socio-technical characteristics of the major types of production systems are explored. Managerial aspects of workplace and facility design. Simple models for controlling operations in purposeful organizations. Prerequisites: 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 275.

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 Baldrige Award and ISO 9000 certification are examined. To further enhance understanding about the TQM philosophy, the principles are applied in the classroom. Prerequisites: MGMT 250 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 275 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, MGMT 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.

Marketing Courses (MKTG)

MKTG 250 Marketing Principles
3 hrs.
Introduction to the role of marketing in the U.S. and global economy. Emphasis on how organizations create customer value through marketing strategy planning. Topics covered include buyer behavior, market segmentation, product planning, service quality, promotion, pricing, and managing channel relationships. Prerequisite: Sophomore standing.

MKTG 290 Food Marketing Systems
3 hrs.
An introductory course designed to provide an overview of food marketing systems. The marketing functions performed by producers, manufacturers, wholesalers, and retailers are examined, along with consumer shopping, purchasing, and consumption behavior. Prerequisite: Sophomore standing, PBA and BAD and TEX majors only.

MKTG 360 Professional Selling
3 hrs.
An introduction to the principles of selling. Includes study of selling in our present economy, analysis of the steps in a sales presentation, and a classroom demonstration. Prerequisite: MKTG 250, departmental major and minors, SEM majors and minors, and TEX majors only.

MKTG 371 Marketing Research
3 hrs.
An introduction to the research process as it aids decision making in marketing management. The focus is on the stages of research process from the planning to gathering, analysis, and interpretation of data as it relates to marketing management. Prerequisites: MKTG 250, STAT 216, Marketing Department majors and minors, GBS majors, PRT majors, and SEM majors only.

MKTG 372 Purchasing Management
3 hrs.
The organization and operation of the purchasing function, responsibilities and policies, problems confronting the purchasing department; relationships with other departments and suppliers. Prerequisite: MKTG 250. MKT majors and minors, SEM majors, ISM majors and minors, PRT majors, and SEM majors and minors only.

MARKETING

Andrew A. Brogowiec, Chair
Joseph J. Belonax
Linda M. Delene
James Eckert
Bruce Ferrin
Frank Gambino
Ronald Larson
Hanjoon Lee
Jay D. Lindquist
Mushiq Luqmani
Edward J. Mayo
Stephen J. Newell
Betty Parker
Richard E. Plank
Zahir A. Quraeshi
Robert Reck
JoAnn Roznowski
Roberta Schultz
Ann Veek
John Wetzel
This course examines the strategic use of the Internet as an interactive marketing tool and medium. Students will analyze various models for increasing marketing effectiveness and efficiency, and will learn strategies for evaluating and planning websites and internet advertising to achieve positive customer relationships. Students will also critically assess the pros, cons, and future developments related to this evolving medium. **Prerequisites:** MKTG 374 or MKTG 360 or MKTG 391; ADV, MKT, SBM, and FMK majors and minors only.

**MKTG 374 Advertising and Promotion** 3 hrs.
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). **Prerequisites:** MKTG 250; Marketing Department majors and minors, GBS majors, PRT majors, TEX majors, and SEM majors and minors only.

**MKTG 376 Sales Administration** 3 hrs.
Topics include the role of personal selling in the firm, determination of market and sales potential, recruiting, training, sales compensation, territories and quotas; motivation; measuring selling effectiveness. **Prerequisites:** MKTG 250; Marketing Department majors and minors, GBS majors, PRT majors, and SEM majors and minors only.

**MKTG 377 Sales Promotion** 3 hrs.
The course is designed to introduce the student to the principles and practices of sales promotion. Included will be topics 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. **Prerequisites:** MKTG 250; ADV majors and minors, MKT majors and minors, SBM majors, and GBS majors only.

**MKTG 380 Sport Marketing** 3 hrs.
This course presents an overview of the marketing of sports at the professional and collegiate levels, as well as the use of sport sponsorships by commercial enterprises to help market products and services. Class projects emphasize original research into sport marketing topics, with collaboration from industry professionals. **Prerequisites:** MKTG 250 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. Emphasis will focus on product and category management, advertising, sales promotion, pricing, purchasing, and inventory control, and changing retail formats. The impact of consumer demographics and lifestyles will be related to the location and merchandise mix and promotion methods used by retailers, manufacturers, and wholesalers. **Prerequisites:** 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 marketing, production, packaging, distribution, research, and technology development. Written reports are required. Bus travel and overnight stays are necessary. A fee for transportation and housing is required. **Prerequisites:** MKTG 290; Food Marketing majors only.

**MKTG 397 Food Marketing Field Experience** 1–3 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 3 credit hours. Graded on a Credit/No Credit basis to be included in the major for Food Marketing Majors only. **Prerequisites:** Food Marketing major.

**MKTG 460 Advanced Selling Strategies** 3 hrs.
This course examines advanced methods of questioning, customer need analysis and problem finding, creative solution development, computer based sales planning, team selling, negotiation and elements of time and territory management. Exercises, extensive role playing, and cases are used. **Prerequisites:** MKTG 250 and 372; Sales and Business Marketing majors only.

**MKTG 463 Manufacturing Logistics** 3 hrs.
An analysis of the movement and storage of raw materials, component parts, and sub-assemblies to support physical availability for manufacturing. Emphasis on aspects of production management that determine materials requirements, logistics process capability, and optimization of total logistical cost. **Prerequisites:** MKTG 250 and BUS 375 or equivalent; ISM majors and minors and SBM majors only. Students cannot receive credit for both MKTG 463 and MKTG 484.

**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 innovation and R&D engineering. **Prerequisites:** MKTG 371, MKTG 372, and senior standing; MKT majors and minors, SBM majors, and PRT majors only.

**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 371.

**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 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 major concepts and applications of international marketing for small and large businesses. Emphasis on developing managerial frameworks within which global or multinational marketing programs can be planned, analyzed and assessed. **Prerequisites:** MKTG 250; Marketing Department majors and minors, GBS majors, International Business minors, and TEX majors only.

**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 merchandise and the store operations divisions. Attention is also given to other functions (finance, human resources, research, advertising, etc.) that typically relate to merchandising and store operations. **Prerequisites:** MKTG 250; MKT majors and minors, FMK majors, GBS majors, MGT majors, and SEM majors and minors only.
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. May be taken concurrently with MKTG 371. ADV and MKT majors and minors and GBS majors only.

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. MKT, SBM, ADV majors only. Prerequisite: MKTG 250, MKTG 371, and permission of instructor.

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 Marketing Logistics 3 hrs.
An analysis of the movement and storage of finished products to support physical availability in markets. Emphasis on customer requirements and customer satisfaction, logistics process capability, and optimization of total distribution costs. Prerequisites: MKTG 250 and BUS 375 or equivalent, FMK majors, MKT majors and minors, PRT majors, SBM majors, and SEM majors only. Students cannot receive credit for both MKTG 483 and MKTG 484.

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 applied. 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.
Students in this course apply a variety of analytical and theoretical marketing tools to gauge how consumer and organizational behavior, competitive dynamics, and market forces impact demand for a firm's products or services. Through decision-making exercises, case studies, computer simulations, and/or team projects, students develop competence in making target market and marketing mix decisions and developing strategic marketing plans. Prerequisites: MKTG 250, 371, and completion of two additional marketing classes and a minimum of 88 credit hours; Marketing majors and Advertising and Promotion majors only.

MKTG 492 Marketing Information Technology 2 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 Mario Garrick
MSG Dennis Willmann
MAJ Robert Ware
Mrs. Kris Obreiter
CPT Robert Haskin
MAJ Timothy J. Russell
SFC Thomas Pollack

The Department of Military Science lower 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 highly qualified 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 prior 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 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. 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 $600 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 269-387-8120 or 269-387-8122.

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 MSL 101 in the fall and MSL 102 in the spring semester. Sophomores take MSL 201 during the fall and MSL 202 during the spring. Exceptions to the above requirements must be approved by the chair of the department. Students who have had three years of junior ROTC (High School JROTC) or 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 $350 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 MSL 301 and 302. Between the junior and senior year, students will receive pay for attending a five week camp. During the senior year, students complete MSL 401 and MSL 402. 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 to a five week ROTC Summer Camp Challenge at Fort 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 (MSL 101–202), 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 $250 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
Freshman Year
MSL 101 and MSL 102 2 hrs.
Sophomore Year
MSL 201 and MSL 202 4 hrs.
Junior Year
MSL 301 and MSL 302 6 hrs.
Senior Year
MSL 401 and MSL 402 5 hrs.
TWO YEAR COMMISSIONING PROGRAM
Prerequisite: Veteran or Camp Challenge, or approval of department chair.
Junior Year
MSL 301 AND MSL 302 6 hrs.
Senior Year
MSL 401 AND MSL 402 5 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, Statistics
MATH 111 3 hrs.
MATH 116 3 hrs.
STAT 366 4 hrs.
C. Political Science
PSCI 250 4 hrs.
PSCI 350 4 hrs.
D. Psychology
PSY 100 3 hrs.

Military Science and Leadership Courses (MSL)

BASIC COURSES
MSL 101 Foundations of Officership 1 hr.
MSL 102 Basic Leadership 1 hr.
MSL 201 Individual Leadership Studies 2 hrs.
Junior Year
MSL 201 and MSL 202 4 hrs.
Senior Year
MSL 301 and MSL 302 6 hrs.
Junior Year
MSL 401 AND MSL 402 5 hrs.

ADVANCED COURSES
MSL 301 Leadership and Problem Solving 3 hrs.
Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem solving techniques. Students receive direct feedback on leadership abilities. Prerequisite: Prior departmental approval required; must obtain call number from department office.

MSL 302 Leadership and Ethics 3 hrs.
Examine the role communications, values, and ethics play in effective leadership. Topics include ethical decision-making, consideration of others, spirituality in the military, and survey Army leadership doctrine. Emphasis is on improving oral and written communication abilities. Prerequisite: Prior departmental approval required; must obtain call number from department office.
MSL 401 Leadership and Management
2 hrs.
Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration, and developmental counselling techniques. **Prerequisite:** Prior departmental approval required; must obtain call number from department office.

MSL 402 Officership
3 hrs.
Study includes case study analysis of military law and practical exercises on establishing an ethical command climate. Students must complete a semester-long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills. **Prerequisite:** Prior departmental approval required; must obtain call number from department office.

MSL 499 Studies in Military Science
1–4 hrs.
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 sixth through eighth) 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 Technology and Special Education may be certified to teach in their specialized area in grades K-12 by completing the curriculum and certification requirements.

Students seeking admission to one of the following curricula must see the appropriate college or department advisor as well as the Office of Admissions and Advising:
• Art (see School of Art advisor)
• Speech Pathology and Audiometry (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, passing scores on MTTC subject area test(s), and a bachelor's degree. Students in Speech Pathology and Audiometry must complete a master's degree to be eligible to receive teacher certification.

OFFICE OF ADMISSIONS AND ADVISING
2504 Sangren Hall
387-3474
Advisors: Joyce DeRight, Director
Wendy Asmus
Sheena Bolton
Cynthia DeRyke
Douglas Engebretsen
Paul Hildemand
Kathy Mitchell

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 must meet the following minimum requirements at the time of application:
• Completion of at least 36 credit hours
• Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g. MATH 109, ED 104, ENGL 100)
• Completion of an 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 (Spring semester hours may be counted)
• Completion of all Western Michigan University Intellectual Skills Development courses if required (e.g., MATH 109, ED 104, ENGL 101)
• Completion of an 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 and a current T.B. test
• 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 267 (1986), mandates the implementation of a teacher certification testing program in Michigan effective July 1, 1992. Under the provisions of this act, all candidates for teacher certification in Michigan must pass a basic skills (reading, writing, math) test. Candidates for a secondary level teaching certificate must pass the appropriate available major/minor subject area examination for each subject area in which they are to be certified. Candidates for an elementary level teaching certificate must pass the elementary classroom 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 enrollment in intern teaching. The elementary examination and the subject area examinations must be passed before a person is recommended for certification.

The act requires the passing of appropriate and available test(s) prior to the addition of new subjects or grade-levels.

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 Admission 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
Pamela Miller, Certification Assistant
2104 Sangren Hall
(269) 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 content areas in a 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 requirements as outlined in the "Provisional 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 $50.00 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 each subject area in which certification is granted. Effective July 1, 2004, candidates for initial teacher certification must also present evidence that they have successfully completed an approved course in first aid and cardiopulmonary resuscitation and hold valid certification from the American Red Cross or the American Heart Association.

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 and within the grade level and subject area validity of the Provisional certificate.

2. Plan of study established and/or completed while in high school at the time of initial certification. Successful completion of an approved course of study in any subject area in high school that meets the requirements of the Michigan Department of Education is required.

3. Professional development. The candidate must complete a minimum of eighteen semester hours of graduate study in an approved field of study as determined by the Board of Education. The candidate must also complete a minimum of six semester hours in teacher leadership at the graduate level under the direction of a beginning or experienced teacher leader.

4. Two demonstration teaching experiences. The candidate must complete two successful teaching experiences that meet the requirements established by the Michigan Department of Education. Each must be at least one full school year in a full-time teaching assignment.

5. Plan for professional growth. The candidate must submit a plan for professional growth that is approved by the candidate's college and the Michigan Department of Education. The plan must include a minimum of eighteen semester hours of graduate study in an approved field of study as determined by the Board of Education.

6. Letter of recommendation. The candidate must submit a letter of recommendation from the candidate's college that includes an evaluation of the candidate's professional growth and potential for success in the teaching profession.

7. Letter of support. The candidate must submit a letter of support from the candidate's college that includes an evaluation of the candidate's professional growth and potential for success in the teaching profession.

8. Letter of support from the candidate's college that includes an evaluation of the candidate's professional growth and potential for success in the teaching profession.

The Michigan Board of Education has adopted regulations for the Provisional and Professional certificates that are consistent with the requirements established by the Michigan Department of Education. The candidate must complete the requirements for the Provisional certificate and the Professional certificate in order to be recommended for certification.

OCCUPATIONAL EDUCATION CERTIFICATE

Individuals holding a Provisional certificate with a vocational education endorsement are required to complete ten semester hours of relevant vocational education credit within the eighteen semester hour program plan in order to earn an Occupational Education certificate.

Certification Application Procedures

The Professional and the Occupational Education certificate and the Provisional Renewal will be recommended by the approved Michigan teacher education institution which plans the "plan of study" and the eighteen semester hour program of additional credit. The candidate applies directly to such Michigan college or university regardless of what other college or university may have recommended the initial Provisional certificate. Public Act 339 of 1988 requires the collection of certification fees by the Michigan Department of Education "as a condition of having the application evaluated for conformance with the application requirements." After payment is made, the certificate will be issued by the Michigan Department of Education.

Applications are available from the Certification Office, College of Education, Sangren Hall, 269-387-3473 or on our website at www.wmich.edu/coe/teachcert

CERTIFICATION AND CRIMINAL CONVICTIONS

The Michigan State Board of Education has authority under Part 10 Administrative Hearings of the Administrative Rules Governing the Certification of Michigan Teachers to deny, suspend, or revoke a teaching certificate (R 380.1201). Rule 101 states: "The State Board of Education may refuse to grant or renew, or may revoke or suspend for a fixed term, or may impose reasonable conditions on, a teaching certificate pursuant to these rules for the following reasons:
fraud, material misrepresentation, or conviction, as an adult, of an act of immoral conduct contributing to the delinquency of a child, or of a felony involving moral turpitude. Students asked to provide information indicating whether they have been convicted as an adult of a felony or misdemeanor involving moral turpitude prior to (1) admission to teacher education programs, (2) field placement, and (3) recommendation for certification. It is the student's responsibility to report convictions at any time between these application periods. An applicant who has been convicted as an adult of a felony or misdemeanor involving moral turpitude may be denied admission to teacher education or field placement or recommendation for certification. An applicant will be granted a hearing prior to such a final decision. Such a hearing will be initiated by the College of Education and referred to the College of Education Academic and Professional Standards Committee for review and recommendation.

The primary purpose of the Dorothy J. McGinnis Reading Center and Clinic is to provide clinical experiences in literacy and educational assessment and instruction for students enrolled at Western Michigan University who are preparing to work with children and adults in literacy instruction. All activities and experiences designed by clinic instructors and students provide literacy assessment, diagnosis, and tutoring in one-on-one or small class clinical settings. Additional services of the Reading Center offer consultative literacy workshops and seminars for teachers and schools in southwestern Michigan. The Reading Center also houses a library serving educators in the community with a large collection of children's and young adults' literature for use in all contents categorized on database. Furthermore, the clinic provides students in education an opportunity to observe and participate in the administration of educational and clinical assessments, and the procedures employed in interviewing children, parents as well as procedures in interviewing children, parents, and school personnel. See Department of Teaching, Learning, and Leadership course listings for reading courses offered.

The Elementary Education Curriculum is designed to prepare students to assume teaching responsibilities in self-contained classrooms in grades 1-8. Additional information may be obtained from the Office of Admissions and Advising, 2504 Sangren Hall.

Minimum Required Hours 122 hours

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 three minors: the Elementary Education Minor (EEED, 26-31 hrs.), the Science and Mathematics Teaching Minor (SCM, 25-31 hrs.), and one additional minor selected from the following:

- Early Childhood Education (EEED), 21 hrs.
- Integrated Creative Arts (ICA), 24 hrs.
- English Elementary Education (ENG), 21 hrs.
### General Education Foundations

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 105</td>
<td>Thought and Writing</td>
<td>4 hrs</td>
</tr>
<tr>
<td>ENGL 382</td>
<td>Children's Literature</td>
<td>4 hrs</td>
</tr>
</tbody>
</table>

### ONE course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEGO 102</td>
<td>World Geography Through Media and Maps</td>
<td>3 hrs</td>
</tr>
<tr>
<td>HIST 211</td>
<td>American History Since 1877</td>
<td>3 hrs</td>
</tr>
<tr>
<td>PSCI 200</td>
<td>National Government</td>
<td>3 hrs</td>
</tr>
</tbody>
</table>

### ONE course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMS 300</td>
<td>Working Women Past and Present</td>
<td>3 hrs</td>
</tr>
<tr>
<td>WMS 330</td>
<td>Gender Issues in Education</td>
<td>3 hrs</td>
</tr>
<tr>
<td>WMS 350</td>
<td>Male/Female Psychological Perspectives</td>
<td>3 hrs</td>
</tr>
<tr>
<td>HIST 316</td>
<td>Women in U.S. History</td>
<td>3 hrs</td>
</tr>
</tbody>
</table>

**Note:** Approved for General Education credit.

### CS 105 is required for all students not completing the Science and Mathematics Teaching Minor (Art, Music, Physical Education, Special Education, or Speech Pathology and Audiology).

### Professional Education Program

#### 29 hours

- An overall grade point average of 2.5 and no grade lower than a C in any Professional Education course are required.

#### Pre-Professional Foundations: 3 hrs.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 250</td>
<td>Human Development</td>
</tr>
</tbody>
</table>

#### Professional Education: 14 hrs.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 309</td>
<td>Educational Psychology of Early Childhood (for Early Childhood minor)</td>
</tr>
<tr>
<td></td>
<td>(to be taken concurrently with ED 312)</td>
</tr>
</tbody>
</table>

**Prerequisite:** ED 250; admission to professional program in education

#### OR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
</table>

### ED 310 - Educational Psychology of Childhood: 3 hrs.

**Prerequisite:** ED 312

- admission to professional program in education

### EDT 347 - Technology for Elementary Education: 2 hrs.

### SPED 527 - Learners with Disabilities in General Elementary and Middle School Programs: 3 hrs.

**Prerequisite:** ED 309

### ED 369 - Early Childhood Classroom Organization and Management: 3 hrs.

**Prerequisite:** ED 309

### ED 371 - Classroom Organization and Management: 3 hrs.

**Prerequisite:** ED 310

### ES/ED 395 - School and Society: 3 hrs.

**Prerequisite:** Minimum 70 hours; satisfies Baccalaureate Writing Requirement.

**HPR 346**

### Professional Practicum: 12 hrs.

**Prerequisite:** All course work completed.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ED 410</td>
<td>Seminar in Education</td>
</tr>
<tr>
<td>ED 471</td>
<td>Intern Teaching: Primary Grades</td>
</tr>
</tbody>
</table>

### OTHER REQUIREMENTS

- University Intellectual Skills requirements in Reading, Quantification, Writing, College Writing, Baccalaureate Writing, and Computer Literacy must be met.

- The College-level Writing Requirement may be met by selecting BIS 142 or ENGL 105 which are also approved for General Education credit.

- 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 ES/ED 395.

- Students who have chosen the Elementary Education Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ES/ED 395 School and Society.

### Elementary Education Music Curriculum

Grants certification to teach in elementary grade room (K-5) and music (K-8)

- Bachelor of Science
  - **Margaret J. Hamilton, Advisor**  
  - School of Music  
  - 2146 Dalton Center  
  - 387-4672

### UNIVERSITY GENERAL EDUCATION REQUIREMENTS: 37 hrs.

#### MUSIC MAJOR: 42 hrs.

- **Prerequisite:** Music Convocation 101 (4 semesters)
- **Basic Music 160-161**
- **Aural Comprehension 162-163-259**
- **Contemporary Music 587**
- **Music History and Literature 170-270-271**
- **Conducting 215**
- **Keyboard Musicianship 220-221-320-321**

**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 (280), American Music (350), Non-Western Music (352), Voice (200), or courses not taken in the Choral or Instrumental elective areas.

- **Voice Class**

- **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, 108, or 112**

- **Two semesters of major choral ensembles plus two additional semesters of Grand Chorus. Only one ensemble is to be counted per semester.**

### General Music Methods 336

### Choral Elective

**Select one of the following:**

- **Choral Conducting and Literature (330)**
- **Choral Techniques (339)**
- **Choral Methods (340)**

### Instrument Elective

**Select two of the following:**

- **Fundamentals of Guitar (126)**
- **Instruments of the Band and Orchestra (479)**
- **Instruments of the Classroom (390)**

### Teaching and Learning in Music (348)

### Music for the Special Student (385)

### Elementary Education Minor: 28 hrs.

- Select one course from the following:
  - **GEGO 105**
  - **SCI 180**

- **Required Courses (to be taken in this sequence):**
  - **MATH 150**

- **Admission to Professional Education Program for the following:**
  - **ED 312**
  - **ED 351**
  - **ED 352**
  - **ED 407**

- **Select one course from the following:**
  - **ENGL 369**
  - **ENGL 373**

- **Required course: Additional course to be approved by education advisor (e.g. ED 200, ED 398)**

### Professional Education Program: 17 hrs.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 250</td>
<td>Human Development</td>
</tr>
<tr>
<td>ED 309</td>
<td>Educational Psychology of Early Childhood</td>
</tr>
<tr>
<td>ED 310</td>
<td>Elementary Education Major</td>
</tr>
<tr>
<td>ED 347</td>
<td>Technology for Elementary Education</td>
</tr>
<tr>
<td>SPED 527</td>
<td>Learners with Disabilities in General Elementary and Middle School Programs</td>
</tr>
<tr>
<td>ED 369</td>
<td>Early Childhood Classroom Organization and Management</td>
</tr>
<tr>
<td>ED 371</td>
<td>Classroom Organization and Management</td>
</tr>
<tr>
<td>ES/ED 395</td>
<td>School and Society</td>
</tr>
</tbody>
</table>

### Professional Practicum

- **ED 410**
- **ED 471**
- **ED 470**

### Baccalaureate Writing Requirement

- **Students who have chosen the Elementary Music Major** must satisfy the Baccalaureate Writing Requirement by successfully completing ES/ED 395 School and Society.
These 26-31 hour interdepartmental programs are designed to prepare students to assume classrooming grades K-8.

Elementary Education Minor with Science and Mathematics Teaching Minor and Third Minor of English

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.

Prerequisite: Admission to upper level professional education.

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.

ENGL 369 Writing in the Elementary School .................. 4 hrs.

ENGL 373 Reading as a Psycholinguistic Process .................. 4 hrs.

*Approved for General Education credit. See advisor for third minor.

Elementary Education Minor with Science and Mathematics Teaching Minor and Third Minor of Integrated Creative Arts

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—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.

*Approved for General Education credit. See advisor for third minor.

Elementary Education Minor with a Major of Art, Music, or Physical Education

(This program does not include the Science and 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.

Required courses—to be taken in this sequence:

MATH 150 Number Concepts for Elementary/Middle School Teachers (minimum "C" grade) .................. 4 hrs.

PHYS 180 Physical Science for Elementary Educators I .................. 3 hrs.

*Approved for General Education credit. See advisor for third minor.

Elementary Education Minor with Science and Mathematics Teaching Minor and Third Minor of Integrated Creative Arts

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—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.

*Approved for General Education credit. See advisor for third minor.

Elementary Education Minor with Science and Mathematics Teaching Minor and Third Minor of Integrated Creative Arts

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—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.

*Approved for General Education credit. See advisor for third minor.
ED 352 Literacy and Language Arts in the Content Areas 3 hrs. Prerequisite: ENGL 282* AND ED 312

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 369 Writing in the Elementary School 4 hrs. Prerequisite: Admission to upper level professional education

ED 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 398) 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:

BICS 112 Principles of Biology 3 hrs. Elementary Physics (Lecture) 4 hrs.

PHYS 108 Elementary Physics Laboratory 1 hr.

MATH 150 Number Concepts for Elementary/Middle School 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 369 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 398) 3 hrs.

OTHER ELEMENTARY MINORS

Integrated Creative Arts Minor

Advisor: Office of Admissions and Advising 2504 Sangren Hall (616) 387-3474

This 24-hour interdepartmental program is offered to pre-service elementary school teachers and special education teachers. The program prepares the student for teaching all art subjects at the upper levels. It also stresses 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

*DANC 148 Direct Encounter with the Arts

*MUS 148 Direct Encounter with the Arts

*THEA 148 Direct Encounter with the Arts

*ED 230 The Nature of Creativity

DANC 290 Dance in the Elementary School 3 hrs.

MUS 240 Music for the Classroom Teacher 3 hrs.

ART 200 The Creative Process 4 hrs.

THEA 564 Drama in Education 4 hrs.

ED 430 Creativity in the Elementary School 4 hrs.

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.

***Selected with approval of the advisor.

Science And Mathematics Teaching Minor

Advisor: 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:

BIOS 170 Life Science for Elementary Educators I 3 hrs.

BIOS 270 Life Science for Elementary Educators II 3 hrs.

PHYS 180 Physical Science for Elementary Educators I 3 hrs.

PHYS 280 Physical Science for Elementary Educators II 3 hrs.

GEOG 190 Earth Science for Elementary Educators I 3 hrs.

GEOG 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 4 hrs.

*MATH 265 Probability and Statistics for Elementary/Middle School Teachers 4 hrs.

*A "C" grade is required in MATH 150, 151, and 265.

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 signifying special preparation 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 internship 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 Early Childhood Education curriculum requirements, with the following additional courses or substitutions:

ED 309 Educational Psychology 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/FC 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 Education Curriculum

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 40 hours. The requirements for 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

(Must be at least a sophomore)

ED 300 The Adolescent and School Learning ........... 3

Prerequisite: ED 250

ED 301 Secondary Content Literacy .... 3

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

Prerequisite: ED 300, must be at least a junior. To be taken concurrently with ED 301.

ED 303 Organization and Management in Education ........... 3

Prerequisites: ED 301 and ED 302.

ED/ED 390 School and Society ........... 3

A "methods of teaching" course in either the major or minor (both, if required by the respective major and minor departments.) ........... 3

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 School 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 REQUircement

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 Education (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:

Drumming (DRA)

Graphic Arts (GRA)

Metallurgy (MWK)

Power/Auto Mechanics (POW)

Woodworking (WDK)

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)

Physical Education: Teacher/Coach (PYE)

Physics (PHY)

Political Science (POL)

**Secondary Education in Marketing (SEM)—Not available with SEB

*Students are granted special education approval for teaching physical education to a special population.

**See advisor for vocational certification requirements.

College of Education Course (ED)

ED 389 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.

Health Education (HET)

History (HIS)

Industrial Technology (IDT)

Language Department Minors:

French (FREN)

German (GER)

Latin (LAT)

Russian (RUS)

Spanish (SPA)

Mathematics (MAT)

Occupational Child Care (OCC)—With CTE majors only.

Occupational Foods (OCE)—With FCS major only.

Physical Education (PES)

*Physical Education: Exceptional Child (PEC)—With PYE major only.

Physics (PHY)

Political Science (POL)

*Secondary Education in Marketing (SEM)—Not available with SEB

*Students are granted special education approval for teaching physical education to a special population.

**See advisor for vocational certification requirements.
COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY
Joseph R. Morris, Chair
Diane K. Anderson
Mary Z. Anderson
Nicholas A. Andreides
Gary H. Bischof
Carla R. Bradley
Robert D. Brinkerhoff
Stephen E. Craig
James M. Croteau
Lonnie E. Duncan
John S. Geisler
Arlin R. Gullickson
Suzanne M. Hedstrom
Alan J. Hovesstad
Phillip D. Johnson
Norman M. Kiracofe
Kelly A. McDonnell
Jerry E. McLaughlin
Patrick H. Munley
Eric M. Sauer
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.

EDUCATIONAL STUDIES
Alonzo Hannaford, Acting Chair
Brookes Applegate
James Bosco
Kristal Ehhardt
Paul Farber
George Haus
Gunilla Holm
Dona Gordon Iacobone
Paula Kohler
Elena Lisovskaya
Gerald Pillsbury
Howard Poole
Shaila M. Rao
G. Thomas Ray
Annette Skellenger
Danie Stufflebeam
Sarah Sunday
Elizabeth Whittem

The Department of Educational Studies offers an undergraduate program for the preparation of special education teachers, elective courses in educational technology, and service courses in educational foundations.

Special Education

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 and is reviewed 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 to a major in Special Education include:
1. Completion of the Western Michigan University College of Education Pre-Education Curriculum.
2. Completion 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 the 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 curriculum.

Students are expected to meet with College of Education advisors and Special Education advisors early in their college careers.

Intern Teaching
Students complete three, ten-week internship assignments, one in General Education, one in Learning Disabilities, and one in Special Education Curricula.

The University College of Education
Special Education Curricula
Baccalaureate Writing Requirement

ACADEMIC MINOR (20-24 hrs.)

Students may select from any minors approved for elementary or secondary education except for Integrative Creative Arts and Early Childhood Education. These latter two minors may be selected as a second minor.

ENDORSEMENT MAJOR
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.

ENDORSEMENT MAJOR—Learning Disabilities and Emotional Impairments—K−12

For the preparation of teachers who wish to receive endorsements in learning disabilities and emotional impairments.

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 differences among course participants and the contemporary American work force. Significant attention is devoted to treating racial minorities, women, gay/lesbian/ bisexual, 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 500 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/federal 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.
CURRICULUM REQUIREMENTS (25 hrs.)

COM 104 Public Speaking .......................... 3
ED 250 Human Development ......................... 3
EDJS 395 School and Society ........................ 3
EDT 347 Technology for Elementary Teachers . 2
ENGL 282 Children’s Literature ...................... 4
MATH 150 Number Concepts for Elementary/Middle School Teachers .. 4
PSCI 200 National Government .......................... 3
PSY 100 General Psychology .......................... 3*

COURSE REQUIREMENTS IN EMOTIONAL IMPAIRMENTS MAJOR (45 hrs.)
A minimum grade of "C" must be earned in all courses listed as part of this major. Those marked with * are approved for General Education and are counted as fulfilling General Education requirements.

NOTE: Students must see a department advisor regarding the sequence in which the courses must be completed.

ED 312 Foundations of Reading Instruction .................. 3
ED 351 Literacy Development .......................... 3
SPED 504 Teaching Practicum in Special Education ........ 1
SPED 515 Introduction to Early Childhood and Special Education .... 1
SPED 525 Introduction to Transition Issues for Students with Disabilities .. 3
SPED 530 Introduction to Special Education ................. 3
SPED 531 Classroom Practicum in Special Education ........ 1
SPED 533 Assessment and Prescription in Special Education ........ 3
SPED 534 Curriculum and Instruction in Special Education .......... 3
SPED 538 Introduction to Classroom Management ............ 3
SPED 539 Consultation and Communication in Special Education .......... 3
SPED 570 Introduction to Emotional Impairments ............ 3
SPED 571 Practicum with Learners with Emotional Impairments .......... 1
SPED 575 Education of Learners with Emotional Impairments .......... 1
SPED 580 Introduction to Learning Disabilities ............... 3
SPED 581 Practicum with Learners with Learning Disabilities ........ 1
SPED 585 Advanced Theory and Practice in Learning Disabilities .......... 3
SPPA 200 Communication Disorders and Sciences ............. 3*
SPPA 595 Oral Language Development and Dysfunction ........ 2

INTERN TEACHING (28 hrs.)

ED 471 Intern Teaching: Elementary/Middle School ........ 8
ED 410 Seminar in Education ......................... 2
SPED 474 Intern Teaching in Special Education: EL ........ 8
SPED 474 Intern Teaching in Special Education: LD ........ 8
SPED 410 Seminar in Special Education ................. 2

Endorsement—Learning Disabilities and Cognitive Impairments—K–12
For the preparation of teachers who wish to receive endorsements in learning disabilities and cognitive impairments.

CURRICULUM REQUIREMENTS (25 hrs.)

COM 104 Public Speaking .......................... 3
ED 250 Human Development ......................... 3
ED 351 Literacy Development .......................... 3
EDT 347 Technology for Elementary Teachers ........ 2
ENGL 282 Children’s Literature .......................... 4
MATH 150 Number Concepts for Elementary/Middle School Teachers .. 4
PSCI 200 National Government .......................... 3
PSY 100 General Psychology .......................... 3*

COURSE REQUIREMENTS IN COGNITIVE IMPAIRMENTS MAJOR (45 hrs.)
A minimum grade of "C" must be earned in all courses listed as part of this major. Those marked with * are approved for General Education and are counted as fulfilling General Education requirements.

NOTE: Students must see a department advisor regarding the sequence in which the courses must be completed.

ED 312 Foundations of Reading Instruction .................. 3
ED 351 Literacy Development .......................... 3
SPED 504 Teaching Practicum in Special Education ........ 1
SPED 515 Introduction to Early Childhood and Special Education .... 1
SPED 525 Introduction to Transition Issues for Students with Disabilities .. 3
SPED 530 Introduction to Special Education ................. 3
SPED 531 Classroom Practicum in Special Education ........ 1
SPED 533 Assessment and Prescription in Special Education ........ 3
SPED 534 Curriculum and Instruction in Special Education .......... 3
SPED 538 Introduction to Classroom Management ............ 3
SPED 539 Consultation and Communication in Special Education .......... 3
SPED 540 Introduction to Cognitive Impairments ............ 3
SPED 541 Practicum with Learners with Cognitive Impairments .......... 1
SPED 545 Education of Learners with Cognitive Impairments ........ 1
SPED 580 Introduction to Learning Disabilities ............... 3
SPED 581 Practicum with Learners with Learning Disabilities ........ 1
SPED 585 Advanced Theory and Practice in Learning Disabilities .......... 3
SPPA 200 Communication Disorders and Sciences ............. 3*
SPPA 595 Oral Language Development and Dysfunction ........ 2

Intern Teaching (22 hrs.)

ED 471 Intern Teaching: Elementary/Middle School ........ 8
ED 410 Seminar in Education ......................... 2
SPED 474 Intern Teaching in Special Education: EL ........ 8
SPED 474 Intern Teaching in Special Education: LD ........ 8
SPED 410 Seminar in Special Education ................. 2

Educational Studies Courses (EDT)

ES 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. This course is cross-listed with ED 200.

ES 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, 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. This course is cross-listed with ED 395. Prerequisite: Minimum of 70 earned semester credit hours.

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 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 uses of educational 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.

EDT 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 the use of 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 professions. Participation in the course requires student commitment to the material and concepts discussed. Seminar outcomes include application of material to the classroom/workplace. These ETA offerings bring students with specific needs, instructors with unique expertise and facilities with appropriate resources together for intensive and highly-focused learning experiences. May be repeated.
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 manipulation, 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 purposes 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 widely 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, hypermedia/multimedia, WWW, etc.) based upon learning theory and instructional design principles. Prerequisite: EDT 540 or equivalent.

EDT 550 Photography and Multimedia Workshop 1–3 hrs. Intended to sharpen visual perception while improving technical skills, this laboratory course emphasizes the photographic process as a creative and expressive medium of visual communication in educational situations. Using digital photographic equipment, students are expected to produce new photographic images, edit the images using common computer editing tools, and publish the images using common desktop publishing, desktop presentation, and multimedia software for group critique. Each student will be required to find access to appropriate photographic/multimedia equipment and software. May be repeated up to a total of six credits. Prerequisite: EDT 542.

Special Education Courses (SPED)

SPED 410 Seminar in Special Education 2 hrs. This seminar is taken concurrently with SPED 474 and is open only for special education undergraduate students who have completed all of their special education professional sequence requirements. It will consist of weekly meetings to discuss issues related to their full-time intern teaching (SPED 474). Prerequisite: Completion of all professional education requirements. Consent of Department. Taken concurrently with SPED 474.

SPED 474 Intern Teaching in Special Education 8 or 10 hrs. This intern teaching 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. Prerequisites: Completion of all professional education requirements. Consent of department. Taken concurrently with SPED 470.

SPED 500 Topical Issues in Educating Learners with Disabilities 1–4 hrs. This course provides a survey or in-depth coverage of current issues directly 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 515 Introduction to Early Childhood and Special Education 1 hr. This course will provide an introduction to information related to early development and special education from birth to 8 years of age. Content will include laws specific to the education of young children with disabilities, discussion of early developmental milestones, impact of early development on later functioning, and recommended practices for education of young children with disabilities.

SPED 525 Introduction to Transition Issues for Students with Disabilities 2 hrs. This course provides an introduction to transition issues for students with disabilities. The purpose of the course is to increase the student’s awareness of effective transition practices in grades K-12 and to help the student identify strategies for implementing such. Course topics include transition-related assessment, self-determination, curriculum for transition, and support services. Prerequisite: Consent of Department.

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, cognitive, 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.
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 Assessment and Prescription in Special Education 3 hrs. 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 Cognitive Impairment 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 cognitive impairment. Prerequisite: Consent of department and concurrent enrollment in SPED 540.

SPED 557 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 540.

SPED 558 Education of Learners with Emotional Impairments 1 hr. This course provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle school, or secondary classroom with learners with emotional impairments. It is intended to build upon experiences from SPED 531 and allow students to more fully participate in classroom teaching activities. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 540 and 545.

SPED 561 Practicum with Learners with Learning Disabilities 1 hr. This course provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle school, or secondary classroom with learners with learning disabilities. It is intended to build upon experiences from SPED 531 and allow students to more fully participate in classroom teaching activities. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 540 and 545.

SPED 562 Introduction to Severe Impairments 3 hrs. This course provides basic knowledge about individuals with severe cognitive, 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 563 Assessment and Prescription 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. Prerequisite: Consent of department and concurrent enrollment in SPED 504 and 533.

SPED 564 Introduction to Cognitive Impairment 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 565 Practicum with Learners with Cognitive Impairments 1 hr. This course provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle school, or secondary classroom with learners with cognitive impairments. It is intended to build upon experiences from SPED 531 and allow students to more fully participate in classroom teaching activities. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 540.

SPED 566 Education of Learners with Cognitive 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 cognitive impairments. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisite: Consent of department and concurrent enrollment in SPED 540.

SPED 567 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. Historical perspectives, definitions, service delivery systems, evaluation procedures, and major issues are examined. Prerequisite: Consent of department and concurrent enrollment in SPED 540.

SPED 568 Education of Learners with Learning Disabilities 1 hr. This course provides students with an opportunity to work 6 hours per week (in two, three-hour blocks) in an elementary, middle school, or secondary classroom with learners with learning disabilities. It is intended to build upon experiences from SPED 531 and allow students to more fully participate in classroom teaching activities. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 540.
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**

- Interior Design
- Applied Design

**Secondary Education in Business**

- Family and Consumer Sciences Teacher Education

**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

2004 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.
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

3. Related Professional Courses 25-27 hours

4. Electives — As needed for graduation total

The food service administration curriculum is designed to provide a broad education in foods in relation to the business field. Students will acquire a strong foundation in business, food research, public utility companies, commercial food institutions in the equipment division of large corporations, retailing, mass media productions, quality testing, governmental food agencies.

**Bachelor of Science in Interior Design**

**Admission Requirements**

The interior design curriculum emphasizes the application of analytical, technical, business, and aesthetic skills in the development of spaces for living, working, and relaxation. Career opportunities exist in architectural and design firms, in interior/facilities management divisions of large corporations, retailing, mass media productions, quality testing, governmental food agencies. 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) and by NASAD (National Association of Schools of Art and Design).

**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 200, FCS 249, FCS 251, FCS 254, and MGM 149. Only students who pass the Portfolio Review may enroll in the lower division interior design program. A minimum of 122 hours is required for this curriculum.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCS 202</td>
<td>Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>FCS 220</td>
<td>Textiles</td>
<td>3</td>
</tr>
<tr>
<td>FCS 249</td>
<td>Residential Architectural Design</td>
<td>3</td>
</tr>
<tr>
<td>FCS 250</td>
<td>Interiors CADD Applications</td>
<td>3</td>
</tr>
<tr>
<td>FCS 251</td>
<td>Period Interiors I</td>
<td>3</td>
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<tr>
<td>FCS 252</td>
<td>Period Interiors II</td>
<td>3</td>
</tr>
<tr>
<td>FCS 254</td>
<td>Interior Design Materials</td>
<td>3</td>
</tr>
<tr>
<td>FCS 255</td>
<td>Lighting for Interiors</td>
<td>3</td>
</tr>
<tr>
<td>FCS 259</td>
<td>Studio I</td>
<td>3</td>
</tr>
<tr>
<td>FCS 350</td>
<td>Textiles for Interiors*</td>
<td>3</td>
</tr>
<tr>
<td>FCS 351</td>
<td>Studio I</td>
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<tr>
<td>FCS 352</td>
<td>Professional Practices</td>
<td>3</td>
</tr>
<tr>
<td>FCS 355</td>
<td>3D Computer Visualization</td>
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</tr>
<tr>
<td>FCS 359</td>
<td>Studio II</td>
<td>3</td>
</tr>
<tr>
<td>FCS 451</td>
<td>Studio IV</td>
<td>3</td>
</tr>
<tr>
<td>FCS 459</td>
<td>Studio V</td>
<td>3</td>
</tr>
</tbody>
</table>

Students in the interior design major will satisfy the Baccalaureate Writing requirement by successfully completing FCS 350.

3. Required Related Courses: 39 hours

CMD 131 Introduction to Construction Environment | 3
CMD 149 Introduction to Architectural Drawing | 3
CMD 330 Wood/Materials/Interior Design | 3
FCS 225 Computer Applications OR
CS 105* Introduction to Computers | 3
ART 106 Form and Space | 3
ART 220 History of Art | 3
ART 221* History of Art | 3
ART 245 Graphic Design (non-BFA) | 3
MKTG 250 Marketing Principles | 3
COM 104* Public Speaking | 3
IME 102* Technical Communications | 3
OR
ENGL 105 Technical Communications | 3
MGMT 250 Organization Behavior | 3
ACTY 210 Principles of Accounting I | 3

4. Electives — As needed for graduation total of 122 hours.

Textile and Apparel Studies (TEX)

Bachelor of Science

The Textile and Apparel Studies major has two emphases: The Merchandising Emphasis and the Design and Development Emphasis. The merchandising emphasis is designed to prepare students for careers in retailing and related fields. The four-year program includes studies in merchandising, marketing, and management. A minor is optional, though many students select a marketing or management minor. Other related fields can also be selected as minor studies, e.g., communication, journalism, or language.

Students who graduate with a merchandising emphasis may begin a career in one of many entry level management positions in department, specialty, discount or boutique stores. Career opportunities also exist in the apparel and textile wholesaling fields.

The design and development emphasis is created for students interested in careers within the manufacturing production cycle of the apparel industry, such as with apparel manufacturers in design, pattern drafting, quality control and plant supervision; with textile-producing companies as technicians or fashion analysts, or with pattern and notion companies. Students will select a required career option of Computer-Aided Design (CAD) or Fashion Design. Individuals interested in fashion design should plan on including one year of study at the Fashion Institute of Technology in New York City or the Intercontinental University in London during their junior year.

**MERCHANDISING EMPHASIS**
Candidates for the Bachelor of Science degree with the Merchandising Emphasis must complete the following program of 124 hours.

1. General Education Requirements: 37 hours
2. Required Core Courses: 24 hours
   - FCS 126 The Fashion Industry
   - FCS 155 Design Principles
   - FCS 220 Textiles
   - FCS 305 Professional Job Search Strategies
   - FCS 326 History of Fashion
   - FCS 330 Entrepreneurship
   - FCS 422 Product Development
   - FCS 524 Socio-Psychological Aspects of Dress

3. Required FCS Courses: 18 hours
   - FCS 202 Field Experience
   - FCS 225 Computer Applications
   - FCS 105 Computer Applications
   - FCS 226 Fashion Retail Buying
   - FCS 320 Visual Merchandising
   - FCS 329 Promotion in the Merchandising Environment
   - FCS 430 Merchandising Seminar

4. Required Related Courses: 21 hours
   - COM 170 Interpersonal Communications
   - ACTY 210 Principles of Accounting (repeat)
   - MGMT 250 Organizational Behavior
   - MGMT 352 Human Resource Management
   - MKTG 250 Marketing Principles
   - MKTG 290 Marketing Principles
   - MKTG 360 Professional Selling
   - MKTG 475 International Marketing

**Students in the merchandising emphasis will satisfy the Baccalaureate Writing requirement by successfully completing FCS 330 Entrepreneurship in FCS.**

5. Related Electives — Choose 6 hours
   - FCS 124 Apparel Construction I
   - FCS 230 CAD For Textiles and Apparel
   - FCS 315 Global Ecology of Families
   - FCS 405 Travel/Study Seminar
   - FCS 429 Internship
   - FCS 522 Topics in FCS (TEX related)
   - FCS 598 Independent Study

6. Electives — As needed for graduation total of 122 hours.

**DESIGN AND DEVELOPMENT EMPHASIS**
Candidates for the Bachelor of Science degree with the Design and Development Emphasis must complete the following program of 122 semester hours.

1. General Education Requirements: 37 hours
2. Required Core Courses: 21 hours
   - FCS 126 The Fashion Industry
   - FCS 155 Design Principles
   - FCS 220 Textiles

3. Required FCS Courses: 34 hours
   - FCS 202 Field Experience
   - FCS 225 Computer Applications
   - FCS 105 Computer Applications
   - FCS 226 Fashion Retail Buying
   - FCS 320 Visual Merchandising
   - FCS 329 Promotion in the Merchandising Environment
   - FCS 430 Merchandising Seminar

4. Related Electives — Choose 6 hours
   - FCS 124 Apparel Construction I
   - FCS 230 CAD For Textiles and Apparel
   - FCS 315 Global Ecology of Families
   - FCS 405 Travel/Study Seminar
   - FCS 429 Internship
   - FCS 522 Topics in FCS (TEX related)
   - FCS 598 Independent Study

**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 technology 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, layout, cutting, and construction procedures.

- IME 142 Engineering Graphics
- IME 150 Introduction to Manufacturing
- IME 246 Introduction to CAD
- IME 250 Plastics Properties and Processing
- IME 305 Work Analysis
- IME 315 Work Analysis and Design Lab
- IME 316 Report Preparation
- IME 422 Engineering Teams: Principles and Practices
- IME 446 CAD Applications
- IME 102 Technical Communications
- MATH 118 Precalculus
- Mathematics

**OR**

**ECON 107 Economics Issues in the U.S. Today**

**OR**

**ECON 108 Contemporary International Economic Issues**

**OR**

**ECON 201 Principles of Microeconomics**

**OR**

**ECON 202 Principles of Macroeconomics**

**OR**

**FCS 225 Computer Applications OR**

**CS 105 Introduction to Computers**

**CS 202 Field Experience**

**CS 205 Consumer Education**

**CS 224 Apparel Construction II (repeat)**

**FCS 320 Visual Merchandising**

**FCS 339 Promotion in the Merchandising Environment**

**FCS 405 Travel/Study Seminar**

**FCS 429 Internship**

**FCS 522 Topics in FCS (TEX related)**

**FCS 598 Independent Study**

**1-6**

**OR**

**ECON 107 Economics Issues in the U.S. Today**

**OR**

**ECON 108 Contemporary International Economic Issues**

**OR**

**ECON 201 Principles of Microeconomics**

**OR**

**ECON 202 Principles of Macroeconomics**

**OR**

**FCS 225 Computer Applications OR**

**CS 105 Introduction to Computers**

**CS 202 Field Experience**

**CS 205 Consumer Education**

**CS 224 Apparel Construction II (repeat)**

**FCS 320 Visual Merchandising**

**FCS 339 Promotion in the Merchandising Environment**

**FCS 405 Travel/Study Seminar**

**FCS 429 Internship**

**FCS 522 Topics in FCS (TEX related)**

**FCS 598 Independent Study**

**1-6**
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 are excellent desiging and merchandising colleges. The department maintains a guest student program for qualified students. The Fashion Design courses completed at either of the schools will comprise the Career Option for these students. Specific approved courses will be planned with an advisor.

5. Baccalaureate Writing Requirement ............. 3 hours

Students who choose the Computer Aided Design Career Option will satisfy the Baccalaureate Writing Requirement by successfully completing FCS 330 Entrepreneurship in FCS.

6. Electives — As needed for graduation total of 122 hours.

Minor in Textile and Apparel Merchandising

Candidates for the minor in Textile and Apparel Merchandising must complete the following program of 18 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. Elective Courses 6 hours
   FCS 124 Apparel Construction I ....... 3
   FCS 226 Fashion/Retail Buying ........ 3
   FCS 326 History of Fashion .......... 3
   FCS 325 Promotion in the Merchandising Environment ............ 3
   FCS 422 Product Development .......... 3
* Of the 18 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 highs 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, technology and design, and secondary vocational education in business, as well as minors in technical programs.

The program requirements are listed below under Non-Vocational Majors and Minors.

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 ........... 135 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 .............. 36 hrs.
   AVS 280 Transportation Technology: Policy, Perils, and Promise .............. 3
   CMD 131 Introduction to Building Practices .............. 3
   CMD 149 Introduction to Architectural Drawing .............. 3
   CMD 222 Wood Furniture Design .............. 3
   CMD 322 Advanced Woodworking Design .............. 3
   ECE 100 Fundamentals of Circuits and Electronics .............. 3
   ECE 101 Fundamentals of Electronics and Machines .............. 3
   IME 102 Technical Communication .............. 3
   IME 142 Engineering Graphics .............. 3
   IME 150 Introduction to Manufacturing .............. 3
   IME 254 Machining Processes .............. 3
   IME 246 Introduction to Computer-Based Design .............. 3
5. Approved Minor for Secondary Education Curriculum .............. 20 hours
   Career and Technical Education minors in Drafting, Graphic Arts, Metalworking, Power/Auto Mechanics, and Woodworking require 4000 hours of recent and relevant work experiences for vocational endorsements.
6. Professional Education Courses ........ 24 hrs.
   FCS 214 Child Development .............. 3
   or
   ED 250 Human Development .............. 3
   ED 305 K-12 Content Literacy .............. 3
   CTE 305 Career and Employability Skills .............. 3
   CTE 542 Curriculum and Instructional Development in CTE .............. 3
   CTE 513 Teaching Methods in CTE .............. 3
   CTE 548 Student Assessment and Management .............. 3
   CTE 510 Principles in CTE .............. 3
   CTE 512 Principles of CTE .............. 3
   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 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.

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 .............. 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 453 Business Publications and Presentations .............. 3
   ACTY 210 Principles of Accounting .............. 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 112 Keyboarding Content) .............. 3
4. Approved Minor for Secondary Education Curriculum .............. 20 hours
5. Professional Education Courses ........ 21 hrs.
   FCS 214 Child Development .............. 3
   or
   an approved alternative course
   ED 305 K-12 Content Literacy .............. 3
   CTE 305 Career and Employability Skills .............. 3
   CTE 542 Curriculum and Instructional Development in CTE .............. 3
   CTE 513 Teaching Methods in CTE .............. 3
   CTE 548 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 should see the advisor to select a course that will satisfy the Baccalaureate Writing requirement.

7. Directed Internship 12 hrs.
   CTE 410 Seminar in Education .............. 2
   CTE 475 Intern Teaching in CTE .............. 10

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 group major in Technology and Design and an approved teachable minor offered for Secondary Education Curriculum.

1. Minimum hours required for this curriculum ........... 135 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 .............. 3
   ECE 100 Fundamentals of Circuits and Electronics .............. 3
Vocational Majors are Family and Consumer Sciences.

The requirements for each of the three vocational majors are described below. The vocational majors are Family and Consumer Sciences.

### 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. 1
2. **General Education Requirements:** 37 hrs. 1
3. **Teaching Major from the following courses:** 36 hrs.
   - **FCS 165 Culinary Skills** 3
   - **FCS 209 Consumer Education** 3
   - **FCS 210 Human Sexuality** 3
   - **FCS 215 Adolescent Development** 3
   - **FCS 266 Food and Society** 3
   - **FCS 318 Intimate Relationships** 3
   - **FCS 415 Effective Parenting** 3
   - **FCS 524 Socio-Psychological Aspects of Dress** 3

4. **Approved Minor for Secondary Education Curriculum:** 20 hrs.
   - **FCS 305 Career and Employability Skills** 3
   - **HOL 100 Choices in Living** 3

5. **Required Education courses:** 18 hrs.
   - **FCS 124 Apparel Construction I** 3
   - **FCS 214 Child Development** 3

6. **Related Work Experience:** A total of 2000 hours of recent and relevant work experiences is required for Vocational Certification. Up to 2000 hours of the required 4000 can be obtained through university-supervised internship or work experience.

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**Industrial Technology**

The requirements for each of the three vocational majors are described below. The vocational majors are Industrial Technology.

### Industrial Technology

**Required Courses — 24 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 110</td>
<td>Introduction to Environmental Studies</td>
<td>3</td>
</tr>
<tr>
<td>ENVS 210</td>
<td>Environmental Ecology</td>
<td>3</td>
</tr>
<tr>
<td>FCS 166</td>
<td>Culinary Skills</td>
<td>3</td>
</tr>
<tr>
<td>FCS 266</td>
<td>Food and Society</td>
<td>3</td>
</tr>
<tr>
<td>HHS 110</td>
<td>Introduction to Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>IME 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>IME 122</td>
<td>Automobile in Society</td>
<td>3</td>
</tr>
<tr>
<td>IME 205</td>
<td>Work Design</td>
<td>4</td>
</tr>
<tr>
<td>PAPP 180</td>
<td>Introduction to Environmental Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

5. **Approved Minor for Secondary Education Curriculum:** 20 hrs.
   - **CTE 512 Principles of CTE** 3
   - **ED 410 Seminar in Education** 2
   - **CTE 475 Intern Teaching in CTE** 10

**NON-VOCATIONAL MINORS**

The requirements for each of the two non-vocational minors are described below. The non-vocational minors are Family Life Education and Industrial Technology.

### Family Life Education

**Required Courses — 24 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCS 209</td>
<td>Consumer Education</td>
<td>3</td>
</tr>
<tr>
<td>FCS 210</td>
<td>Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>FCS 215</td>
<td>Adolescent Development</td>
<td>3</td>
</tr>
<tr>
<td>FCS 266</td>
<td>Food and Society</td>
<td>3</td>
</tr>
<tr>
<td>FCS 318</td>
<td>Intimate Relationships</td>
<td>3</td>
</tr>
<tr>
<td>FCS 410</td>
<td>Teaching of Family and Consumer Sciences</td>
<td>3</td>
</tr>
<tr>
<td>FCS 415</td>
<td>Effective Parenting</td>
<td>3</td>
</tr>
<tr>
<td>FCS 524</td>
<td>Socio-Psychological Aspects of Dress</td>
<td>3</td>
</tr>
<tr>
<td>CTE 305</td>
<td>Career and Employability Skills</td>
<td>3</td>
</tr>
<tr>
<td>HOL 100</td>
<td>Choices in Living</td>
<td>3</td>
</tr>
</tbody>
</table>

5. **Approved Minor for Secondary Education Curriculum:** 20 hrs.
   - **FCS 305 Career and Employability Skills** 3
   - **HOL 100 Choices in Living** 3

6. **Required Education courses:** 18 hrs.
   - **FCS 124 Apparel Construction I** 3
   - **FCS 214 Child Development** 3

7. **Related Work Experience:** A total of 4000 hours of recent and relevant work experiences is required for Vocational Certification. Up to 2000 hours of the required 4000 can be obtained through university-supervised internship or work experience.

**Secondary Education in Business (SEB)**

**Bachelor of Science**

The Secondary Education in Business 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. **Group Major requirements from the following courses:** 36 hrs.
   - **FCS 209 Consumer Education** 3
   - **FCS 225 Computer Applications** 3
   - **COM 170 Interpersonal Communication** 3
   - **BIS 260 Microcomputer Applications** 3
   - **BIS 380 Business Web Design** 3
   - **BIS 483 Business Publications and Presentations** 3

4. **Approved Minor for Secondary Education Curriculum:** 20 hrs.
   - **FCS 214 Child Development** 3

5. **Required Education courses:** 24 hrs.
   - **ED 305 K-12 Content Literacy** 3
   - **ED 250 Human Development** 3
   - **ACTY 210 Principles of Accounting I** 3
   - **ACTY 211 Principles of Accounting II** 3
   - **FCL 380 Legal Environment** 3

6. **Selected 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)**

7. **Required Education courses:** 18 hrs.
   - **FCS 305 K-12 Content Literacy** 3
   - **FCS 410 Seminar in Education** 2
   - **CTE 475 Intern Teaching in CTE** 10

**Secondary Education in Marketing (SEM)**

**Bachelor of Science**

The Secondary Education in Marketing major is designed to prepare teachers for vocational marketing subjects in area technical centers and comprehensive high schools. The student must complete the major in Secondary Education in Marketing and an approved teachable minor offered for Secondary Education Curriculum.

1. **Minimum hours required for this curriculum:** 126 hrs.
2. **General Education Requirements:** 37 hrs.
3. **Group Major requirements 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

4. **Approved Minor for Secondary Education Curriculum:** 20 hrs.
   - **FCS 214 Child Development** 3
FAMILY AND CONSUMER SCIENCES 167

FCS 225 Computer Applications
OR CS 105* Introduction to Computers 3
FCS 320 Visual Merchandising 3
ECON 201 Principles of Microeconomics 3
ACTY 210 Principles of Accounting I 3
CTE 305 Career and Employability Skills 3
MKTG 250 Marketing Principles 3
MKTG 360 Professional Selling 3
MKTG 371 Marketing Research 3
MKTG 372 Purchasing Management 3
OR MKTG 376 Sales Administration 3
MKTG 374 Advertising and Promotion 3
MKTG 476 Retail Management 3
MKTG 484 Marketing Logistics 3
MKTG 486 Public Relations 3
4. Approved Minor for Secondary Education
Curriculum 20 hrs.
5. Professional Education courses 21 hrs.
FCS 214 Child Development 3
OR an approved alternative course
ED 305 K-12 Content Literacy 3
CTE 542 Curriculum Development in CTE 3
CTE 513 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 Marketing major should see the advisor to select a course that will satisfy the Baccalaurate Writing requirement.

6. Directed Internship 12 hrs.
CTE 410 Seminar in Education 2
CTE 475 Intern Teaching in CTE 10
7. Related Work Experience
A total of 4000 hours of recent and relevant work experiences is required for Vocational Certification. Up to 2000 of the required 4000 can be obtained through university-supervised internship or work experience.

VOCAIONAL MINORS
The requirements for each of the vocational minors are described below. The vocational minors are Occupational Child Care, Occupational Foods, Secondary Education in Marketing, and Vocational-Technical (Drafting, Graphic Arts, Metalworking, and Woodworking).

Major in non-vocational teacher preparation programs may also earn one of the vocational minors in consultation with the advisor.

Occupational Child Care
1. Required Courses 23-24 hours
FCS 210 Human Sexuality 3
FCS 211 Child Development 3
PEPR 276 Outdoor Education 2
OR PEPR 170 Introduction to Recreation 3
FCS 266 Food and Society 3
ED 350 Young Children, Family and Society 3
FCS 415 Effective Parenting or ED 508 Seminar in Parent Education 3
FCS 575 Administration of Child Development Centers 3
FCS 202 Field Experience 3
2. Related Work Experience
A total of 4000 hours of recent and relevant work experience in the child care related industries (within the past 5 years) is required for vocational certification. A total of 2000 of these hours may be completed in an equivalent directed supervised enrollment in FCS 202.

Occupational Foods
1. Required Courses 25 hours
FCS 165 Culinary Skills 3
FCS 202 Field Experience 4
FCS 260 Food Preparation 3
FCS 368 Quantity Foods 4
FCS 466 Institutional Management 4
FCS 598 Independent Study (Foods) 1
CTE 542 Curriculum Development in Career and Technical Education 3
CTE 510 Special Populations in Career and Technical Education 3
Elective courses, if needed, to complete the 25 semester hours:
ACTY 210 Principles of Accounting I 3
MGMT 352 Personnel Management 3
ECON 201 Principles of Microeconomics 3
PSY 100 General Psychology 3
SOC 200 Principles of Sociology 3
CTE 512 Principles of Career and Technical Education 3
2. Related Work Experience
A total of 4000 hours of recent and relevant work experience in the food service industry (within the past 5 years) is required for vocational certification. A total of 2000 of these hours may be completed in an equivalent directed supervised enrollment in FCS 202.

Secondary Education in Marketing
1. Required Courses 24 hours
FCS 320 Visual Merchandising 3
ECON 201 Principles of Microeconomics 3
ACTY 210 Principles of Accounting I 3
MKTG 250 Marketing 3
MKTG 360 Professional Selling 3
MKTG 372 Purchasing Management 3
OR MKTG 376 Sales Administration 3
MKTG 374 Advertising and Promotion 3
OR MKTG 476 Retail Management 3
OR MKTG 376 Sales Administration 3
1. Required Courses 20 hours
CMD 149 Introduction to Architectural Drafting 3
CS 104 Introduction to CAD 2
IME 142 Engineering Graphics 3
2. Related Work Experience
A total of 4000 hours of recent and relevant work experience is required for vocational certification. A total of 2000 of these hours may be completed through university-supervised internship or work experience.

Vocational-Technical
DRAFTING
1. Required Courses 20 hours
CMD 149 Introduction to Architectural Drafting 3
CS 104 Introduction to CAD 2
IME 142 Engineering Graphics 3

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.

GRAPHIC ARTS
1. Required Courses 21 hours
PAPR 150 Fundamentals of Graphic Arts 3
PAPR 157 Imaging Systems 3
PAPR 215 Introduction to Ink 3
PAPR 250 Lithographic Technology 3
PAPR 251 Design and Electronic Publishing 3
PAPR 257 Computer Graphics 3
PAPR 258 Flexographic Presswork 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.

METALWORKING
1. Required Courses 22 hours
IME 142 Engineering Graphics 3
IME 150 Introduction to Manufacturing 3
IME 254 Machining Processes 3
IME 281 Static/Strength Materials 3
IME 352 Metal Casting 3
CMD 254 Properties of Materials 3
CMD 255 Materials Science 3
CTE 131 Introduction to Building Practices 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.

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

Family and Consumer Sciences Courses (FCS)
A study of the bio-psychosocial factors of understanding of sexuality as a social construct. 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, Spring
Basic textile course emphasizing fibers, yarns, fabric constructions, dyes and printing, and finishes. These five core components are studied for their contribution to the characteristics and performance of a textile fabric, and its use and care.

FCS 222 Flat Pattern Design I (2-3) 3 hrs. Spring Odd Years
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 Apparel Construction II (2-3) 3 hrs. Fall
Continuation of basic construction techniques for apparel products, including skills, pattern alteration and fitting. Emphasis on self-directed individual projects with more difficult fabrics and construction techniques. May be repeated once. Prerequisite: FCS 124.

FCS 225 Computer Applications 3 hrs.
An introduction to the essentials of microcomputer usage. The student will gain application skills in word processing, spreadsheets, databases and operating systems. The impact of computer usage in society and ethical computer behavior will also be covered as well as terminology, electronic communications, and hardware and system components. Credit cannot be earned for both FCS 225 and either BIS 102 or 110, SOC 182, PEPR 149, or CS 105.

FCS 226 Fashion/Retail Buying (3-0) 3 hrs. Spring
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 tasks in 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. Prerequisite: CMD 149.

FCS 250 Interiors CADD Applications (2-2) 3 hrs.
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. Spring
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. Spring
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.

FCS 260 Nutrition (3-0) 3 hrs. Fall
A study of the essential nutrients and their function in the human body. Prerequisites: CHEM 101 or BGS 112.

FCS 266 Food and Society (3-0) 3 hrs. Fall, Spring
Study of the effects of culture and environment on the problems of food production and meeting nutrient needs in western and non-western countries.

FCS 305 Professional Job Search Strategies (3-0) 3 hrs. Fall, Spring
Extensive investigation of basic elements involved in a job search, including job resume, letter of application, career resources and establishing contacts, and questions and kinesics in the job interview. Prerequisite: Junior standing.

FCS 314 Infant and Toddler Development 3 hrs.
Addresses theories related to early development with special emphasis placed on systems theory. Students will gain an
awareness of cognitive, physical and psychosocial development of infants and toddlers within our society. This course will address children's development from conception ( prenatal factors) up to age three.

Prerequisite: FCS 214.

FCS 315 Global Ecology of the Family
3 hrs.
Study of families in the global environment, focusing on the structure and dynamics, gender roles, meal and food preferences, access to healthcare, housing and geographic location, mass media, and relationships with other people (friendships, community and networking systems), and issues related to globalization and tribalism. A social constructionist perspective guides explanation of families from a variety of world cultures.

FCS 318 Intimate Relationships: Friends, Family, and Marriage (3-0)
3 hrs.
Prerequisite: Fall, Spring, Spring
Exploration of research, literature, and family issues related to the formation and maintenance of intimate personal relationships in adolescence and adulthood. Includes study of communication and conflict negotiation strategies for marriage and other relationships.

FCS 320 Visual Merchandising (3-0)
3 hrs.
Prerequisite: Fall, Spring
Specific development of display fundamentals in composition, lighting, color, signing, motion, ideas, organization and management, installation, budget, tools, props, materials, mannequins, store planning, point of purchase, exhibits, shows, and special promotions.

Prerequisite: FCS 155.

FCS 322 Flat Pattern Design II (5-0)
3 hrs.
Prerequisite: Fall, Spring Even Years
A study of advanced drafting techniques, including computer-aided designing, employed in the flat pattern method for designing clothing.

Prerequisite: FCS 222.

FCS 326 History of Fashion (3-0)
3 hrs.
Prerequisite: Fall, Spring
Surveys the development of costume throughout history and its relationship to contemporary fashion.

FCS 329 Promotion in the Merchandising Environment (3-0)
3 hrs.
Prerequisite: Fall, Spring
Communication principles and strategies important to the promotion of fashion products in the merchandising environment.

Prerequisites: FCS 126 and MKTG 250.

FCS 330 Entrepreneurship in Family and Consumer Sciences
3 hrs.
The course provides students with economic, cultural, political, sociological, and psychological perspectives on the creation and evolution of entrepreneurial ventures. It will provide a broad, practice-based experience in the process of creating and managing a small business in family and consumer science professions with a focus on service-based businesses. This course is approved as a writing-intensive course which fulfills the baccalaureate-level writing requirement of the student's curriculum.

Prerequisites: FCS 150, FCS 156, FCS 220.

FCS 351 Studio II (1-6)
3 hrs.
Prerequisite: FCS 250, FCS 259, FCS 350.
This introductory course in the design commercial environment. Students will learn how to construct, work, and design in three-dimensional space. They will create and edit 3D objects and apply rendering, lighting, and material-mapping techniques.

Prerequisites: FCS 250 and FCS 351.

FCS 359 Studio III (1-6)
3 hrs.
Prerequisite: FCS 359 Studio II
Continued exploration of the design of commercial environments with an emphasis on medium to large scale office interiors.

Prerequisite: FCS 351.

FCS 360 Lifespan Nutrition
3 hrs.
This course emphasizes application of nutrition principles to the stages of the life cycle in a cultural context. Skills in assessing and meeting nutrition needs of individuals and families are developed.

Prerequisite: FCS 260.

FCS 368 Quantity Foods (3-3)
4 hrs.
Prerequisite: Spring
Course emphasizes quantity food purchasing, sanitation, and quantity food preparation in residence hall kitchens, school lunchrooms, and other quantity food institutions.

Prerequisites: FCS 165, FCS 260.

FCS 405 Travel/Study Seminar 1-4 hrs.
Prerequisite: Spring
Student participation in departmentally sponsored travel/study program in U.S. or abroad. Written assignments and planned itinerary. Maximum 2-3 foreign, 1-2 domestic, not to exceed 4 credits.

Prerequisite: Department approval.

FCS 410 Teaching Family Life Education
3 hrs.
This course introduces family life education principles and concepts, program planning and implementation, and ways to evaluate family life education materials, student progress, and program effectiveness. Emphasis is placed on developing a sensitivity to diverse personal and community values and pluralistic understanding of families.

Prerequisite: FCS 210 or approval of instructor.

FCS 413 Later Life Family Relationships
3 hrs.
The study of family relationships and social roles of people in later life families. Exploration of issues related to the post-parental and aging family system and implications for the development of practice and policy.

Prerequisite: FCS 318 or approval.

FCS 415 Effective Parenting
3 hrs.
Study of the relationships between the child, the child's development, the folkways of parental development, school, and family relationships. Special attention to systems theory as it applies to the family.

Prerequisite: FCS 214.

FCS 422 Product Development
3 hrs.
The study of garment manufacturing, including the decision making involved in producing apparel.

FCS 429 Internship
2-6 hrs.
Off-campus, supervised experience. Specific sections per area of interest. Graded on a Credit/No Credit basis.

Prerequisites: Department junior or senior; FCS 202 or permission of instructor.

FCS 430 Merchandising Seminar
3 hrs.
Capstone course for TEX majors. Students will integrate and apply principles and theories from textile and apparel, marketing and management courses to the contemporary fashion merchandising environment.

Prerequisites: FCS 126, FCS 226, and MKTG 250, MGM 300.

FCS 451 Studio IV (1-6)
3 hrs.
Prerequisite: Spring
Continues investigating the design of larger scaled business/commercial interiors with an emphasis on the total design process in developing complex architecturally oriented projects.

Prerequisites: FCS 359.

FCS 459 Studio V (1-6)
3 hrs.
Prerequisite: Spring
Capstone course in investigation and execution of special problems and projects in the field of interior design.

Prerequisite: FCS 451.

FCS 460 Advanced Nutrition (3-2)
4 hrs.
Prerequisite: Fall
Recent developments in nutrition through readings and experiences. Students will be required to work as peer educators in the Student Health Center's Weight Control Program.

Prerequisites: FCS 260, BIOS 240, CHEM 365.

FCS 461 Diet and Disease (3-2)
4 hrs.
Prerequisite: Fall
Study of the dietetic treatment of impaired digestive and metabolic conditions. Planning of diets and reports of current research. Students will work as peer educators in the University Health Center's Weight Control Program.

Prerequisites: FCS 460, dietetic major or consent of instructor.

FCS 462 Community Nutrition (3-0)
3 hrs.
Prerequisite: Fall
Exposes the role of nutrition in the health of a community. Field trips will emphasize professional competencies necessary for dietitians working in various community situations.

Prerequisite: Junior or senior in dietetics.

FCS 463 Nutrition Laboratory I 1 hr.
This laboratory course, students will develop skills in assessment techniques and basic nutrition support skills including, health history, anthropometry, physical exam, biochemical analysis, charting, and basic enteral and parenteral assessment, tube, pump and catheter care. Additionally, counseling methods and skills and presentation skills will be introduced.

Prerequisite: Taken in conjunction with FCS 460.

FCS 464 Nutrition Laboratory II 1 hr.
This laboratory course, students will develop skills in assessment techniques and basic nutrition support skills including, health history, anthropometry, physical exam, biochemical analysis, charting, and basic enteral and parenteral assessment, tube, pump and catheter care. Additionally, counseling methods and skills and presentation skills will be introduced.

Prerequisite: Taken in conjunction with FCS 460.
be introduced. Corequisite: Taken in conjunction with FCS 461.

FCS 466 Institutional Management (4-0)
4 hrs. Fall
Application of institutional administration principles, including job analyses, labor policies, personnel problems, cost control, and food service equipment to different food service systems. Prerequisite: FCS 260.

FCS 468 Advanced and Experimental Foods (3-0)
4 hrs. Fall
Concentrated study of advanced principles of food preparation, development of experimental techniques, and opportunities for individual studies. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CHEM 101, FCS 165.

FCS 520 Insurance Education Seminar 1–2 hrs.
Fundamental principles of consumer insurance; overview of insurance availability; family insurance issues involving automobiles 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 Socio-Psychological Aspects of Dress (3–0)
3 hrs.
Study of dress and adornment in human interaction. Considers the body in social and cultural contexts, dress in various stages of human development and in individual and group behavior. Uses an interdisciplinary approach to dress-related research.

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 535 Communication Skills for Working with Families Across the Lifespan 3 hrs.
Laboratory study designed to develop interpersonal helping skills in delivery of family life education. The location of family life education within the range of helping professions is examined.

FCS 565 Problems in Nutrition (3–0)
3 hrs. Summer
A discussion 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, Spring, 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, Spring, 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 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 542 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 Teaching Methods in Career and Technical Education 3 hrs.
Analysis and methods of organizing instruction in career and technical education. Included is a review of instructional theory and practice in career and technical education, the development of lesson plans, the selection and use of instructional methods, and the presentation of content using various methods of delivery.

CTE 514 Workshop in Career and Technical Education 1–3 hrs.
Investigation, research, and development of a particular topic or area of interest in 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 Curriculum Development in CTE 3 hrs.
Principles of analysing, selecting, and arranging curriculum for instru- tion purposes in career and technical education.

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 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
Amos Aduroja
Christopher Cheatham
Kathy Conway
Roy Cool
Linda Law
Marianne Frauenknecht
Kathy Conway
Linda Law
Marianne Frauenknecht

The professional programs are based on the following concepts: (1) balanced undergraduate preparation enables the student to be a specialist at the graduate level, (2) exposure to practical experiences throughout the professional sequence is critical, (3) elective choices enhance professional options, and (4) continual review of curriculum facilitates program effectiveness.

Students who desire specialized professional preparation may select from the following:

MAJORS
1. Athletic Training Professional Program
2. Community Health Education
3. Exercise Science
4. Physical Education (Teacher—K–12 Certification)
5. Recreation
6. School Health Education (Teacher—K–12)

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)
   C. Non-Teaching
      A. Coaching
      B. Recreation
   C. 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 HPER 152, 153, 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 minors and majors. 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 HPER teaching methods course(s) must be included in the hours at WMU: HPER 447, 448, 312, and 412. Transfer students must participate in HPER entry skill and fitness assessments administered during HPER 150 (Phys. Ed.), HPER 152 (Ex. Sci.) HPER 155 (Health), or HPER 170 (Rec.). Transfer students should contact course instructor at the beginning of the first semester of work at WMU.

UNIVERSITY GENERAL EDUCATION REQUIREMENT
Each student must complete 37 hours of work in approved General Education courses and/or non-professional courses in the College of Arts and Sciences. The student seeking Michigan teacher certification must complete an additional 3 hours in the College of Arts and Sciences.

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 HPER 150 or HPER 152 or HPER 153 or HPER 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 HPER 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 HPER 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
HPER 220 Basic Health Concepts I
HPER 221 Basic Health Concepts II
HPER 222 Basic Health Concepts III
HPER 233 Technical Concepts and Practices of Recreation Activity Leadership
HPER 240 Human Motor Development and Learning
HPER 243 Physical Education Methods: Elementary Movement/Physical Activities
HPER 271 Recreational Programming and Leadership Theory
HPER 290 Inclusive and Special Recreation
HPER 295 Biomechanics
HPER 296 Stress Management and Flexibility
HPER 298 Exercise Physiology
HPER 312 Planning School Health Programs
HPER 315 Measurement and Evaluation for Exercise Science, Health, and Physical Education
HPER 316 Issues in Health Education
HPER 330 Grant Writing in Health Education
HPER 331 Community Health Education Planning
HPER 332 Research and Writing in Recreation
HPER 346 Physical Education Methods: Special Populations
HPER 350 Modification of Health Behavior
HPER 371 Practical Recreational Programming and Leadership
HPER 376 Management of Recreational Services
HPER 380 Foundations of Sports Injuries
HPER 383 Athletic Injury Evaluation
HPER 384 Therapeutic Modalities
HPER 385 Cardiovascular Endurance: Aerobic Conditioning
HPER 396 Muscular Strength and Endurance
HPER 397 Body Composition and Weight Control
HPER 399 Recreation Practicum
HPER 400 Field Experience/Internship in HPER
HPER 412 Teaching Skills and Strategies
HPER 415 Community Health Education Evaluation
HPER 420 Developmental Programs for Children with Disabilities
HPER 430 CHE Interventions: Community Strategies
HPER 431 CHE Interventions: Individual Strategies
HPER 444 Leadership and Programming in Exercise Science
HPER 445 Adult Fitness/Exercise Prescription
HPER 447 Physical Education Methods: Instructional Design
HPER 448 Physical Education Methods: Teaching Skills
HPER 450 Cultural Aspects of HPER
HPER 469 Fitness Management
HPER 472 Recreation for the Aging
HPER 476 Advanced Applications of Recreational Management
HPER 480 Basic Electrocardiography
HPER 486 Therapeutic Exercise for Athletic Injuries
HPER 487 Sports Medicine Seminar
HPER 491 Exercise for Special Populations
HPER 497 Senior Seminar in Recreational Services
HPER 498 Exercise Science Internship
HPER 499 Recreation Internship

MAJORS
Athletic Training Professional Program
Bachelor of Science
The Western Michigan University Department of Health, Physical Education, and Recreation offers an entry-level professional program leading to a Bachelor of Science in Athletic Training. This program seeks to prepare students for certification by the National Athletic Trainers' Association Board of Certification. The mission of the athletic training professional program (ATPP) is to develop thoughtful allied health professionals who possess the skills, knowledge, and values necessary to deliver quality health care to the physically active. Comprised of didactic and clinical experiences, the ATPP emphasizes the development of skills, knowledge, and competencies essential for the practice of a certified athletic trainer.

ACREDITATION
Western Michigan University developed the athletic training professional program based on accreditation standards by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Western Michigan University is in the process of completing the requirements necessary for CAAHEP accreditation. Graduates of CAAHEP accredited programs are eligible to sit for the
National Athletic Trainers' Board of Certification Examination.

PRE-PROGRAM PHASE
This component of the athletic training program is designed to provide the student with the opportunity to learn more about the athletic training profession by taking the course HPER 153 Introduction to Athletic Training and other cognates that are prerequisites for admittance to the Athletic Training Professional Program. During this time, the athletic training student will be required to obtain a minimum of 80 hours of clinical and sports exposure. This experience will be completed in the University’s Intercollegiate Athletic Department and approved affiliated sites. Upon completion of the pre-program requirements, the athletic training student must apply and be accepted to the professional program.

ADMISSION STANDARDS
To be eligible for admission to the Athletic Training Professional Program prospective students must first obtain admission to the Department of Health, Physical Education, and Recreation and complete all pre-program requirements. Admission into the Athletic Training Professional Program is selective. Due to the competitive nature of this program, the criteria listed below should be regarded as minimum standards for admittance.

Pre-program Requirements and Criteria for Admission
1. Accepted to Western Michigan University and to HPER Department.
2. The completion of an observation period in an environment that provides athletic training services. A certified athletic trainer must endorse verification of a total of 80 hours.
3. Submission of application for admission to the Athletic Training Professional Program.
4. Ability to fulfill all of the technical standards that are required of the athletic training student. The technical standards can be found on the ATPP website.
5. The criteria listed below should be completed or in progress at the time of application to be considered for admission to the Athletic Training Professional Program.
6. Demonstrated knowledge and interest in the athletic training profession.
7. Experience in the health care field.
8. A minimum overall grade point average of 2.5.
9. Space available in the athletic training professional program.
10. Special considerations.
11. Completion of those Athletic Training Pre-program requirements listed directly below a 2.5 overall grade point average and a minimum "C" grade in each of the required courses.

Required Courses 45
- HPER 111 Healthy Living 4
- HPER 149 Computer Applications for HPER 3
- HPER 181 First Aid 2
- HPER 153 Introduction to Athletic Training 3
- PHYS 113/114 General Physics I/Lab 5
- PSY 100 General Psychology 3

Pre-Program Core Requirements (16 hours)
- HPER 111 Healthy Living 2
- HPER 149 Computer Applications for HPER 3
- HPER 153 Introduction to Athletic Training 3
- HPER 181 First Aid 2
- HPER 240 Motor Development and Learning 3
- HPER 253 Injury/Ilness Survey and Fieldwork 3
- HPER 295 Biomechanics 3
- HPER 296 Stress Management and Flexibility 2
- HPER 298 Exercise Physiology 3

Required Cognates (22 hours)
- BIOC 112 Principles of Biology 3
- BIOC 211 Human Anatomy 4
- BIOC 240 Human Physiology 4
- FCS 266 Food and Society 3
- PHYS 113 General Physics I/Lab 5
- PSY 100 General Psychology 3

PROGRAM REQUIREMENTS
The Athletic Training Professional Program consists of core courses taken in a prescribed sequence over a continuous four-semester process that takes a minimum of two years to complete. Upon admission to the ATPP, the student is required to adhere to the technical standards. The Technical standards form will be included in the application packet. During each semester the student is required to register for HPER 400 Athletic Training Fieldwork. To complete the required clinical competencies for HPER 400, each student will be required to obtain a minimum of 160 clinical hours for each semester. Graduation requirements are consistent with the University standards for graduation with the following exceptions: 1) a minimum overall grade point average; 2) a minimum of "C" grade in each core course, and 3) completion of all required cognates, pre-program core requirements, and professional requirements.

Students can repeat a course only once in order to obtain the minimum of a "C" grade. Should a student fail to pass satisfactorily an athletic training course at the end of a second enrollment s/he will be dropped from the program. Students who wish to continue in the program must notify the Program Director in writing. Students whose cumulative grade point average falls below 2.5 will also be placed on probation and removed from the program. These students will not be allowed to progress in the athletic training course work until the grade point average is raised to 2.5. The return to the program is contingent upon availability of space in the athletic training professional program. Students who return to the program must comply with all requirements in effect at that time. Students can appeal decisions by submission of a formal response to the program director within thirty (30) days of the notification of the formal action.

The following is a list of the required course work for the Athletic Training Professional Program.

Required Cognates (22 hours)
- BIOC 112 Principles of Biology 3
- BIOC 211 Human Anatomy 4
- BIOC 240 Human Physiology 4
- FCS 266 Food and Society 3
- PHYS 113 General Physics I/Lab 5
- PSY 100 General Psychology 3

Pre-Program Core Requirements (16 hours)
- HPER 111 Healthy Living 2
- HPER 149 Computer Applications for HPER 3
- HPER 153 Introduction to Athletic Training 3
- HPER 181 First Aid 2
- HPER 240 Motor Development and Learning 3
- HPER 253 Injury/Ilness Survey and Fieldwork 3
- HPER 295 Biomechanics 3
- HPER 296 Stress Management and Flexibility 2
- HPER 298 Exercise Physiology 3

Required Courses 45
- HPER 152 Foundations of Exercise Science 4
- HPER 295 Biomechanics 3
- HPER 296 Stress Management and Flexibility 2
- HPER 298 Exercise Physiology 3
- HPER 315 Measurement and Eval. in Ex Sci/Health/Phys Ed 3
- HPER 317 Cardiovascular Health 2
- HPER 350 Modification of Health Behavior 2
- HPER 380 Foundations of Sports Injuries 2
- HPER 395 Cardiovascular Endurance: Aerobic Conditioning 2
- HPER 396 Muscular Strength and Endurance 2
- HPER 397 Body Composition and Weight Control 2
- HPER 444 Leadership and Programming in Exercise Science 3
- HPER 445 Adult Fitness/Exercise Prescription 3
- HPER 450 Cultural Dynamics of HPER 2
- HPER 469 Fitness Management 2
- HPER 480 Basic Electrodagnostic 2
- HPER 491 Exercise for Special Populations 3
- HPER 498 Exercise Science Internship 4

Exercise Science Major
126 hours
Bachelor of Science
The Exercise Science major prepares students to assume careers in non-school settings such as corporate, wellness, commercial and in some cases, clinical 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 HPER 450 Cultural Dynamics of HPER.

General Education
A list of approved General Education courses can be found in “Graduation and Academic Advising” earlier in this catalog. Exercise Science major 37

Exercise Science (PEX)
Required Cognates 14
- BIOC 112 Principles of Biology 3
- BIOC 211 Human Anatomy 4
- BIOC 240 Human Physiology 4
- HPER 111 Healthy Living 2

Required Courses 45
- HPER 152 Foundations of Exercise Science 4
- HPER 295 Biomechanics 3
- HPER 296 Stress Management and Flexibility 2
- HPER 298 Exercise Physiology 3
- HPER 315 Measurement and Eval. in Ex Sci/Health/Phys Ed 3
- HPER 317 Cardiovascular Health 2
- HPER 350 Modification of Health Behavior 2
- HPER 380 Foundations of Sports Injuries 2
- HPER 395 Cardiovascular Endurance: Aerobic Conditioning 2
- HPER 396 Muscular Strength and Endurance 2
- HPER 397 Body Composition and Weight Control 2
- HPER 444 Leadership and Programming in Exercise Science 3
- HPER 445 Adult Fitness/Exercise Prescription 3
- HPER 450 Cultural Dynamics of HPER 2
- HPER 469 Fitness Management 2
- HPER 480 Basic Electrodagnostic 2
- HPER 491 Exercise for Special Populations 3
- HPER 498 Exercise Science Internship 4
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 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 (TA)** for one semester in a content specific course (i.e., HPER 111, 181, 220, 221, 222, 316, 317, 381). Students must complete HPER 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 and CPR 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 HPER 450.

**General Education**
School emphasis 39 hours
Community emphasis 37 hours

**Health Education—School Emphasis (HET)**
**Required Cognates** 17 hours
- **PSY 100 General Psychology** 3
- **SOC 200 Principles of Sociology** 3
- **BIOS 112 Principles of Biology** 3
- **BIOS 211 Human Anatomy** 4
- **BIOS 240 Human Physiology** 4

**Professional Education Sequence** 21 hours
- **ED 250 Human Development and Learning** 3
- **ED 305 K-12 Content Literacy** 3
- **ED 385 School and Society** 3
- **ED 410 Teaching in HPER** 2
- **ED 475 Intern Teaching in HPER** 10

**Physical Education Major**
**Bachelor of Science**

Successful completion of the Physical Education—Teacher/Coach major makes a student eligible for K-12 certification for teaching of physical education in Michigan. Students must complete the education sequence required by the Department of Education and Professional Development including the intern teaching experience.

**Physical Education Major**
130 hours
Bachelor of Science

Successful completion of the Physical Education—Teacher/Coach major makes a student eligible for K-12 certification for teaching of physical education in Michigan. Students must complete the education sequence required by the Department of Education and Professional Development including the intern teaching experience.

Physical education major and minor students must serve as a teaching assistant for one semester in a general physical education course during their first 60 hours at Western Michigan University. Students should obtain teaching assistant applications from the 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 HPER 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 40

**Physical Education—Teacher/Coach (PYE)**
K-12 State Provisional Certificate

**Required Cognates** 14
- **BIOS 112/310 Principles of Biology** 4
- **BIOS 211 Human Anatomy** 4
- **BIOS 240 Human Physiology** 4
- **HPER 111 Healthy Living** 2

**Required Professional Theory Courses** 15
- **HPER 150 Foundations of Physical Education and Exercise Science** 3
- **HPER 181 First Aid** 2
- **HPER 295 Biomechanics** 3
- **HPER 258 Exercise Physiology** 3
- **HPER 315 Measurement and Evaluation in Ex Sci/Health/Phys Ed** 3
- **HPER 450 Cultural Dynamics of HPER** 2

**Required Coaching Theory/Techniques Courses** 9
- **HPER 255 Theory of Coaching** 2
- **HPER 266 Officiating Series** 1
- **HPER 337 Coaching and Advanced Technique** 2
- **HPER 380 Foundations of Sports Injuries** 2
- **HPER 400 Internship in HPER** 2

**Required Professional Content Courses** 13
- **HPER 104 Nontraditional Activities** 1
- **HPER 106 Recreational Dance** 1
- **HPER 107 Weight Training** 1
- **HPER 108 Tumbling** 1
- **HPER 112 Tennis** 1
- **HPER 113 Indoor Racquet Sports** 1
- **HPER 120 Golf** 1
- **HPER 121 Bowling** 1
- **HPER 140 Swimming** 1
- **HPER 150 Biomechanics** 3
- **HPER 215 Aerobic Conditioning** 3
- **HPER 242 Aerobic Exercise Instruction** 3
- **HPER 315 Measurement and Evaluation in Ex Sci/Health/Phys Ed** 3
- **HPER 380 Foundations of Sports Injuries** 2
- **HPER 400 Internship in HPER** 2

**Physical Education**

**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 of physical education in Michigan. Students must complete the education sequence required by the Department of Education and Professional Development including the intern teaching experience.
ED 305 K-12 Content Area Literacy . . . . 3
HPER 346 Phys. Ed. Methods: Special Populations . . . . 3
ED 395 School and Society . . . . 3
HPER 447 Phys. Ed. Methods: Instructional Design . . . . 3
HPER 448 Phys. Ed. Methods: Teaching Skills . . . . 3
HPER 410 Intern Teaching Seminar . . . . 2
HPER 475 Intern Teaching in HPER . . . . 10
Required Teaching Assistant

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, non-profit, private, or commercial recreation agencies and organizations. The hours of electives within this course of study allow the student flexibility in preparing for a specific emphasis in recreation. Students will also complete a supervised internship.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Recreation major will satisfy the Baccalaureate Writing Requirement by successfully completing HPER 332 Research and Writing in Recreation.

GENERAL EDUCATION (37 hours)

HPER 149 will satisfy the General Education computer literacy requirement.

REQUAID CORE COURSES (38 hours)

(These are the course descriptions of this catalog when courses are offered and the prerequisite requirements for each course.)

HPER 170 Introduction to Leisure and Recreational Services . . . . 3
HPER 233 Technical Concepts and Practices of Recreational Activity Leadership . . . . 3
HPER 271 Recreational Programming and Leadership Theory . . . . 3
HPER 290 Inclusive and Special Populations . . . . 3
HPER 332 Research and Writing in Recreation . . . . 3
HPER 371 Practical Recreational Programming and Leadership . . . . 3
HPER 376 Management of Recreational Services . . . . 3
HPER 399 Recreation Practicum . . . . 3
HPER 472 Recreation for the Aging . . . . 3
HPER 476 Advanced Applications of Recreational Management . . . . 3
HPER 497 Senior Seminar in Recreational Services . . . . 2
HPER 499 Recreation Internship . . . . 6

ELECTIVE COURSES (7 hours)

PEGN 349 Lifeguard Training . . . . 2
PEGN 350 Water Safety Instructors . . . . 2
HPER 149 Computer Applications in HPER . . . . 3
HPER 172 Outdoor Leadership . . . . 2
HPER 236 Officiating . . . . 2
COM 104 Public Speaking . . . . 3
GEOG 204 National Park Lands . . . . 3
GEOG 254 Outdoor Recreation: Basic Resources and Planning . . . . 3
GEOL 312 Geology of National Parks and Monuments . . . . 3
SWRK 562 Community Organization in Urban Areas . . . . 3
SOC 352 Introduction to Gerontology . . . . 3
HPER 400 Field Experience . . . . 1-8
HPER 416 Topics in Recreation . . . . 2
HPER 537 Coaching and Advanced Techniques . . . . 2

REQUIRED ACTIVITY COURSES (3 hours)

HPER 104 Nontraditional Physical Activity . . . . 1
HPER 106 Recreational Dance . . . . 1
HPER 108 Tumbling . . . . 1

ELECTIVE COURSES (2 hours)

HPER 130 Softball . . . . 1
HPER 131 Volleyball . . . . 1
HPER 132 Soccer . . . . 1
HPER 133 Basketball . . . . 1
HPER 136 Track and Field . . . . 1

Required Teaching Assistant

Elementary Physical Education Minor

This minor must be taken as part of the Elementary Group Minor.

COGNATES (7 hours)

BICS 112 Principles of Biology . . . . OR
SCI 170 Life Science for Elementary Educators I . . . . 3
BIOS 211 Human Anatomy . . . . 4

Hours Required for this minor . . . . 25

REQUIRED PROFESSIONAL COURSES (17 hours)

HPER 150 Foundation of Physical Education . . . . 3
HPER 181 First Aid . . . . 2
HPER 240 Human Motor Development and Learning . . . . 3
HPER 243 Physical Education Methods: Early Elementary Movement/Physical Activities . . . . 3
HPER 346 Physical Education Methods: Special Populations . . . . 3
HPER 447 Physical Education Methods: Instructional Design . . . . 3
HPER 449 Physical Education Methods: Teaching Skills . . . . 3

REQUIRED ACTIVITY COURSES (3 hours)

HPER 104 Nontraditional Physical Activity . . . . 1
HPER 106 Recreational Dance . . . . 1
HPER 108 Tumbling . . . . 1

Secondary Physical Education Minor

COGNATES (11 hours)

BICS 112 Principles of Biology . . . . 3
BICS 211 Human Anatomy . . . . 4
BICS 240 Human Physiology . . . . 4
PSY 100 General Psychology . . . . OR
PSY 150 Introduction to Human Behavior . . . . 3
SOC 200 Principles of Sociology . . . . 3

Hours Required for this minor . . . . 24

REQUIRED PROFESSIONAL COURSES (17 hours)

HPER 150 Foundations of Physical Education . . . . 3
HPER 181 First Aid . . . . 2
HPER 240 Human Motor Development and Learning . . . . 3
HPER 346 Physical Education Methods: Special Populations . . . . 3
HPER 447 Physical Education Methods: Instructional Design . . . . 3
HPER 449 Physical Education Methods: Teaching Skills . . . . 3
REQUIRED ACTIVITY COURSES (3 hours)
HPER 120 Golf
or
HPER 121 Bowling
or
HPER 112 Tennis
or
HPER 113 Indoor Racquet Sports
HPER 215 Aerobic Conditioning
HPER 242 Aerobic Dance Instruction

ACTIVITY COURSE ELECTIVES 5 hours
HPER 106 Recreational Dance
HPER 130 Softball
HPER 131 Volleyball
HPER 132 Soccer
HPER 133 Basketball
HPER 134 Wrestling
HPER 135 Football
HPER 136 Track and Field

Required Teaching Assistant

Special Physical Education Minor

Designed to prepare special education and physical education majors to teach children with disabilities in inclusive settings. Students majoring in special education must complete the special physical education courses and all courses listed in area A. Physical Education majors must complete the special physical education courses and all courses in area B. Students majoring in other areas must complete the special physical education courses, the courses in Area B, and complete the Elementary Physical Education minor.

REQUIRED COGNATES (9 hours)
BIOS 112 Principles of Biology
SCI 170 Life Science for Elementary Educators I
BIOS 211 Human Anatomy
HPER 111 Healthy Living

COURSES IN SPECIAL EDUCATION (8 hours)
SPED 530 Introduction to Special Education
SPED 538 Introduction to Classroom Management
SPED 539 Consultation and Communication in Special Education

Hours Required for this minor 25

SPECIAL PHYSICAL EDUCATION COURSES (13 hours)
HPER 320 Physical Education for Individuals with Disabilities
HPER 321 Therapeutic Programs for Individuals with Disabilities
HPER 420 Developmental Programs for Children with Disabilities
HPER 400 Field Experience/Internship (300 hours)

COURSES IN PHYSICAL EDUCATION (9 hours)
HPER 243 Physical Education Methods: Early Elementary Movement/Physical Activities
HPER 447 Physical Education Methods: Instructional Design
HPER 448 Physical Education Methods: Teaching Skills

ELECTIVE COURSES (3 hours)
HPER Activity Courses
PEQI Swim Courses

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
BIOS 211 Human Anatomy
BIOS 240 Human Physiology

HOURS REQUIRED FOR THIS MINOR 24

REQUIRED COURSES (18 hours)
HPER 236 Theory of Coaching
HPER 280 Exercise Physiology
HPER 335 Advanced Theory of Coaching
HPER 400 Field Experience (Prereq: Coaching and Adv. Tech Course)

PROFESSIONAL ELECTIVES (11 hours)
HPER 337 Advanced Techniques and Coaching Series: Prerequisites: Must have had first level course(s) or permission of instructor.

Hours Required for this minor 30

TEAM
Basketball
Baseball or Softball
Volleyball
Football
Soccer
Ice Hockey

INDIVIDUAL
Gymnastics
Tennis
Track and Field

HPER 236 Officiating—Select two of the following officiating courses to complete the 11 hrs. of Professional Electives
Basketball
Baseball
Volleyball
Softball
Football

HPER 104–242 professional activity courses

Recreation Minor (Non-Teaching)

The recreation minor is designed to prepare students to assume leadership roles in public, non-profit, private, or commercial recreation agencies and organizations. Please note in course descriptions when courses are offered and the suggested sequence of course work.

Hours Required for this minor 24

REQUIRED COURSES (24 hours)
HPER 170 Introduction to Leisure and Recreational Services
HPER 233 Technical Concepts and Practices of Recreation Activity Leadership

COURSES BY TOPIC

PROFESSIONAL ACTIVITY COURSES (HPER)

HEALTH EDUCATION ACADEMIC COURSES (HPER)

PHYSICAL EDUCATION ACADEMIC COURSES (HPER)
PROFESSIONAL RECREATION COURSES (HPER)

170 Introduction to Recreation
172 Camp Leadership
223 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 UPPERCLASS AND GRADUATE STUDENTS (HPER)

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
586 Administration of Athletics
580 Studies in Athletic Training
582 Athletic Training for Coaches
590 Exercise Physiology
591 Evaluation in Health, Physical Education, and Recreation
595 Analysis of Movement in Sport
598 Readings in Health, Physical Education, and Recreation

Health, Physical Education, Recreation Courses (HPER)

A list of approved General Education courses can be found earlier in this catalog. Course descriptions preceded by a * are open to all students.

HPER 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.

HPER 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.

HPER 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.

HPER 110 Health for Better 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.

HPER 111 Healthy 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.

HPER 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.

HPER 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 softball in a K-12 physical education setting.

HPER 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.

HPER 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.

HPER 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.

HPER 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.

HPER 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.

HPER 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.

HPER 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 satisfies the Western Michigan University computer literacy requirement. Credit cannot be earned for both HPER 149 and either BIS 102 or 110, FCS 225, SOC 182, or CS 105.
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HPER 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 activity in the 21st century, issues of instruction, the assessment of personal motor and fitness skills, and the initial development of a personal professional philosophy and portfolio.

HPER 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.

HPER 153 Introduction to Athletic Training
3 hrs.
This course is designed to review the history and the governance of the athletic training profession and to address the educational domains and the responsibilities of the certified athletic trainer. The major content area of injury prevention will be emphasized. This course will also provide a general orientation to the clinical requirements of the student majoring in athletic training.

HPER 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.

HPER 170 Introduction to Leisure and Recreational Services
3 hrs.
† 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.

HPER 181 First Aid
2 hrs.
The standard course in first aid techniques leading to Red Cross certification. Open to all students.

HPER 215 Aerobic Conditioning
1 hr.
HPER 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).

HPER 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.

HPER 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.

HPER 233 Technical Concepts and Practices of Recreation Activity Leadership
3 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: HPER 170 or taken concurrently with HPER 170.

HPER 235 Theory of Coaching
2 hrs.
Introduction to coaching includes basic principles, and State Athletic Handbook. Budgets, scheduling, facilities, liability, public relations, relationships with staff, faculty, students, parents, press, etc.

HPER 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. Prerequisite: Must have had the first level activity or permission of instructor. Open to all students.

Fall Semester: Basketball
Spring Semester: Basketball Volleyball Softball/Baseball Track and Field

HPER 240 Human Motor Development and Learning
3 hrs.
Course content focuses on birth to death study of the changes in motor behavior due to the interaction of environmental and biological factors. Special emphasis on the physical, cognitive, and personal-social development as this relates to the acquisition of motor skills. Prerequisite: HPER 211.

HPER 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.

HPER 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.

HPER 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: HPER 150.

HPER 253 Injury/Illness Survey and Management
3 hrs.
Basic procedures in the recognition, assessment and the treatment of athletic related injuries and illnesses. To obtain the knowledge and skills needed to complete an on-site injury survey, and to initiate the management of the injury/illness. Addressing contemporary taping and wrapping techniques and the use of protective equipment in preventing and protecting the athlete and the physically active is addressed. Prerequisite: BIOS 240.

HPER 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 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 theory that can put into practice during the practical semester of programming and leadership. Prerequisite: HPER 233 or taken concurrently with HPER 233.

HPER 276 Outdoor Education
2 hrs.
† A course in the philosophy, methods, and materials of outdoor education emphasizing outdoor education activities for children and youth.

HPER 290 Inclusive and Special Recreation
3 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: HPER 271 or taken concurrently with HPER 271.

HPER 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 quantitative or quantitative procedure. Prerequisite: BIOS 211.

HPER 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: HPER 295.

HPER 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.
HPER 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.

HPER 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: HPER 155, 220, 221, 222, FCS 210.

HPER 315 Measurement and Evaluation for Exercise Science, Health, and Physical Education
3 hrs.
This course covers measurement and evaluation techniques in terms of understanding, interpretation, and application with emphasis on administration, selection, and use of tests; interpretation of results through statistical procedures; analysis of tests available in Exercise Science, Health, and Physical Education and techniques for developing assessment tools. Prerequisites: HPER 155, 212, 215, 243, 250, 315, BIOS 211, BIOS 240, HPER 150, HPER 220, HPER 222, HPER 315, HPER 320, HPER 321, HPER 322.

HPER 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: HPER 155, 200, 221, and 222.

HPER 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, HPER 150, HPER 155, and HPER 220.

HPER 320 Physical Education for Individuals with Disabilities
3 hrs.
The course will include activities and games used in adaptive, developmental, and corrective programs for individuals with disabilities. Emphasis will be placed on designing activities for individuals with disabilities who are included in the regular physical education program. Prerequisite: HPER 321 Therapeutic Programs for Individuals with Disabilities.

HPER 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.

HPER 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 experience during organized sports competitions for individuals with disabilities. Prerequisite: HPER 325 Swimming for the Exceptional Child.

HPER 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.

HPER 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: HPER 155, 220, 221, and 222.

HPER 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 planning, program evaluation. Prerequisites: HPER 155, 220, 221, 222, and 315.

HPER 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, but is not limited to writing assignments including reports, research papers, research proposals, year-end reports, and other types of writing that are required of a successful professional in parks and recreation.

HPER 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 significance of quality coaching, human growth and development, conditioning for sport performance and psychological and social skills necessary to coach high school sports. Prerequisite: HPER 226.

HPER 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). Tennis, Soccer, Baseball, Football, Softball, Basketball, Track/Field, Volleyball, Wrestling, Gymnastics.

HPER 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 and related skills, development and teaching of basic skills, stunts and tumbling, simple games and sports, rhythms and classroom correlated activities. This course is not open to physical education majors.

HPER 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, and the accommodation of activities, equipment, and instructional materials for special populations attending grades K-12. Prerequisite: HPER 243.

HPER 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. HPER 111 and 152 for PEX majors; HPER 155, 220, 221, and 222 for CHE and HET majors.

HPER 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: HPER 155, 220, 221, and 222 (for health education majors); HPER 111 or PEGN 170 (elementary education students).

HPER 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.

HPER 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 (CEPR 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: HPER 271.

HPER 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 operating recreation and leisure service organizations. Prerequisite: HPER 371 or taken concurrently with HPER 371.

HPER 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 HPER 181.

HPER 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.

HPER 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: HPER 312, HPER 315 or coenrollment).

HPER 383 Athletic Injury Evaluation 3 hrs.
This course is designed to present the techniques used in an athletic injury evaluation. An in-depth analysis of athletic injury mechanics, the theory and application of orthopedic and neurological evaluation are included. Prerequisite: Admission into Athletic Training Professional Program.

HPER 384 Therapeutic Modalities 3 hrs.
This course is designed to study the pain management techniques and the mediation of theory and practice of therapeutic modalities. To plan, implement, document and evaluate the efficacy of therapeutic modalities in the treatment of injuries to and illness of athletes and others involved in physical activity. Prerequisite: Admission into Athletic Training Professional Program.

HPER 395 Cardiovascular Endurance: Aerobic Conditioning 2 hrs.
The purpose of this course is to understand the physiological mechanisms underlying cardiopulmonary conditioning, learn the techniques associated with aerobic conditioning, and experience cardiovascular evaluation and aerobic conditioning. Prerequisites: HPER 295, 298.

HPER 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: HPER 295, 298.

HPER 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: HPER 295.

HPER 399 Recreation Practicum 3 hrs.
The practical field experiences in recreation. Enrollment by permission of instructor and acceptance of practicum proposal. Students are given letter grades in course. Prerequisite: HPER 372.

HPER 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 athletic training, recreation, health, exercise, or exceptional child. Students will be assigned to classes or positions according to their selected area of emphasis. Enrollment by permission of curricular advisors for major or minor. Prerequisite varies with area of emphasis and requires departmental approval.

HPER 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. At least two assignments correspond with practical experiences which occur concurrently during HPER 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.

HPER 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: HPER 312.

HPER 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: HPER 331.

HPER 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.

HPER 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 students will be evaluated and tested. Prerequisite: BIOS 211.

HPER 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: HPER 331.

HPER 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: HPER 331.

HPER 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: HPER 295, 296, 298, 317, 395, 396, 397, 435.

HPER 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: HPER 295, 296, 298, 317, 395, 397, and 435.

HPER 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: HPER 150, 295, 345, 346, 390, and 392.

HPER 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: HPER 447.

HPER 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 trends. This course is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: 20 hours in the program and HPER 150 or 152 or 170 or 155 and 20 hours in major.

HPER 468 Fitness Management 2 hrs.
The purpose of this course is to provide students with an introduction to the scope, characteristics, management techniques, and business operations used in the field of sport management, as well as exercise science professions. Prerequisites: HPER 296, 395, and 396.

HPER 472 Recreation for the Aging 3 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.

HPER 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.

HPER 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 administration 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.

HPER 480 Basic Electrocardiography 2 hrs.
The purpose of this course is to examine the anatomy, physiology and electrophysiology of the heart, identify and describe normal EKGs; identify arrhythmias and abnormalities of the heart from an EKG, become familiar with common cardiac medications, observe a maximal graded exercise test. Prerequisites: HPER 296, 317.

HPER 486 Therapeutic Exercise for Athletic Injuries 3 hrs.
This course will study the theory of rehabilitation and to learn the correct application of therapeutic exercise techniques in the management of athletic injuries. To plan, implement, document, and evaluate the efficacy of therapeutic exercise program for the rehabilitation and reconditioning of athletic related injuries. Prerequisites: HPER 383 and 384.

HPER 487 Sports Medicine Seminar 3 hrs.
A course designed to address relevant and contemporary issues in sports medicine. Particular emphasis is given to the topic of health care administration and professional development of the certified athletic trainer. Prerequisite: Admission into Athletic Training Program.

HPER 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, research and evaluation report writing, the analysis of current recreation and leisure research, and the use of computers in recreation research, and the use of computers in recreation research and evaluation.

HPER 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 and apply knowledge of testing procedures and program development for special populations, including the pathophysiology of various diagnoses and specific effects of exercise response, training, and contraindicated exercises. Prerequisites: HPER 296, 298, 317, 385, 397, 444, and 445.

HPER 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.

HPER 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: HPER 376.

HPER 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.

HPER 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. Students are given letter grades in course.

Professional Courses Open To Underclass and Graduate Students (HPER).
Note: The following courses are open to undergraduate students when marked in the Schedule of Courses offering as "Undergraduate Students Only."

HPER 500 Studies in Health, Physical Education and Recreation 1-2 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, Nutrition.

HPER 510 Modern Health for Teachers and Health Professionals 3 hrs.
This course is designed for teachers and health professionals who have need of current knowledge in health science. The course surveys topics such as mental health, nutrition, substance abuse, physical fitness, chronic diseases, and stress management. Consideration is given to psychological, sociological and cultural factors that influence health improvement. Attention is given to special factors of health and illness of children and adolescents. This course is not open to health education majors and minors who have had HPER 100, 220, 221.

This course surveys the history, philosophy, and methods of health education. The philosophical basis and practices of health education are discussed in terms of needs and capabilities of people and factors that influence their development. Emphasis is placed upon the promotion of health and prevention of disease, disability, and premature death. Curriculum development and teaching methods focus on content and strategies considered most effective in teaching disease prevention and health promotion. The course is not open to health education majors or minors who have had 312 or 412. Prerequisite: 510 or equivalent.

HPER 514 Methods and Materials in Health Education 2 hrs.
Lectures and demonstrations with emphasis on the effective health supervision of school children, the principles and practices of health teaching in the various grades, and the interrelation of this teaching with that of other subjects in this curriculum. Prerequisite: HPER 312, 412 or 512 or consent of department.

HPER 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.

HPER 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, Baseball, Basketball, Football, Golf, Field Hockey, Gymnastics, Ice Hockey, Judo, Karate, Soccer, Swimming, Track and Field, Volleyball, Wrestling, Yoga.

HPER 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.

HPER 580 Studies in Athletic Training 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: BIO 211, 240. HPER 380.

Courses Open To Graduate Students Only (HPER)

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.

HPER 598 Readings in Health, Physical Education and Recreation 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.

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.
• PEGN 100-level courses—are open to all 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.

• PEGN 170-183—Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 170-183 courses offered in one semester is prohibited. Courses are not repeatable for credit.

• PEGN 200-level courses—are open to all students who have completed a 100-level course in the activity or the equivalent. (** Prerequisite 249 or Red Cross Intermediate Card)

• PEGN 300-level courses—are open to all students desiring additional experience in an activity and who have completed the 200-level course or permission of instructor to enroll.

• PEGN 400—A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

General Physical Education (PEGN)

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

PEGN 100 Adapted P.E. Med. Rec 1 hr.

PEGN 102 Badminton 1 hr.

PEGN 103 Aerobic Exercise 1 hr.

Course consists of a broad spectrum of fitness exercises to music.

PEGN 104 Basketball 1 hr.

PEGN 105 Bowling 1 hr.

PEGN 106 Canoe Camping 1 hr.

The course combines the fundamentals of camping with canoeing. Culminates with a weekend camping trip by canoe.

PEGN 107 Canoeing 1 hr.

PEGN 108 Backpacking 1 hr.

PEGN 109 Cycling 1 hr.

PEGN *122 Golf I 1 hr.

PEGN 128 Jogging 1 hr.

PEGN *131 Beginning Karate 1 hrs.

PEGN 132 Military Fitness 1 hr.

PEGN 135 Outdoor Challenge 1 hr.

This course, taught in cooperation with Pretty Lake Camp, teaches teamwork, trust of others, and responsibility through outdoor physical activities. Students work together to solve problems of survival in the outdoors.

PEGN 136 Physical Fitness 1 hr.

PEGN *137 Racquetball 1 hr.

PEGN 138 Rock Climbing 1 hr.

This course gives the student fundamentals of rock climbing and includes a weekend trip to cap off the experience.

PEGN 139 Relaxation 1 hr.

PEGN *144 Skiing—Alpine 1 hr.

PEGN 146 Soccer 1 hr.

PEGN 147 Softball 1 hr.

PEGN *149 Swimming—Unable to swim in deep water 1 hr.

PEGN 150 Advanced Beginning Swimming 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.

PEGN *160 Tennis I 1 hr.

PEGN 163 Volleyball 1 hr.

PEGN 166 Weight Training 1 hr.

Course consists of individualized weight training programs.

PEGN 170-182—Health and Wellness courses are approved for fulfillment of General Education Area VIII. The content included addresses the topics of health, including nutrition, substance abuse, STDs, and the concepts of physical fitness. Dual enrollment in 170-182 courses offered in one semester is prohibited. Courses are not repeatable for credit.

PEGN 170 Health and Wellness—Aerobics 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.

PEGN 171 Health and Wellness—Water Aerobics 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.

PEGN 172 Health and Wellness—Circuit Fitness 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.

PEGN 173 Health and Wellness—Jogging 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.

PEGN 174 Health and Wellness—Walking 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.

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 a knowledge base 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, 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.

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 6 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 Intermediate Swimming—Intermediate
1 hr.
PEGN 250 Intermediate Swimming—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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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<tbody>
<tr>
<td>PEGN 400 Baseball</td>
<td>1 hr.</td>
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<tr>
<td>PEGN 401 Basketball</td>
<td>1 hr.</td>
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<tr>
<td>PEGN 403 Cross Country</td>
<td>1 hr.</td>
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<td>PEGN 405 Football</td>
<td>1 hr.</td>
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<td>PEGN 406 Golf</td>
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<td>PEGN 407 Gymnastics</td>
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<td>PEGN 408 Ice Hockey</td>
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<td>PEGN 409 Soccer</td>
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<td>PEGN 410 Softball</td>
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<td>PEGN 411 Synchronized Skating</td>
<td>1 hr.</td>
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<tr>
<td>PEGN 413 Tennis</td>
<td>1 hr.</td>
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<tr>
<td>PEGN 414 Track/Field</td>
<td>1 hr.</td>
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<tr>
<td>PEGN 415 Volleyball</td>
<td>1 hr.</td>
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**TEACHING, LEARNING, AND LEADERSHIP**

Van Cooley, Chair
DeWayne Anderson, Assistant Chair
Ariel Anderson
Phyllis M. Belt-Beyan
Lynn Brite
Cindy Carver
Parisa Choudhury
Carol Crumbaugh
Katherine Cummings
Toby Daspit
Josephine Davis
Allison Downey
Susan Edgerton
Jennifer Fager
Marcia Fetters
Lauren Freedman
Arthur Garmon
Esther Gray
Barbara Loss Harris
Lynn Nations Johnson
Allison Kelaher-Young
Becky W. Kischner
Tetyana Koshmanova
Joseph Kretovics
Nancy Mansberger
James Muchmore
Regena Falls Nelson
Jodie Palmer
Loaun Bierlein Palmer
Sue Popperik
Frank E. Rapley
Jiaping Shen
Andrea Smith
Karen Thomas
Donald E Thompson
Paul Vellom
Charles C. Warfield
Gary Wegener
Paul Wilson

Courses are designed to meet the professional needs of future educators. All students pursuing a curriculum for a secondary provisional certificate and a degree are required to take the professional education sequence of courses, plus a methods course offered in the major and/or minor field and directed teaching; students in elementary education are required to complete the prescribed elementary education program. Students must contact the College of Education Office of Admissions and Advising, 2504 Sangren Hall, to be admitted to the teacher education curriculum. Once admitted, the student will be assigned an advisor who will assist the student in program planning and scheduling the sequence of courses, including an internship.

**Teaching, Learning, and Leadership Courses (ED)**

**ED 103 Critical and Creative Reading**
2 hrs.
Designed to develop practical application of principles of critical reading through extensive use of content area textbooks. Course will stress author's purpose, summarizing, and outlining for academic efficiency.

**ED 104 Effective Reading for College Students**
2 hrs.
Designed to provide the student with skills in vocabulary development, comprehension, and reading efficiency. Attention is given to the effective use of text and reference books in academic subjects, inferential reading, and synthesis of main ideas.
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 MTELP.

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. This course is cross-listed with ES 200.

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, intellectual, and moral development. Attention is also given to the development of the self-concept for purpose of helping students to become more aware of themselves and of their relationships with others. Students are required to observe human beings at different stages of development in a variety of cultural settings.

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 Piagetian framework. Applications to the teaching of language arts are emphasized.

ED 300 The Adolescent and School Learning 3 hrs.
This course aims to have students see adolescents as unique individuals and understand the variety of forces acting upon middle and secondary students. Students examine adolescence as a contemporary social and psychological phenomenon; employ cognitive, self, and narrative psychology; consider cultural differences and the exceptional learner. Critical thinking skills are emphasized in the analysis of theories and descriptions of adolescence. Prerequisites: ED 250 and admission to Secondary Education program.

ED 301 Secondary Content Literacy 3 hrs.
This course explores content literacy as it relates to the acquisition of new knowledge in various subject areas. Students will apply the cognitive components of content literacy through assessment of learners and subject area materials, as well as instructional processes designed to meet the needs of diverse students. Requires participating in a secondary classroom for a minimum of two class periods three days per week. Must be taken concurrently with designated ED 302 section. Prerequisite: ED 300.

ED 302 Teaching and Learning in the Secondary School 4 hrs.
This course is designed to prepare students for the responsibilities of classroom instruction. Emphasis is placed on writing clear outcome statements for instruction, designing learning activities which promote students and enable learners to retain information and transfer learning; and designing assessment strategies. Must be taken concurrently with designated ED 301 section. Requires participation in a secondary school classroom. Prerequisite: ED 300 for College of Arts and Sciences major(s) only.

ED 303 Organization and Management in Education 3 hrs.
Students will study the organizational and management challenges that secondary teachers face. Students will engage in a critical examination of current school and classroom organization and management models, methods, and strategies in middle and high schools. Prerequisites: ED 300, ED 301, and ED 302.

ED 305 K-12 Content Area Literacy 3 hrs.
This course is designed to provide the K-12 preservice content area teacher (Art; Health, Physical Education, and Recreation; Music; Vocational Education) with the knowledge and skills necessary to assist students in using the language processes—reading, writing, speaking, listening, thinking, as well as performance—as tools for learning. Students will explore the following topics: 1) factors affecting the learner; 2) instructional methods designed to meet the needs of a diverse population; 3) the nature of the reading process and reading to learn; 4) implications of current research on teaching and learning; 5) ways to integrate language arts across the curriculum. The major goal of the course is the application of course concepts and strategies to subject area instruction. Prerequisites: ED 250 and admission to the College of Education.

ED 306 Educational Psychology of Early Childhood 3 hrs.
This course will develop an understanding of how children learn, from birth through early childhood. 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 310 Educational Psychology of Childhood 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 in reading will be presented and the underlying theories and concepts examined. Also, current methods of teaching reading—especially the teaching approaches exemplified in basal programs—will be critically analyzed. Language as a system for transmitting ideas, information, and feelings will be introduced. Additionally, specific topics of importance to a foundational study, such as classroom diagnosis, also will be presented. Prerequisite: Admission to professional program in education. Taken in conjunction with ED 309 or ED 310.

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 constellations, the learning of sex roles, the effects of divorce, and similar phenomena will be studied. Consideration will be given to the effect of cultural and subcultural differences on early childhood development and students will look at the contemporary American scene as it affects young children. 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, oracy and literacy development in classroom. 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 experiences in bringing meaning to print, including early reading and writing. Issues relating to grouping for instruction and the use of commercial reading materials will be discussed. Designed for students seeking K-8 certification. Participation will be required in school settings. Prerequisites: ENGL 282 and ED 312.

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 content area programs, 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 instructional structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate a curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a...
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. One or 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.

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 PSY 200 minimum of 3 hrs. class credit.

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 management, 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 management, help to refine techniques of effective classroom management and curriculum design, and enhance the students’ sense of their own teaching style. The seminar will build the students’ self-images as professionals as they are encouraged to take professional responsibility and to practice professional ethics. It is in the seminar that the ongoing Teaching Portfolio will be completed and reviewed by a faculty committee. It 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 individual differences in 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, 8, or 10 hrs.
Only for seniors who have been admitted to teacher education and completed all professional studies courses. This internship is 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 taken concurrently with ED 409. 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 a relationship with 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 taken 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; credit hours may be applied to teacher certification programs with approval of the Teacher Certification office but will not be applicable to graduate programs within the Department of Education and Professional Development.

ED 501 In-service Professional Development II 2–3 hrs.
This course develops specific professional skills over an extended period of time related to current school responsibilities of teachers and other school personnel. Final course outcomes need to 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 program must be approved in advance of registration by the program advisor.

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. This course is cross-listed with ES 395. 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 pursue in greater depth topics or problems related to children’s educational development. The course will be offered under the following conditions: (1) that a written outline of the offering be approved by the Department Chairperson, and (2) that prior arrangement be made with a faculty member. The course offers variable credit from one through six semester hours. Students may repeat the course as long as topics differ. Each offering of 398, Special Studies in Education, will be given an appropriate subtitle, which will be recorded 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 exploration of science programs, techniques, philosophies, and teaching strategies that are currently being used in the elementary school science classroom. Students may take ED 401 concurrently with ED 402. Prerequisite: ED 309 or ED 310 and all science courses.
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 curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audiovisual materials, and the like. Each offering of 502, Curriculum Workshop, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 502 may be applied toward a Master's degree.

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. Emphasis will be placed on the identification of patterns of lifelong learning leading to a more fruitful and fulfilling life.

ED 505 The Adult Learner  
3 hrs.  
This course will provide an in-depth look at the learning adult from age 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 also are techniques of interpersonal communication with adults, as well as a practical exercise in the designing of learning experiences for adults. Extensive use will be made 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 parents; parents as resource 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 present the basic concepts concerning the nature of the reading process and the teaching of reading. Emphasis will be placed on reading as a thinking process and on factors affecting reading performance. Special emphasis will be placed on child development; language development; concept development; physical, psychological, and environmental factors affecting the child's learning to read. In addition, the course will provide a brief overview of the delivery systems and procedures used in the U.S. to teach reading. This will involve an historical overview as well as current and potential future practices.

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 centers. (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 reading process. It also is 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.
GENERAL INFORMATION

College Vision
A scholarly community dedicated to excellence through student-centered education and research emphasizing professional practice in engineering and applied science. 
- A scholarly community means we are an academic community of students, faculty, staff, and other constituents who demonstrate scholarship in one or more of its forms known as discovery, integration, application, and teaching.
- Dedicated to excellence points out our desire and commitment to top performance in all we do.
- Through student-centered education and research emphasizes that our University and our College place the student at the center in two primary areas of education and research, and we intend to achieve excellence through this focus.
- Emphasizing professional engineering practice acknowledges and embraces our traditional strength of providing our students with knowledge and experience that enables them to easily transition to the workplace and rapidly become contributing members of their profession.

College Mission
- To educate our learning community for life-long excellence in responsible professional leadership. Our primary mission is education for the entire learning community which includes students, faculty, staff, and the other constituencies we embrace.
- To increase knowledge through collaborative discovery, integration, application, and teaching. Our second mission of knowledge generation can be expressed through the fourfold scholarship model of discovery, integration, application, and teaching.
- To serve as a resource and partner to our constituents. Our service mission calls us to be source and sustenance as we support our constituents both on and off campus in win-win partnerships.
- 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.


Computer Aided Engineering Center
Sai 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 approved 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, in order to complete the course in which 3 credits are earned, a student can expect to work 9 hours per week (4 credits, 12 hours per week, etc.) in various combinations of lecture hours (50 minutes), laboratory hours, and home study.

Standard of Academic Honesty

All courses offered by the College will be conducted in concert with the high standards of the University as stated in the Student Guide to Academic Honesty. Each student is expected to support these standards by neither giving nor accepting assistance on tests, and by submitting only his or her own work for credit. Violations of the standard of academic honesty will result in appropriate disciplinary action. Such disciplinary action may include a failing grade in the course, enrollment discontinuance from the curriculum, probation, or dismissal from the University.

Computer Use in College Programs

Most degree programs offered in the College of Engineering and Applied Sciences require extensive use of computers. This is particularly true in engineering and engineering related disciplines. Although Western Michigan University and the College provide adequate computing facilities for student use, many students find it advantageous to have their own computer (students are not required to purchase one). The University maintains special marketing arrangements with several major computer manufacturers and is therefore able to offer substantial discounts to students and faculty for the purchase of micro-computers and software. Interested students may obtain current information about the purchase of computing equipment from the College of Engineering and Applied Sciences Advising Office (Room 2038 Kohrman Hall) or from their academic advisor.

Professional and Honorary Societies

The College and each department have student branches of professional and honorary societies whose purpose is to provide opportunities for students to become more directly involved with specific activities in their areas of interest. Students interested in enlarging their understanding of the professional field in which they intend to work are encouraged to participate in one of these societies. Students may obtain further information by contacting their academic advisor or department chair.

Scholarships

Many scholarships are available to both freshmen and upperclass students in the College of Engineering and Applied Sciences. The majority of these scholarships available specifically for students in the College are administered by the individual departments of the College. For the most current and accurate information on each of these many scholarship opportunities, call the individual department or visit the websites of the Office of Student Financial Aid and Scholarships at www.wmich.edu/financialaid

Engineering Students

Three common characteristics are prevalent among students who are attracted to engineering. All show an interest in problem-solving—not only to know how, but why, something works. Second, engineering students possess a degree of technical aptitude—the ability to think in mathematical and scientific terms—which, third, is coupled with a strong interest in mathematics and the sciences.

A majority of engineering students are involved in the many professional organizations that have student chapters on campus. Such involvement enhances the "textbook learning" by providing students with the opportunity 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 indicates that nearly all of them find employment in the field of engineering. Students interested in advanced studies in engineering may pursue a Master of Science degree in Computer Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, Operations Research, Paper Science and Engineering, 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 minimum of 140 semester hours 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 and Master 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 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.

Repeated Courses in the College of Engineering and Applied Sciences

Students in the College of Engineering and Applied Sciences may enroll in a course that is required in their curriculum only three times. Any additional attempts require prior written approval of their department chair. This is consistent with the University Repeated Course Policy as stated elsewhere in this catalog.

Appeal Procedure for Dismissal from a CEAS Program Based on Repeated Course Violation

This procedure applies when a student wants to appeal the decision to dismiss the student from a CEAS program based on repeated courses. Throughout this process, the Office of the University Ombudsman is available to students and administrators for assistance on procedures and clarification of the rights of all parties.

1. Informal meeting with department chair. A student is encouraged to begin the appeal process by meeting with the department chair who made the program dismissal decision. Such meeting, after the student understands the repeat policy and procedures.

2. Written appeal and conference with the department chair. A student must submit a letter requesting an appeal to the department chair who made the program dismissal decision. This letter must be received by the department within ninety calendar days of the effective date of the dismissal notification letter to the student from the department chair. The letter must identify the basis of the appeal and must state in detail why the student believes that program dismissal decision should be changed.

3. Appeal to the Dean of the College. If the student is not satisfied that the department chair has fairly evaluated the student's request for dismissal appeal, the student may submit a written appeal to the Dean of the College or his or her designee. This appeal must be initiated within thirty calendar days of the department chair's unfavourable decision. The Dean will rule on the student's appeal within thirty calendar days of receipt of the written appeal and notify the student in writing.

4. Appeal to the CEAS Appeal Committee. If the student is not satisfied that the Dean or his or her designee has fairly evaluated the student's request for dismissal appeal, the student may submit a written appeal to the CEAS Appeal Committee through the Dean's Office. This appeal must be initiated within thirty calendar days of receipt of the written appeal and notify the student in writing.

Note: Appeals or other complaints based on charges of discrimination or sexual harassment should be taken to other offices pursuant to other University policies and procedures.

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 (CHE)
- Civil Engineering (CIV)
- Computer Engineering (CPE)
- Construction Engineering (CEN)
- Electrical Engineering (EE)
- Industrial Engineering (IEN)
- Manufacturing Engineering (MFE)
- Mechanical Engineering (ME)
- Paper Engineering (PAE)
- Petroleum Engineering (PET)

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 at the 300-level or above that is required in any of the engineering curricula.

Pre-engineering Curriculum Requirements
Displayed below are the courses required in the pre-engineering curriculum for all students planning to pursue one of the engineering curricula listed above. See the respective department catalog entry for full degree requirements.

COMMON REQUIREMENTS FOR ALL CURRICULA
MATH 122, 123, and 272 .......................... 12 hrs.
CHEM 110 and 111 ............................. 4 hrs.
General Education AREA I, II, III, IV, or V ........................................ 6-8 hrs.
Place resume with Career and Student Employment Services

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 complete Aeronautical Engineering curriculum requirements.

Chemical Engineering CHEM 112 and CHEM 113; CHEG 101; CHEG 261; CS 106; and PHYS 205 and PHYS 206. See the Department of Electrical and Computer Engineering for complete Chemical Engineering curriculum requirements.

Civil Engineering CCE 149; CCE 236; CS 104; IME 102; ME 256 and ME 257; PHYS 205 and PHYS 206; and PHYS 207 and PHYS 208. See the Department of Civil and Construction Engineering for complete Civil Engineering curriculum 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 complete Computer Engineering curriculum requirements.

Construction Engineering CS 106; GEOl 130; IME 102; IME 261; ME 232; ME 256; PHYS 205 and 206; PHYS 207 and 208. See the Department of Civil and Construction Engineering for complete Construction Engineering curriculum 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 complete Electrical Engineering curriculum requirements.

Industrial Engineering ECE 210, IME 102; IME 206; IMP 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 374; MTE 120; PHYS 205 and PHYS 206; and PHYS 207 and PHYS 208. See the Department of Manufacturing Engineering for complete Manufacturing 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; and PAIPR 204. See the Department of Paper Engineering, Chemical Engineering, and Imaging for complete Paper Engineering curriculum requirements.

Admission to an Engineering Curriculum
The student seeking a baccalaureate degree in Aeronautical (AER), Chemical Engineering (CHG), Civil Engineering (CIV), Computer Engineering (CPE), Construction Engineering (CEN), Electrical Engineering (EE), Industrial Engineering (IEN), Manufacturing Engineering (MFE), Mechanical Engineering (IME), 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 the potential for success will be admitted to an engineering curriculum.

1. All students seeking admission to a degree-granting engineering curriculum must submit an application, following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. The College of Engineering and Applied Sciences processes 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 curricular area.

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 Engineering and Technical Programs at the WMU Muskegon Regional Center at (231) 777-0500 or the WMU Battle Creek Regional Center at (616) 905-5380. 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
33 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
This program was originally developed in 1989 to integrate business and technological concepts for a successful career in supply management. The program prepares students for a career 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
MTGG 372 Purchasing Management ........... 3
MTGG 463 Manufacturing Logistics ........... 3

Capstone class—3 hours (take one of the following)
MTGG 485 Materials Systems Analysis ...... 3
MTGG 480 Materials Management ......... 3
MTGG 481 Integrated Materials Systems ........... 3

Elective—3 hours (one of the following)
IME 326 Quality Assurance and Control ....... 3
IME 318 Statistical Quality Control ......... 3
FTC 486 Marketing and Sales Law ......... 3
MTGG 485 Materials Systems Analysis ...... 3
MTGG 480 Materials Management ...... 3
MTGG 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 E-102 CEAS.

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 specific interest courses while earning a degree in any standard curriculum.

Foundry Program students must join the student chapter of the American Foundrymen’s Society and register with the Foundry Educational Foundation. Upon reaching the sophomore year, it is recommended that all students apply for the Co-operative Education Program by contacting the Director of Cooperative Education in agreement with many sponsoring industries.

Students following the Foundry Program are eligible to be considered for scholarship awards made available each semester by the Foundry Educational Foundation.

**Engineering and Applied Sciences College Courses (ENGR)**

ENGR 101 Introduction to Engineering and Technology (2–3)

3 hrs.

Exploration of the career opportunities and demands of the engineering and engineering technology professions. Topics include problem-solving, using computer spreadsheet program for engineering analyses, teamwork, communications, introduction to engineering design process, and 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 2039, Kohman Hall.

**CIVIL AND CONSTRUCTION ENGINEERING**

James K. Nelson, Jr., Chair
Osama Abdadayeh
Jawaher Nesan
Sherif Yehia

The Department of Civil and Construction Engineering offers the following curricula:

- Construction Engineering—B.S.E. degree
- Civil Engineering—B.S.E. degree
- Construction Management—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 background, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the advisor, the curriculum committee, and the department chair. The academic advisor is located in Room E-102 CEAS, phone (269) 276-3260. 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 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**

**Civil Engineering**

**Bachelor of Science in Engineering (Civil)**

The Civil Engineering curriculum prepares students for entry level positions in the civil engineering profession. It was developed to provide students with knowledge in the areas of structural engineering, construction engineering, geotechnical engineering, transportation engineering, and water resources engineering. Technical communication, and human relation skills are developed throughout the curriculum. Design is emphasized from the beginning of the curriculum.

The educational objectives of the Civil Engineering program are:

1. Graduates have an understanding of and ability to apply knowledge of traditional mathematics, science, and engineering skills and can use modern engineering tools.
2. Graduates are able to design and conduct experiments, as well as analyze and interpret data in more than one civil engineering discipline.
3. Graduates can design systems, components, and processes, and can recognize the strengths and weaknesses of the design.
4. Graduates can work independently and as part of a design team.
5. Graduates are able to identify, formulate, and solve engineering problems, and are able to formulate and use engineering analysis.
6. Graduates understand professional and ethical responsibility.
7. Graduates are able to communicate effectively.
8. Graduates understand and embrace the need for lifelong learning, the need for continued professional development, and the need to understand and apply engineering solutions on society.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/cce)

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Civil or Construction Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing CCE 483 Project Design and Control and CCE 485 Senior Project.

**REQUIREMENTS**

Candidates for the Bachelor of Science in Engineering (Civil) 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. 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 a CCE, IME 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.

**First Semester — 16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>General Chemistry I (AREA VI)</td>
<td>3</td>
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<tr>
<td>CHEM 111</td>
<td>General Chemistry Laboratory I (AREA VI)</td>
<td>1</td>
</tr>
<tr>
<td>IME 102</td>
<td>Technical Communication (Prof. 1)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Semester — 16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 112</td>
<td>General Chemistry II (AREA VI)</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 101</td>
<td>Introduction to Engineering and Technology</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 102</td>
<td>Introduction to Construction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 201</td>
<td>Principles of Structural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 202</td>
<td>Principles of Construction Engineering</td>
<td>3</td>
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**Third Semester — 16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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</thead>
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<tr>
<td>CHEM 113</td>
<td>Advanced Chemistry I (AREA VI)</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 203</td>
<td>Fundamentals of Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 204</td>
<td>Fundamentals of Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 205</td>
<td>Fundamentals of Water Resources Engineering</td>
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</table>

**Fourth Semester — 16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CHEM 114</td>
<td>Advanced Chemistry II (AREA VI)</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 206</td>
<td>Advanced Structural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 207</td>
<td>Advanced Construction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 208</td>
<td>Advanced Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 209</td>
<td>Advanced Transportation Engineering</td>
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**Fifth Semester — 16 hours**

<table>
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</thead>
<tbody>
<tr>
<td>CHEM 115</td>
<td>Advanced Chemistry III (AREA VI)</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 210</td>
<td>Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 211</td>
<td>Engineering Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 212</td>
<td>Engineering Management</td>
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**Sixth Semester — 16 hours**

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</thead>
<tbody>
<tr>
<td>CHEM 116</td>
<td>Advanced Chemistry IV (AREA VI)</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 213</td>
<td>Advanced Structural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 214</td>
<td>Advanced Construction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 215</td>
<td>Advanced Geotechnical Engineering</td>
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</tr>
<tr>
<td>ENGR 216</td>
<td>Advanced Transportation Engineering</td>
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**Seventh Semester — 16 hours**

<table>
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<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>CHEM 117</td>
<td>Advanced Chemistry V (AREA VI)</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 217</td>
<td>Advanced Design and Construction Management</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 218</td>
<td>Advanced Design and Construction Analysis</td>
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<tr>
<td>ENGR 219</td>
<td>Advanced Design and Construction Management</td>
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**Eighth Semester — 16 hours**

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</thead>
<tbody>
<tr>
<td>CHEM 118</td>
<td>Advanced Chemistry VI (AREA VI)</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 220</td>
<td>Advanced Design and Construction Management</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 221</td>
<td>Advanced Design and Construction Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 222</td>
<td>Advanced Design and Construction Management</td>
<td>3</td>
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</tbody>
</table>

**Graduation Requirements**

- Completion of a minimum of 132 semester credit hours
- Fulfillment of the University General Education requirements
- Approval of a program of study submitted to the academic advisor
- Successful completion of the Baccalaureate Writing Requirement
- Approval of the final program by the academic advisor
### 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.

The educational objectives of the Construction Engineering program are:
1. Graduates have an understanding of and the ability to apply knowledge of traditional mathematics, science, and engineering skills and can use modern engineering tools.
2. Graduates are able to design and conduct experiments, as well as analyze and interpret data in more than one Civil Engineering discipline.
3. Graduates can work independently and as a part of a design team.
4. Graduates are able to identify, formulate, and solve engineering problems, and are able to formulate and use engineering models.
5. Graduates understand professional and ethical responsibility.
6. Graduates are able to communicate effectively.
7. Graduates understand and embrace the need for lifelong learning, the need for continued professional development, and the need to understand the impact of engineering solutions on society.

NOTE: Pre-Engineering courses must be counted for graduation.

### Courses Overview

<table>
<thead>
<tr>
<th>Area</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIII</td>
<td>Health and Well-Being</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>I*</td>
<td>Fine Arts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>VIII*</td>
<td>Health and Well-Being</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>II*</td>
<td>Fine Arts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>II*</td>
<td>Humanities</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>III*</td>
<td>U.S.: Culture and Issues</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>IV*</td>
<td>Other Cultures/Civilizations</td>
<td>4</td>
<td></td>
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#### Second Semester — 17 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
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<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I (Prof. 3)</td>
</tr>
<tr>
<td>AREA I*</td>
<td>Fine Arts</td>
</tr>
<tr>
<td>AREA VIII*</td>
<td>Health and Well-Being</td>
</tr>
</tbody>
</table>

#### CHEM 110 | General Chemistry I (AREA VI) | 3 |

#### MATH 102 | Technical Communication (Prof. 1) | 3 |

#### MATH 122 | Calculus I (Prof. 3) | 4 |

#### Second Semester — 17 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>GEOG 130</td>
<td>Physical Geology (AREA VI)</td>
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<tr>
<td>MATH 123</td>
<td>Calculus II (Prof. 4)</td>
</tr>
<tr>
<td>ME 250</td>
<td>Material Science I</td>
</tr>
<tr>
<td>AREA I*</td>
<td>Fine Arts</td>
</tr>
</tbody>
</table>

#### CHEM 110 | General Chemistry I (AREA VI) | 3 |

#### MATH 102 | Technical Communication (Prof. 1) | 3 |

### Civil and Construction Engineering Courses (CCE)

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.
CCE 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, economical and technical considerations necessary to the effective development of various structures. It explores the students to global challenges such as increasing population, climatic considerations, energy efficiency in construction environments, functional efficiency of building structures, cost reduction, appropriate materials and appropriate technology.

CCE 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.

CCE 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: CCE 131, CCE 149, MATH 122.

CCE 330 Transportation Engineering 3 hrs.

Introduction to transportation engineering with emphasis on highway and airport design. Topics include a survey of various transportation modes for surface, air, and water systems. Emphasis is placed on location and geometric design of highways and airport runways, highway/airport drainage systems, design of rigid and flexible pavement, and pavement testing methods and rehabilitation. Prerequisite: CCE 236.

CCE 333 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: CCE 236 and ME 257.

CCE 335 Water Resources Engineering 4 hrs.

Survey of principles and practices of water resources engineering, including hydrogeology, hydraulic, water supply and wastewater treatment. Coverage: Descriptive and quantitative hydrology, groundwater, probability concepts in planning, reservoirs, dams, and spillways, open channel flow, pumps, engineering economics in water resources planning, irrigation and drainage, water supply systems, wastewater treatment, flood damage mitigation. Prerequisites: FS ME 358, IME 310.

CCE 336 Soil Mechanics and Foundation Design (2–2) 3 hrs.


CCE 338 Construction Materials and Methods (2–3) 3 hrs.

The course will focus on the study of different construction materials. Design and control of concrete mixes 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: ME 257.

CCE 339 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). Development of understanding of how structural systems behave under loads. Prerequisite: ME 257.

CCE 430 Traffic Design 3 hrs.

Elements of traffic engineering, including traffic flow theory and highway capacity analysis. Traffic engineering tools and implements including traffic signs and markings, signals, and lighting. Application of control measures such as coordination of signal systems, speed control, and zoning, one-way streets, and limited access facilities. Prerequisite: CCE 330, IME 261.

CCE 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: CCE 338.

CCE 434 Hydraulics 3 hrs.

Measurement, control and conveyance of water flows, analysis, design, characteristics of hydraulic models, instrumentation, pipe systems, pumps and turbines. Prerequisite: CCE 335.

CCE 435 Hydrology 4 hrs.

The hydrologic cycle and its components are described and estimated for specific settings. Concepts are applied to basins at different scales. Man-made modifications such as dams are considered. Prerequisite: CCE 335.

CCE 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: CCE 333, 338.

CCE 437 Pavement Design 3 hrs.

Covers pavement design concepts and considerations, engineering properties of pavement materials including bases, asphalt concrete, and Portland cement concrete, design of flexible and rigid pavements. Prerequisites: CCE 330, 336, and 386.

CCE 438 Construction Project Management (3–0) 3 hrs.

Study characteristics of construction industry, project organizations, labor, material, and equipment utilization, productivity, value engineering. TQM, constructability, construction safety, contract types, and contract bonds. Prerequisites: CCE 431, CCE 436.

CCE 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: CCE 366.

CCE 445 Design of Steel Structures I 3 hrs.

Design and behavior of structural steel members and their connections subjected to moment, shear, and axial forces. Introduction to the design of steel structures. Prerequisites: CCE 386.

CCE 446 Design of Timber Structures 3 hrs.

Structural behavior of wood under loads; design of structural elements in wood; mechanical properties of wood fasteners and connections. Prerequisites: CCE 386.

CCE 448 Structural Analysis II 3 hrs.

Analysis of indeterminate structural systems including trusses, frames, and continuous beams using moment distributions, stiffness, and flexibility methods. Prerequisites: CCE 386.

CCE 450 Reinforced Concrete Design II 3 hrs.

Design and behavior of continuous beams, slender columns, two-way slab floors, flat slab floor systems, and eccentric and combined footing. Prerequisite: CCE 440, 448.

CCE 452 Prestressed Concrete Design 3 hrs.

Theory and design of prestressed concrete structures, pre- and post-tensioning, loss of pre-stress, proportioning of flexural members, and deflections. Prerequisites: CCE 440.

CCE 455 Design of Steel Structures II 3 hrs.

Analysis and design of structural steel components and systems with emphasis on theories necessary for a thorough understanding of the design of complete structures. Compression members affected by local buckling, beams with lateral torsional buckling, continuous beams and beam column connections are covered. Prerequisites: CCE 445, 448.

CCE 456 Foundation Design 3 hrs.

Foundation analysis and design for different civil engineering facilities. High-rise buildings, bridges, and other complex structures such as piles, drilled piers, and caissons. Prerequisites: CCE 336, CCE 386.

CCE 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 CCE 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.

CCE 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 CCE 483, is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: CCE 483 and approved project.
An individual study program to supplement with a study supervisor. One to three hours. Prerequisite: Consent of department.

CCE 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: CCE 436 or equivalent, and departmental approval.

CCE 531 Advanced Construction Project Management (3-0) 3 hrs. This 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, site 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: CCE 431, CCE 436 and CCE 438 or equivalent, and departmental approval.

**COMPUTER SCIENCE**

Mohsen Guizani, Chair
Elsie de Doncker
Ajay Gupta
Donna Kaminiski
John Kapenga
Karlis Kaugaris
Mark Kerstetter, Director of Undergraduate Programs
Dionysis Kountanis
Mukesh Mohania
Donald Nelson
Thomas Piatkowski, Director of Graduate Programs
Ben Pinkowski
Robert Trenary
Li Yang
Zijiang 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 E-102 CEAS, (269) 276-3260.

**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.

The educational objectives for the Computer Science—Theory and Analysis program are:

1. Graduates will have breadth and depth in computer science sufficient for continued intellectual growth in computing disciplines.
2. Graduates will possess knowledge and skills sufficient to be employable and successful in a variety of computing positions in business, industry, or government.
3. Graduates will have demonstrated experience in team and collaborative work.
4. Graduates will have an understanding of ethical and social issues associated with the field of computer science.
5. Graduates will have sufficient background in computer science to qualify for entry into a variety of graduate programs.

(Fou-up-to-date educational objectives and learning outcomes, see department web page at www.cs.wmich.edu)

**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 490 Software Systems Development I.

**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 CSAB 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 (PHYs 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, BIOS 112 with lab BIOS 110, GEOS 130 or GEOS 131. The Geosciences courses contain their own laboratory elements.

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**Prerequisite:**

Consent

**Additional Course:**

CCE 499 Independent Studies (Var.) 1-3 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: CCE 436 or equivalent, and departmental approval.

**Recommended Courses:**

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: CCE 436 or equivalent, and departmental approval.

**Advanced Topics:**

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: CCE 436 or equivalent, and departmental approval.

**Trade-Off:**

Trade-off, resource planning with applications to construction projects will also be discussed. Prerequisites: CCE 431, CCE 436 and CCE 438 or equivalent, and departmental approval.

**Teaching:**

Teaching in computer science.

**Research:**

Research in computer science.

**Academic:**

Academic advising provided.

**Additional:**

Additional information available.

**Curriculum:**

Curriculum for Computer Science.

**Bachelor's Degree:**

Bachelor of Science in Computer Science.

**Department:**

Department of Computer Science.

**Faculty:**

Faculty members include.

**Teaching Methods:**

Teaching methods include.

**Practice:**

Practice in computer science.

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**Course Details:**

Course details include.

**Schedule:**

Schedule for the course.

**Contact:**

Contact information provided.

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**Specializations:**

Specializations in computer science.

**Graduate Programs:**

Graduate programs include.

**Advising:**

Advising provided for students.

**Eligibility:**

Eligibility requirements for the program.

**Courses:**

Courses available for students.

**Requirements:**

Requirements for the program.

**Additional Information:**

Additional information about the program.

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**Prerequisites:**

Prerequisites for the course.

**Credits:**

Credits for the course.

**Departmental Approval:**

Departmental approval required.

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**Academic Advising:**

Academic advising provided by.

**Weekly Hours:**

Weekly hours for the course.

**Contact:**

Contact information provided.

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**Academic:**

Academic information provided.

**Contact:**

Contact information provided.

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**Curriculum:**

Curriculum description provided.

**Bachelor's Degree:**

Bachelor of Science in Computer Science.

**Department:**

Department of Computer Science.

**Faculty:**

Faculty members include.

**Teaching Methods:**

Teaching methods include.

**Practice:**

Practice in computer science.

**Additional:**

Additional information available.

**Curriculum:**

Curriculum for Computer Science.

**Bachelor's Degree:**

Bachelor of Science in Computer Science.

**Department:**

Department of Computer Science.

**Faculty:**

Faculty members include.

**Teaching Methods:**

Teaching methods include.

**Practice:**

Practice in computer science.

**Additional:**

Additional information available.

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**Prerequisites:**

Prerequisites for the course.

**Credits:**

Credits for the course.

**Departmental Approval:**

Departmental approval required.

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**Academic Advising:**

Academic advising provided by.

**Weekly Hours:**

Weekly hours for the course.

**Contact:**

Contact information provided.

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**Academic:**

Academic information provided.

**Contact:**

Contact information provided.
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 to also meet 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.

**First Semester — 15 hours**
- CS 111 Computer Science I .......................... 4
- IME 102 Technical Communications .................. 3
- Science Elective ......................................... 3
- AREA V Social and Behavioral Sciences ............... 4

**Second Semester — 15 hours**
- CS 112 Computer Science II .......................... 4
- MATH 122 Calculus I .................................... 4
- ECE 250 Digital Logic .................................. 3
- Science Elective with Laboratory* ..................... 4

**Third Semester — 15 hours**
- CS 223 Computer Organization & Assembly Language ... 3
- MATH 123 Calculus II .................................... 4
- PHYS 205 Mechanics and Heat .......................... 3
- PHYS 206 Mechanics and Heat Lab 1 .................... 1
- AREA II Humanities ..................................... 3

**Fourth Semester — 15 hours**
- CS 331 Data and File Structures ........................ 3
- MATH 145 Discrete Mathematical Structures ............ 3
- PHYS 207 Electricity and Light .......................... 4
- PHYS 208 Electricity and Light Lab 1 .................... 1
- AREA IV Civilizations** ................................ 4

**Fifth Semester — 15 hours**
- CS 224 System Programming Concepts .................. 3
- CS 485 Programming Languages ........................ 3
- MATH 230 Elementary Linear Algebra .................... 4
- COM 104 Public Speaking ................................ 3
- AREA VII Natural Science and Technology Electives ... 3

**Sixth Semester — 16 hours**
- CS 531 Design and Analysis of Algorithms .............. 3
- CS 580 Theory of Computations .......................... 3
- STAT 364 Statistical Methods ......................... 3
- ECE 357 Computer Architecture .......................... 3
- AREA III The U.S. Cultures and Issues ................. 3

**Seventh Semester — 16 hours**
- CS 490 Software Systems Development I ................ 3
- CS 2XX Operating Systems ................................ 3
- Elective Approved CS Elective .......................... 3
- Elective Free Elective ................................. 4
- PHIL 410 Professional Ethics ............................ 3

**Eighth Semester — 15 hours**
- CS 491 Software Systems Development II ............... 3
- Elective Free Elective ................................. 4
- Elective Free Elective ................................. 4

*Any General Education course (except from AREAS VI or VIII) may be swapped with the AREA IV course in the 4th semester as long as the course is a four credit hour course.

**Free Elective** means the student may choose any course offered at the University without restriction. That is, the course need not be a General Education course nor a course in computer science.

**Computer Science Major—General Curriculum**

**Bachelor of Science in Computer Science—General**

The educational objectives for the Computer Science—General program are:

1. The program provides opportunity for students to specialize in other disciplines in which computer science can be applied.

2. Graduates will have breadth and depth in computer science sufficient for continued intellectual growth in computing disciplines.

3. Graduates will possess knowledge and skills sufficient to be employable and successful in a variety of computing positions in business, industry, or government.

4. Graduates will have demonstrated experience in teamwork and collaborative work.

5. Graduates will have fluency in at least three programming languages.

(For up-to-date educational objectives and learning outcomes, see department web page at www.cs.wmich.edu)

**Baccalaureate Writing Requirement**

Students who have chosen the Computer Science program will satisfy the Baccalaureate Writing Requirement by successfully completing CS 490 Software Systems Development I.

**REQUIREMENTS**

Candidates for the Bachelor of Science in Computer Science—General 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 .......................... 4
- IME 102 Technical Communications .................. 3
- ECE 250 Digital Logic .................................. 3
- AREA II Humanities ..................................... 3
- Elective Free Elective ................................. 3

**Second Semester — 15 hours**
- CS 112 Computer Science II .......................... 4
- IME 102 Technical Communications .................. 3
- ECE 250 Digital Logic .................................. 3
- AREA II Humanities ..................................... 3
- Elective Free Elective ................................. 3

**Third Semester — 16 hours**
- CS 224 System Programming Concepts .................. 3
- CS 485 Programming Languages ........................ 3
- MATH 230 Elementary Linear Algebra .................... 4
- AREA III The U.S. Cultures and Issues ................. 3
- Elective Free Elective ................................. 3

**Fourth Semester — 15 hours**
- CS 554 Operating Systems ................................ 3
- Elective Approved CS Elective .......................... 3
- MATH 230 Elementary Linear Algebra .................... 4
- Elective Free Elective ................................. 3

**Fifth Semester — 16 hours**
- Elective Approved CS Elective .......................... 3
- STAT 364 Statistical Methods ........................... 3
- AREA II Humanities ..................................... 3
- Elective Free Elective ................................. 3

**Sixth Semester — 15 hours**
- Elective Free Elective ................................. 3
- Elective Free Elective ................................. 3

**Seventh Semester — 15 hours**
- Elective Free Elective ................................. 3
- Elective Free Elective ................................. 3

**Eighth Semester — 15 hours**
- Elective Free Elective ................................. 3
- Elective Free Elective ................................. 3

*Some science course electives (e.g., BIOS 110 & 112, CHEM 110 & 111, and GEOS 130) can also be counted towards General Education requirements. Students are recommended to use two of these courses.

**Any General Education course (except from AREAS VI or VIII) may be swapped with the AREA IV course in the 4th semester as long as the course is a four credit hour course.**

**CS Elective** means the student must take an approved computer science elective course. Such electives may be described in the undergraduate catalog or in departmental material published traditionally on or its web site. Students should consult with a departmental advisor before enrolling in one of these courses.

**Free Elective** means the student may choose any course offered at the University without restriction. That is, the course need not be a General Education course nor a course in computer science.

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**COMPUTER SCIENCE 193**

**Second Semester — 15 hours**
- CS 112 Computer Science II .......................... 4
- CS 223 Computer Organization & Assembly Language .................. 3
- MATH 122 Calculus I .................................... 4
- AREA IV Other Cultures and Civilizations ............... 4

**Third Semester — 16 hours**
- CS 2XX CS Language or Technology Elective .................. 2
- CS 331 Data and File Structures ........................ 3
- MATH 123 Calculus II .................................... 4
- AREA VI Natural Science with Laboratory ............... 4
- Elective Free Elective ................................. 3

**Fourth Semester — 15 hours**
- CS 224 System Programming Concepts .................. 3
- CS 485 Programming Languages ........................ 3
- MATH 145 Discrete Mathematical Structures ............ 3
- AREA V Social and Behavioral Sciences ................. 3
- Elective Free Elective ................................. 3

**Fifth Semester — 16 hours**
- CS 554 Operating Systems ................................ 3
- Elective Approved CS Elective .......................... 3
- MATH 230 Elementary Linear Algebra .................... 4
- Elective Free Elective ................................. 3

**Sixth Semester — 15 hours**
- Elective Free Elective ................................. 3
- Elective Free Elective ................................. 3

**Seventh Semester — 15 hours**
- Elective Free Elective ................................. 3
- Elective Free Elective ................................. 3

**Eighth Semester — 15 hours**
- Elective Free Elective ................................. 3
- Elective Free Elective ................................. 3

*Any General Education course (except from AREAS VI or VIII) may be swapped with the AREA IV course in the 2nd semester as long as the course is a four credit hour course.*
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.

**COMPUTER SCIENCE COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CS 111</td>
<td>Computer Science I</td>
<td>4</td>
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<tr>
<td>CS 112</td>
<td>Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>CS 201</td>
<td>Programming in FORTRAN</td>
<td>2</td>
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<tr>
<td>CS 20X</td>
<td>Programming Language Experience*</td>
<td>2</td>
</tr>
<tr>
<td>CS 223</td>
<td>Computer Organization &amp; Assembly Language</td>
<td>3</td>
</tr>
<tr>
<td>CS 331</td>
<td>Data and File Structures</td>
<td>3</td>
</tr>
<tr>
<td>Two Computer Science Electives**</td>
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**REQUIRED MATHEMATICS COURSE**

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<tr>
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<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 200</td>
<td>Analysis &amp; Applications</td>
<td>4</td>
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</tbody>
</table>

*Complete at least one course approved by the Computer Science Advisor. At least two credit hours must be completed.

**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—

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.

**COMPUTER SCIENCE COURSES**

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<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 230</td>
<td>Elementary Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 374</td>
<td>Introduction to Differential Equations and Linear Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

*CS 20X represents a computer science course teaching a programming language as a second language. Only languages appropriate to scientific use will be approved as a replacement for FORTRAN.

**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. Only one of these electives may be a programming language course.

Computer Science Courses (CS)

Enrollment in CS 111, 112, 223, 224, and 331 is restricted to undergraduates and those graduate students admitted under the PCS (Permission to take Computer Science) classification. Enrollments in all 500-level computer science classes will be restricted to undergraduates and graduate students in the Computer Science master's program (CMP). Students in other graduate programs who need one of these courses for subject matter or a research tool can gain admission by permission from the department. A list of approved General Education courses can be found in "Graduation and Academic Advising" earlier in this catalog.

CS 104 Introductory C/C++

2 hrs.

This course provides an introduction to programming using a subset of the C++ language. Topics covered include: programming practices and structures; C++ syntax including variable declaration types, arrays, assignment statements, loops, functions, scope of variables, pointers and basic input-output. This course will not be used towards a major or minor in computer science.

CS 105 Introduction to Computers

3 hrs.

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

1 hr.

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. This course does not fulfill the computer literacy requirement.

CS 107 Introductory Programming: FORTRAN

2 hrs.

An introduction to computer programming using the FORTRAN language (FORTRAN translation). Prerequisite: 1½ years of high school algebra or MATH 111. 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 115.

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 201 Programming in FORTRAN

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 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. Credit will not be given for both CS 201 and CS 107. 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 practice 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.
This course introduces concepts of computer programming language. 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 the course is on event-driven code design and programming, using object-oriented tools, with special emphasis on the design of interactive programs, web-based interaction, and the role of usability testing. Prerequisite: CS 312.

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. Computer terminology 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 software development tools. Flowcharting is introduced. Examples of Computer Assisted Instruction will be given. Not for Computer Science majors and minors (except teaching). Prerequisite: MATH 150 or equivalent.

CS 412 Professional Field Experience
1–3 hrs.
This course allows students to receive academic credit for professional work experience in the computer field. The work activities must require significant computer science knowledge and education. This course may not be taken for credit 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 role of 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 will also 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 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. Analysis of compilers and interpreters will be made. This will include loading, execution, storage allocation, symbol tables, lexical scan, parsing and object code generation. The relation of automata to formal languages and grammars will be discussed. Prerequisite: CS 331.
CS 503 Programming the Microcomputer for Teachers 3 hrs.
A course in programming at an intermediate level for teachers. An introduction to file handling and graphics on small computers will be provided. Flowcharting, top-down design and the development of algorithms are stressed. Some programming projects in each teacher's area of interest will be assigned. Not for Computer Science majors or minors (except teaching). Prerequisite: CS 402 or equivalent experience.

CS 518 Introduction to Computer Modeling and Simulation 3 hrs.
This course provides an overview of both model development and computer simulation. A methodology is introduced which is generally applicable to simulation projects. The relationships between real systems, models, and simulation are presented, and the concept of experimental frames is discussed. General purpose simulation languages (e.g., SIMSCRIPT II.5, GPSS, CSIM, Simula) and the formalisms they support are presented. An introduction to random variables and elementary frequency distributions is provided. Simulation of storage systems, operating systems, and parallel systems will also be discussed. Several small programs and a simulation project will be assigned to each student. Prerequisite: CS 331 and a course in probability or statistics.

CS 525 Computer Architecture 3 hrs.
General topics in computer architecture, memory systems design and evaluation, pipeline design techniques, RISC architectures, vector computers, VLSI systems architecture. Prerequisites: ECE 250, CS 223 or ECE 251; and CS 331.

CS 526 Parallel Computations I 3 hrs.
Parallel Computations I will cover architecture, synchronization and communication aspects of parallel and distributed systems. This course will focus on the design and analysis of algorithms that exploit the use of parallel and distributed systems. The fundamentals of database design and usage are covered, focusing on the relational data model. Topics include basic DB and DBMS concepts, logical design (ER modelling, normalization), physical storage concepts, relational algebra, SQL query language, PL/SQL, and embedded SQL. A relational DBMS is used for lab assignments. Other topics may include query optimisation, transaction processing, concurrency, security, forms/reports, object-relational data model, and an overview of advanced DB topics. A student may not receive credit for both CS 443 and CS 543. Prerequisite: CS 540 or permission for instructor for undergraduate students. No prerequisite for graduate students in Computer Science.

CS 543 Principles of Database Management Systems 3 hrs.
The fundamentals of database design and usage are covered, focusing on the relational data model. Topics include basic DB and DBMS concepts, logical design (ER modelling, normalization), physical storage concepts, relational algebra, SQL query language, PL/SQL, and embedded SQL. A relational DBMS is used for lab assignments. Other topics may include query optimisation, transaction processing, concurrency, security, forms/reports, object-relational data model, and an overview of advanced DB topics. 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 of the systems are investigated to motivate the ideas presented. Students build or run simulations and modify 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. Vanishing types of computers are also discussed. Local area networks, distributed local area networks, and long haul networks are defined. Case studies of popular network models are presented. Layered network models are studied. Students will work with local area and long haul networks. Prerequisite: CS 224 and CS 331.

CS 560 Software Requirements Analysis and Design 3 hrs.
This course provides an in-depth study of notations, methodologies, and tools for analysis and design of software requirements. This course includes object-oriented requirement development and design, the relationships between object-oriented design concepts and software engineering principles. The course concentrates on the techniques used in the early stages of software development. Prerequisite: 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 application to coding techniques. The Chomsky hierarchy of languages, including recursive and recursively enumerable sets and their acceptors, is introduced. Students are assigned 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 AI techniques and concepts, e.g., production systems, heuristic searching techniques, knowledge representation, predicates and terms, and grammatical model 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.
**ELECTRICAL AND COMPUTER ENGINEERING**

Hossein Mousavinezhad, Chair  
Ikhlas Abdel-Gader  
Massoud Atashbar  
John Asfouru  
Bradley Bazuin  
Raghvendra Gejji  
John Gesink  
Janos Grantner  
Dean Johnson  
Joseph Kelemen  
Daniel Litynski  
John Mason  
Damon Miller  
Norali Pernalete  
Ted Sarma  
Frank Severance  
Ralph Tanner

The Department of Electrical and Computer Engineering (ECE) offers two B.S.E. programs and two M.S.E. programs in electrical or computer engineering. The Ph.D. in Electrical and Computer Engineering is also offered. 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, planning, research, sales, service, and teaching.

- **Electrical engineering** includes: 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 engineering** specializes 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), digital design, speech/pattern recognition and digital signal processing, data communication (e.g., between computers), computer peripherals (sensors, terminals, displays, printers, readers, and other input/output devices), and microcomputers with their applications.

In ECE programs, 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, magnetoelectronics, electronics, energy conversion, computers 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 software systems. The computer engineering curriculum also includes courses in circuits, microcontrollers, electronics, linear systems, and digital signal processing.

**Cooperative Education**

Students may elect the cooperative plan of compensated industrial experience.

**Curriculum**

### Bachelor of Science in Engineering (Computer)

**Accreditation**

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

**Educational Objectives**

The educational objectives of the Computer Engineering Program are:

1. Graduates will be able to actively participate in the development of the computer engineering profession through contributions to society, life-long learning, and support of the appropriate professional societies; they must have an ability to function on multi-disciplinary teams.
2. Students will have an understanding of the role of computer engineering in the global societal environment, including social, cultural, aesthetic, and professional ethics.
3. Graduates will have knowledge of discrete mathematics, probability and statistics with computer engineering applications, mathematics through differential/integral calculus, basics sciences, computer science, engineering sciences to enable them to analyze/design complex electrical/electronic devices, software, and systems containing hardware/software components, as appropriate to the computer engineering program.
4. The Computer Engineering curriculum will provide breadth and depth for a balanced coverage of computer hardware design and software engineering issues including digital design, digital electronics, microprocessors, real-time systems engineering and discrete-time systems.
5. The Computer Engineering program will provide opportunities for student-centered research experience.

(For up-to-date educational objective and learning outcomes, see the Department web page at www.wmich.edu/ece)

**Baccalaureate Writing Requirement**

Students 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, 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. Complete the following program of 130 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning with fall.

Pre-engineering requirements are in darker italic print.

**First Semester** — 16 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>General Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>General Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>IME 102</td>
<td>Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>ECE 250</td>
<td>Digital Logic</td>
<td>3</td>
</tr>
<tr>
<td>AREA VIII</td>
<td>Health and Well-being</td>
<td>2</td>
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**Second Semester** — 16 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat Lab</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Mechanics and Heat Lab</td>
<td>1</td>
</tr>
<tr>
<td>CS 111</td>
<td>Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>AREA I</td>
<td>Fine Arts</td>
<td>3</td>
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**Third Semester** — 16 hours

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 272</td>
<td>Vector and Multivariate Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208</td>
<td>Electricity and Light Lab</td>
<td>3</td>
</tr>
<tr>
<td>CS 112</td>
<td>Computer Science II</td>
<td>3</td>
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<tr>
<td>AREA II</td>
<td>Humanities*</td>
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**Fourth Semester** — 18 hours

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<tbody>
<tr>
<td>MATH 145</td>
<td>Discrete Mathematical Structures</td>
<td>3</td>
</tr>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Alg. and Diff. Equations</td>
<td>4</td>
</tr>
<tr>
<td>ECE 210</td>
<td>Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECE 251</td>
<td>Introduction to Microprocessors</td>
<td>4</td>
</tr>
<tr>
<td>IME 310</td>
<td>Engineering Economy</td>
<td>3</td>
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**Fifth Semester** — 16 hours

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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ECE 221</td>
<td>Electronics I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 310</td>
<td>Network Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ECE 351</td>
<td>Engineering of Real Time Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 355</td>
<td>Digital Logic</td>
<td>3</td>
</tr>
<tr>
<td>IME 316</td>
<td>Report Preparation</td>
<td>3</td>
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**Sixth Semester** — 16 hours

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ECE 350</td>
<td>Digital Electronics</td>
<td>4</td>
</tr>
<tr>
<td>ECE 357</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>ECE 451</td>
<td>Microcontroller Applications</td>
<td>3</td>
</tr>
<tr>
<td>ECE 380</td>
<td>Probabilistic Methods in Signal/Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CS 331</td>
<td>Data and File Structures</td>
<td>3</td>
</tr>
</tbody>
</table>
Seventh Semester — 17 hours

ECE 481 Electrical/Computer Engineering Design I .............................. 2
ECE 482 Electrical/Computer Engineering Design II ..............................
ME 485 Programming Languages .................................................. 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 492 Electrical/Computer Engineering Design II ..............................
AREA V Social and Behavioral Sciences* ....................................... 4

Electrical Engineering Bachelor of Science in Engineering (Electrical)

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The educational objectives of the Electrical Engineering Program are:
1. Graduates will be able to actively participate in the development of the electrical engineering profession through contributions to society, life-long learning, and support of the appropriate professional societies; they must have an ability to function on multi-disciplinary teams. Students will have an understanding of the role of electrical engineering in the global societal environment, including social needs, cultural awareness, and professional ethics.
2. Graduates will have knowledge of discrete mathematics, probability and statistics with electrical engineering applications, mathematics through differential/integral calculus, basic sciences, computer science and engineering sciences to enable them to analyze/design complex electrical/electronic devices, software, and systems containing hardware/software components, as appropriate to the electrical engineering program.
3. The Electrical Engineering curriculum will provide breadth and depth offering areas of specialization including power systems and electronics, communications, signal processing and control systems. Graduates have knowledge of linear algebra and complex variables.
4. The Electrical Engineering program will provide opportunities for student-centered research experience.

(For up-to-date educational objective and learning outcomes, see the Department web page at www.wmich.edu/ece)

BACCALAUREATE 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 the 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
CHEM 110 General Chemistry I ........... 3
CHEM 111 General Chemistry Laboratory I ............................................... 1
IME 102 Technical Communications .. 3
IME 142 Engineering Graphics ........ 3
AREA VIII Health and Well-being ...... 2

Second Semester — 16 hours

MATH 123 Calculus II ...................... 4
PHYS 205 Mechanics and Heat .......... 4
PHYS 206 Mechanics and Heat Lab ................................................... 1
ECE 250 Digital Logic .................... 3
ECE 111 Computer Science I ........... 4

Third Semester — 16 hours

MATH 272 Vector and Multivariate Calculus ........................................... 4
PHYS 207 Electricity and Light ........ 4
PHYS 208 Electricity and Light Lab .. 1
ECE 251 Introduction to Microprocessors .................. 4
AREA I Fine Arts* ....................... 3

Fourth Semester — 15 hours

MATH 374 Introduction to Linear Alg. and Diff. Equations ................... 4
ECE 210 Circuit Analysis ............... 4
Mathematics or Science Elective* ................ 3
AREA II Humanities* .................. 3

Fifth Semester — 17 hours

ECE 221 Electronics I .................. 4
ECE 310 Network Analysis ............. 3
ECE 361 Electromagnetic Fields .... 3
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 ......... 4
ECE 371 Linear Systems ................ 3
ECE 380 Probabilistic Methods in Signal/Systems Analysis ................. 3
IME 316 Report Writing ................ 3

Seventh Semester — 17 hours

ECE 481 Electrical/Computer Engineering Elective Group ..................... 6
ECE 482 Electrical/Computer Engineering Design I ..............................
IME 310 Engineering Economy ........ 3
ME 258 Dynamics ....................... 3
AREA IV Other Cultures and Civilizations* .................................. 3

Eighth Semester — 16 hours

ECE 481 Electrical/Computer Engineering Elective Group ..................... 3
ECE 482 Electrical/Computer Engineering Design II ..............................
ME 482 Engineering Science Elective** ......................................... 3
AREA V Social and Behavioral Sciences* ....................................... 4

Departmental Approved Technical 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.

****PHYS 309 and PHYS 310, or CHEM 112 and CHEM 113, or MATH 364

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 curriculum. 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 curriculum. Prerequisite: ECE 100.

ECE 123 Mobile Robots

This course provides an introduction to the practice of electrical and computer engineering. Students learn skills that will be required throughout their academic and professional careers, including the art and science of engineering design, teamwork, basic electronics construction skills, and basic computer programming. Prerequisite: Department approval.
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. Prerequisites: PHYS 207 or taken concurrently and 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 transistors, 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 Electronics I (3–3) 4 hrs.
Junction theory, semiconductor diode and models, bipolar transistors and models, field-effect transistors and MOS. 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.
Introduction to microcomputer architecture and interfacing. Machine and assembly language programming of small computers. Prerequisite: 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-model 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 (3–3) 3 hrs.
Characterizing, modeling, and specifying real time systems. Designing, programming and verifying sequential and concurrent real time systems. Software and hardware development 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 algorithm, 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 in both 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. Prerequisites: 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 at the conclusion of this course. This course, along with ECE 482, is approved as writing-intensive courses which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: ECE 481.

ECE 482 Electrical/Computer Engineering Design II (0–6) 3 hrs.
Senior electrical/computer engineering design project. A continuation of ECE 481. A formal written report and a formal presentation is required at the end of the semester. 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 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/C++. Prerequisites: CS 112 or equivalent.

ECE 520 Power Electronics and Motors 3 hrs.
Basic, transformer isolated and resonant switchmode converter topologies. Steady-state analysis, large-signal, small-signal modeling and analysis, state-space and discrete-time models. Magnetic, control techniques and power conditioning of converters. PWM control using space vector theory. Theory and applications of vector...
ECE 552 Switching and Finite Automata Theory
4 hrs.

ECE 553 Advanced Microcontroller Applications
3 hrs.
This course is intended to give graduate students and seniors 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 using analytic and simulation techniques, hardware and software considerations, small and large systems, free-standing and network systems. Prerequisites: ECE 350 and graduate level competence in computer architecture or computer networking, or permission of instructor.

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.

ECE 594 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 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 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 using analytic and simulation techniques, hardware and software considerations, small and large systems, free-standing and network systems. Prerequisites: ECE 350 and graduate level competence in computer architecture or computer networking, or permission of instructor.

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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.

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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.

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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 DESIGN
James K. Nelson, Jr., Chair
Alvaro Correa
David Middleton
Roman Rabiej

The Department of Industrial Design offers the following curriculum:

Industrial Design—B.S. degree

Academic Advising
Students should contact their advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the advisor, the curriculum committee, and the department chair. The academic advisor is located in Room E-102 CEAS, phone (269) 276-3260. 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.

CURRICULUM
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 spring 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. Registration into a 200-, 300-, or 400-level Industrial Design course does not mean the student will be allowed to attend the course.
unless the student has also passed the portfolio review. Any student not accepted to a higher level of class, or who does not have a positive portfolio review, must cancel any registration for that Industrial Design class. Students who do not pass the portfolio review may apply again the following year for another review and to continue their skills through additional classes or repetition of classes.

Students' portfolios are reviewed for an understanding of elements and principles of art and 3-D drawing skill. Additional abilities demonstrated by work in Graphic Design, Interior Design, computer aided design (CAD), fine art, life drawing, painting, sculpture, ceramics, jewelry, and other creative pursuits will also be evaluated.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Industrial Design curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ID 443 ID Thesis and Project I and ID 447 ID Thesis and Project II.

REQUIREMENTS

Candidates for this Bachelor of Science degree program in industrial design must satisfy the following requirements in addition to University requirements stated elsewhere in this catalog. All courses must be completed with a grade of "C" (2.00) is required in all industrial design courses, 100-, 200-, 300-, and 400-level.

No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

Complete the following program of 130 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level ID courses:

CHEM 110 and 111, ID 143, IME 102, IME 142, MATH 200.

First Semester — 16 hours

**ID 143 Industrial Design Fundamentals Studio ** 3 hrs.
**ART 104 Object Drawing ** 3 hrs.
**IME 102 Technical Communication (Prof. 1) ** 3 hrs.
**IME 142 Engineering Graphics ** 3 hrs.
**MATH 118 Precalculus Mathematics** (Prof. 3) . . . . 3 hrs.

Second Semester — 16 hours

**ID 147 Principles of Industrial Form** 3 hrs.
**ID 205 Model Construction Studio I** . . . . 3 hrs.
**ART 105 Drawing Studio** . . . . 3 hrs.
**IME 246 Introduction/Computer Aided Design** . . . . 3 hrs.
**MATH 200 Calculus with Applications (Prof. 4) ** 4 hrs.

Third Semester — 16 hours

**ID 243 Product Design Methodology Studio I,** 3 hrs.
**ID 301 Computer Aided ID Studio I** . . . . 3 hrs.
**ID 305 Model Construction Studio II** . . . . 3 hrs.
**ART 107 Form and Surface** . . . . 3 hrs.
**CHEM 110 and 111 General Chemistry I (AREA VI)** . . . . 4 hrs.

Fourth Semester — 15 hours

**ID 222 Wood Furniture Design** . . . . 3 hrs.
**ID 247 Product Design Methodology II** . . . . 3 hrs.
**ID 302 Computer Aided ID Studio II** . . . . 3 hrs.
**ART 108 Form and Space** . . . . 3 hrs.
**IME 442 Ergonomics and Design** . . . . 3 hrs.

Fifth Semester — 17 hours

**ID 201 History of Design** . . . . 3 hrs.
**ID 322 Advanced Woodworking Design** . . . . 3 hrs.
**ID 343 Advanced Product Design Studio** . . . . 3 hrs.
**ART 248 Photography** . . . . 3 hrs.
**IME 150 Introduction to Industry (AREA VIII)** . . . . 3 hrs.
**AREA VIII Health and Well-Being** . . . . 2 hrs.

Sixth Semester — 18 hours

**ID 203 Color in Industrial Design** . . . . 3 hrs.
**ID 347 Product Design Practicum Studio** . . . . 3 hrs.
**ART 220 History of Art (Area I)** . . . . 3 hrs.
**ART 245 Graphic Design** . . . . 3 hrs.
**IME 250 Plastics Properties and Processing** . . . . 3 hrs.

Seventh Semester — 18 hours

**ID 443 ID Thesis and Project I** (Prof. 2) . . . . 3 hrs.
**ART 221 History of Art** . . . . 3 hrs.
**ECON 201 Principles of Economics (AREA VI)** . . . . 3 hrs.
**MKTG 250 Marketing Principles** . . . . 3 hrs.
**AREA III U.S. Culture and Issues** . . . . 3 hrs.
**APPROVED elective: ID/ART/IME/PCS** . . . . 3 hrs.

Eighth Semester — 14 hours

**ID 447 ID Thesis and Project Studio II** (Prof. 2) . . . . 3 hrs.
**MGMT Management Effective** . . . . 3 hrs.
**AREA II Humanities** . . . . 3 hrs.
**AREA IV Other Cultures/Civilizations** . . . . 4 hrs.

"A minimum grade of "C" is required for all ID courses.

Industrial Design Courses (ID)

Numbers following course title indicate hours of lecture/studio and laboratory per week during a semester (lecture 3 hrs/lab 2 hrs). The first digit of a course number indicates level of work.

ID 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.

ID 147 Principles of Industrial Form (0-6) 3 hrs.

**Industrial Design Process and its application from idea generation through all the development stages to the introduction of a product in the marketplace. Ergonomics and user interface to enhance idea implementation. In depth study of sketching and rendering skills. Quick concept projects, basic research principles, preliminary dimension, orthographic drawings, renderings and 3/4 view product presentation. Prerequisites: ID 147, Portfolio Review.**

ID 247 Product Design Methodology Studio I (0-6) 3 hrs.

Introduction to product design methodology for mass-produced products. Study the Industrial Design Process and its application from idea generation through all the development stages to the introduction of a product in the marketplace. Ergonomics and user interface to enhance idea implementation. In depth study of sketching and rendering skills. Quick concept projects, basic research principles, preliminary dimension, orthographic drawings, renderings and 3/4 view product presentation. Prerequisites: ID 247, Portfolio Review.

ID 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 design around the world.

ID 203 Color in Industrial Design (2-2) 3 hrs.

Develop through experience an understanding of color, color action and color relationships. Interaction of color, form, function, proportion, function and composition. Color and information, color and signage. Application of this knowledge to Industrial Design problem solutions. Prerequisites: ID 205, MATH 200.

ID 205 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.

ID 222 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. Prerequisite: IME 142 or permission of the instructor.

ID 243 Product Design Methodology Studio I (0-6) 3 hrs.

Introduction to product design methodology for mass-produced products. Study the Industrial Design Process and its application from idea generation through all the development stages to the introduction of a product in the marketplace. Ergonomics and user interface to enhance idea implementation. In depth study of sketching and rendering skills. Quick concept projects, basic research principles, preliminary dimension, orthographic drawings, renderings and 3/4 view product presentation. Prerequisites: ID 147, Portfolio Review.

ID 247 Product Design Methodology Studio II (0-6) 3 hrs.

Introduction to quick product concept development projects focusing on research, ideation, shape, form, proportions, ergonomics, user interface, and manufacturing processes. Application of model shop skills and technology. Build a volumetric study model. A term project focusing on use and application of the Industrial Design Process, including visual, written, and verbal presentations. Final model is constructed to confirm the original design intent. Design and organization of portfolios for review to move to 300-level courses. Prerequisites: ID 201, ID 203, and ID 243.

ID 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: ID 246.
ID 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. Prequisite: ID 301.

ID 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: ID 205 and IME 246.

ID 322 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. Prerequisites: ID 222 and IME 246.

ID 330 Wood and Related Materials for the Interior Designer (2–3) 3 hrs.
A study of the physical and mechanical properties of wood and woodbased materials, joint design, adhesives and fasteners, and selection and application of finishes. The effect of human factors on the design of furniture and interiors is emphasized.

ID 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 theory, wood, and tool selection for turning. Prerequisite: ID 322.

ID 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: ID 222 and CHEM 110 and 111.

ID 343 Advanced Product Design Studio (0–6) 3 hrs.
Sketching exercises for the development of ideas, concepts, organization of ideas, and project planning to maintain optimum design output and consistency. Three accelerated projects concentrate on idea development and problem solving techniques. Advanced study of function, ergonomics, user interface and manufacturing processes. Study team leadership roles and project management in class or company sponsored assignment. A midterm project covers the entire Industrial Design Process and a well-constructed model. Final presentation in Power Point. Prerequisites: ID 202, ID 206, ID 247, and Portfolio Review.

ID 347 Product Design Practicum Studio (0–6) 3 hrs.
Three accelerated projects focusing on advanced research, concept development sketches and renderings to evaluate and confirm design intent. Solve problem with using new materials, new technology, and human interface with the product. A midterm class project or company sponsored covers the entire Industrial Design Process. Leadership roles and project management. Final presentation in Power Point, and a high quality final model. Study process to evaluate materials needed for development of a professional portfolio in 400-level classes. Prerequisites: ID 343, ID 305.

ID 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: ID 322.

ID 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: ID 222 or department approval.

ID 443 Industrial Design Thesis and Project Studio I (0–6) 3 hrs.
A two-semester course that requires: 1) A major design project; 2) design of a professional portfolio; 3) design of a resume, cover letter and business cards, sample sheets and sample CD; 4) professional final presentation of major project in Power Point, Director or Flash; 5) preparation of all the project materials for the Senior Engineering and Design presentation. Major project requires following the entire Industrial Design Process: research, idea generation and development, sketches, sketch model, dimensional drawings, exploded view, bill of materials, final rendering and a pristine model. Application of ergonomics, user interface, engineering and manufacturing principles. This course, along with ID 447, creates the foundation to collect and create materials for a professional portfolio, and support materials. This course, along with ID 447, is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: ID 347, ID 222 in 400-level classes.

ID 447 Industrial Design Thesis and Project Studio II (0–6) 3 hrs.
In the second part of this course, the student focuses problem-solving principles for function, user interface and manufacturing processes. Project moves to the Conversion Phase of the ID process. Complete dimensional drawings, design details to build a pristine final model. Final renderings, and 3D modeling studies. Simultaneously, the student must complete his/her portfolio and written material. Create and design his/her final presentation in Power Point, Director or Flash. The student prepares all the materials needed for the Senior Engineering and Design presentation. Lectures focusing on resume design, interview skills, verbal development and job-seeking techniques. This course, along with ID 445, is approved to fulfill the baccalaureate-level writing requirement. Prerequisites: ID 443, IME 442.

ID 497 Topics in Industrial Design (Variable) 1–6 hrs.
A specialized course dealing with some particular area of design not usually included in other course offerings. May be repeated for credit with different topics to a maximum of six credit hours. Prerequisite: ID 247 or consent of instructor.

ID 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 not to exceed six credit hours. Prerequisite: Consent of department.
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.

The educational objectives of the Industrial Engineering program are:
1. Produce job-ready graduates for careers benefiting from industrial engineering knowledge, skills, and abilities.
2. Enable student competency in deploying state-of-the-art systems for identifying, defining, modelling, and solving industrial engineering problems.
3. Instill an active awareness of engineering ethics and social responsibility.
4. Build and maintain collaborative relationships with manufacturing and service organizations to support industrial engineering research and teaching.

(For up-to-date educational objectives and learning outcomes, see department webpage at www.wmich.edu/ime)

**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 will satisfy the Baccalaureate Writing Requirement by successfully completing IME 491 Multidisciplinary Senior Proposal (2 hrs.) and IME 492 Multidisciplinary Senior Project (2 hrs.).

**REQUIREMENTS**

Candidates for the Bachelor of Science in Engineering (Industrial) 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, 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 transferred courses 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 127 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.

**First Semester — 16 hours**

- IME 102 Technical Communication..... 3
- IME 142 Engineering Graphics..... 3
- MATH 122 Calculus I...... 4
- CHEM 110 General Chemistry I...... 4
- CHEM 111 General Chemistry Lab...... 1
- AREA VIII Health and Well-being*..... 2

**Second Semester — 15 hours**

- IME 206 Engineering Computations..... 3
- IME 210 Engineering Cost Estimating..... 3
- MATH 123 Calculus II..... 4
- PHYS 205 Mechanics and Heat..... 4
- PHYS 206 Mechanics and Heat Lab..... 1

**Third Semester — 16 hours**

- IME 261 Engineering Statistics..... 3
- MATH 272 Vector and Multivariate Calculus..... 4
- ME 253 Statics and Mechanics of Materials..... 4
- PHYS 207 Electricity and Light..... 4
- PHYS 208 Electricity and Light Lab..... 1

**Fourth Semester — 17 hours**

- IME 262 Probability for Engineers..... 3
- ECE 210 Circuit Analysis..... 4
- AREA II Humanities*..... 3
- ECON 201 Principles of Microeconomics..... 3

**Fifth Semester — 17 hours**

- IME 310 Engineering Economy..... 3
- IME 316 Report Preparation..... 3
- IME 307 Computer Controlled Manufacturing Systems..... 4
- ECE 211 Machines and Electronic Circuits..... 3
- MATH 374 Introduction to Linear Algebra and Differential Equations..... 4

**Sixth Semester — 14 hours**

- IME 308 Comp. Controlled Manufacturing Design Lab..... 2
- IME 311 Introduction to Operations Research..... 3
- IME 318 Statistics Quality Control..... 3
- ME 250 Materials Science I..... 3
- ME 258 Dynamics..... 3
- ME 330 Simulation Modeling and Analysis..... 3

**Seventh Semester — 15 hours**

- IME 414 Material Handling and Facilities Design..... 4
- IME 416 Operations Control in Industry..... 4
- IME 418 IE Senior Seminar..... 1
- ME 419 Approved Elective**..... 3
- AREA III United States: Culture and Issues*..... 3
Candidates for the Bachelor of Science degree must satisfy the following requirements:

491 Multidisciplinary Senior Proposal and IME

Students who have chosen the Engineering Requirement by successfully completing IME (For up-to-date educational objectives and approved Electives)

1. Produce job-ready graduates for careers benefiting from engineering management technology as well as the need for professional ethics and social responsibility.
2. Enable student competency in deploying state-of-the-art systems for design, analysis, and documentation of robust solutions to industrial problems.
3. Gain an awareness of the challenges and rewards of engineering design technology as well as the need for professional ethics and social responsibility.
4. Involve manufacturing and industrial organizations in collaborative relationships to support engineering research and teaching.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the 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:

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 254 Machining Processes .... 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 144 Descriptive Geometry .... 3
IME 281 Statics and Strength of Materials .... 4
IME 283 Thermodynamics .... 2
EGE 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 246 Introduction to Computer Aided-Design .... 3
IME 284 Fluid Mechanics and Hydraulics .... 2
MSE 254 Properties of Materials .... 3
MSE 255 Material Science Lab .... 1
ECE 100 Fundamentals of Electrical and Machines .... 3
STAT 260 Elementary Statistics .... 4

Fifth Semester — 16 hours
IME 250 Plastics Properties and Processing .... 3
IME 320 Engineering Cost Analysis .... 3
IME 346 Design for Production .... 3
IME 422 Engineering Teams: Theory and Practice .... 3
CS 111 Computer Science I .... 4

Sixth Semester — 15 hours
IME 346 Programming for Computer Aided-Design .... 3
IME 359 Computer-Aided Manufacturing .... 3
AREA II Humanities* .... 3
IME 481 Metrology .... 3
Approved Elective .... 3

Seventh Semester — 14 hours
IME 448 Computer-Aided Analysis .... 3
IME 446 CAD Applications .... 3
IME 491 Multidisciplinary Senior Proposal .... 2
Approved Elective .... 3

AREA I Fine Arts* .... 3

Eighth Semester — 15 hours
IME 492 Multidisciplinary Senior Project .... 2
IME 493 Multidisciplinary Senior Project Consultation .... 1
Approved Elective .... 3
IME 444 Advanced Product and Machine Design .... 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.

Approved Elective is any approved course selected from the following areas of concentration:

1. Producing job-ready graduates for careers benefiting from engineering management technology as well as the need for professional ethics and social responsibility.
2. Enable student competency in deploying state-of-the-art systems for design, analysis, and documentation of robust solutions to industrial problems.
3. Gain an awareness of the challenges and rewards of engineering design technology as well as the need for professional ethics and social responsibility.
4. Involve manufacturing and industrial organizations in collaborative relationships to support engineering research and teaching.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)
2. Enable student competency in deploying state-of-the-art systems for designing, installing, and managing operational systems in manufacturing and service industries.

3. Gain an awareness of systems concepts and the interrelatedness of human behavior, operations, performance, professional ethics, and social responsibility.

4. Involve manufacturing and service organizations in collaborative relationships to support engineering management research and teaching.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)

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 MSE prefixes.

2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

3. Complete the following program of 129 semester credit hours. The schedule below is an example of one leading to graduation in elevent semesters, beginning in fall, plus one spring session.

4. Prior to enrollment in 300/400-level courses, students must (1) place resume with Career and Student Employment Services; (2) complete the following courses with a grade of "C" or better: CHEM 110 and 111, ECE 100, IME 102, PHYS 115, and MATH 123. These courses also appear in darker italic print in the list below.

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
IME 102 Technical Communication (Prof. 1) 3
IME 150 Introduction to Manufacturing (Area VII) 3
CHEM 110 General Chemistry I (Area VI) 3
CHEM 111 General Chemistry Lab I (Area VI) 1
MATH 118 Pre-Calculus I (Prof. 3) 4

Second Semester — 15 hours
IME 142 Engineering Graphics 3
MATH 122 Calculus I (or MATH 200) (Prof. 4) 4
PHYS 113 General Physics I (Area VI) 4
PHYS 114 General Physics Lab (Area VI) 1
ECE 100 Fundamentals of Circuits and Electronics 3

Third Semester — 15 hours
CS 104 Introduction to C/C++ 2
PHYS 115 General Physics II 4
PHYS 116 General Physics II Lab 1
ECE 101 Fundamentals of Electronics and Machines 3
IME 122 Automobile in Society 3
AREA VIII Health and Well Being 2

Fourth Semester — 17 hours
IME 246 Introduction to CAD 3

Ime 254 Properties of Materials 3
IME 255 Material Science Lab 1
ACTY 210 Principles of Accounting 3
STAT 290 Elementary Statistics 3
AREA I Fine Arts* 3

Fifth Semester — 17 hours
IME 281 Statics and Strengths of Materials 3
IME 305 Work Analysis 3
IME 315 Work Analysis and Design Lab 1
IME 316 Report Preparation 3
IME 320 Engineering Cost Analysis 3
ECON 201 Principles of Microeconomics (Area V) 3

Sixth Semester — 16 hours
IME 312 Systems Decision Making 3
IME 328 Quality Assurance and Control 3
IME 404 Plant Layout and Materials Handling 4
IME 422 Engineering Teams: Theory and Practice (Area V) 3
IME 326 Operations Planning and Control 3

Seventh Semester — 14 hours
IME 402 Supervision of Industrial Operations 3
IME 412 Industrial Systems Management 3
IME 491 Multidisciplinary Senior Proposal (Prof. 2) 2
Technical Elective 2
Technical Elective 3

Eighth Semester — 15 hours
MGMT 352 Human Resource Management 3
IME 492 Multidisciplinary Senior Project (Prof. 2) 2
IME 493 Multidisciplinary Senior Project Consultation 1
AREA II Humanities 3
AREA III United States: Culture and Issues 3
Technical Elective 3

Spring Semester of Senior Year — 6 hours
IME 420 Modern Industrial Systems 3
AREA IV Other Cultures and Civilizations 3

See departmental advisor for a list of approved technical elective courses in each specialized area. Also see Technical Elective Requirements below.

At least one course at the 300-400 level is required.

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.

1. Automotive
2. Manufacturing
3. Project Planning
4. Process Engineering

The educational objectives of the Manufacturing Engineering Technology program are:

1. Produce job-ready graduates for careers benefiting from manufacturing engineering technology knowledge, skills, and abilities.
2. Enable student competency in the use of the state-of-the-art manufacturing tools and processes for the solution of industrial problems.
3. Gain an awareness of the challenges and rewards of manufacturing engineering technology, the need for professional ethics and social responsibility, and the importance to engage in lifelong learning to respond to the changing needs of the global manufacturing environment.
4. Involve manufacturing and industrial organizations in collaborative relationships to support engineering research and teaching.

(For up-to-date educational objectives and learning outcomes, see department web page at www.wmich.edu/ime)

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Manufacturing Engineering Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing 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, 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 131 semester hours. The schedule below is an example of one leading to graduation in eight years, beginning in fall.

4. Prior to enrollment in 300/400-level courses, students must 1) place resume with Career and Student Employment Services; and 2) complete the following courses with a grade of "C" or better: CHEM 110 and 111, ECE 100, IME 102, PHYS 115, and MATH 123. These courses also appear in darker italic print in the list below.

**First Semester — 16 hours**

IME 102 Technical Communication ... 3
IME 142 Engineering Graphics ... 3
IME 150 Introduction to Manufacturing ... 3
MATH 118 Precalculus Mathematics ... 4
CHEM 110 General Chemistry I ... 3
CHEM 111 General Chemistry Lab I ... 1

**Second Semester — 16 hours**

IME 122 Automobile in Society ... 3
MATH 122 Calculus I (or MATH 200) ... 4
CS 104 Introduction C/C++ ... 2
AREA VIII Health and Well-being ... 4
PHYS 113 General Physics I ... 4
PHYS 114 General Physics Lab I ... 1

**Third Semester — 16 hours**

IME 246 Introduction to Computer Aided Design ... 3
IME 254 Machining Processes ... 3
ECE 100 Fundamentals of Circuits and Electronics ... 3
COM 104 Public Speaking ... 3
PHYS 115 General Physics II ... 4
PHYS 116 General Physics II Lab ... 1

**Fourth Semester — 18 hours**

IME 250 Plastics Properties and Processing ... 3
CMD 254 Properties of Materials ... 3
CMD 255 Material Science Lab ... 1
IME 281 Statics and Strength of Materials ... 4
ECE 101 Fundamentals of Electronics and Machines ... 3
STAT 260 Elementary Statistics ... 4

**Fifth Semester — 16 hours**

IME 283 Thermodynamics ... 2
IME 284 Fluid Mechanics and Hydraulics ... 2
IME 326 Operations Planning and Control ... 3
IME 348 Designing for Production ... 3
IME 352 Metal Casting ... 3
IME 357 Fabrication, Assembly, and Finishing ... 3

**Sixth Semester — 15 hours**

IME 330 Engineering Cost Analysis ... 3
IME 338 Quality Assurance and Control ... 3
IME 358 Computer-Aided Manufacturing ... 3
Approved Elective ... 3
AREA IV Other Cultures and Civilizations ... 3

**Seventh Semester — 17 hours**

IME 458 Advanced Manufacturing Systems ... 3
IME 402 Supervision of Industrial Operations ... 3
IME 422 Engineering Teams: Theory and Practice ... 3
IME 481 Metrology ... 3
IME 491 Multidisciplinary Senior Proposal ... 2
Approved Elective ... 3
AREA I Fine Arts* ... 3

**Eighth Semester — 15 hours**

IME 458 Advanced Manufacturing Systems ... 3
IME 492 Multidisciplinary Senior Project ... 2
IME 493 Multidisciplinary Senior Project Consultation ... 1
Approved Elective ... 3
AREA II Humanities* ... 3
AREA III United States: Culture and Issues* ... 3

* At least one of these courses must be at the 300–400 level.

**APPROVED ELECTIVES/OPTIONS REQUIREMENTS**

Nine (3) 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**

IME 324 Automotive Power Systems ... 3
IME 325 Automotive Electronic Systems ... 3
IME 425 Advanced Drive Systems ... 3
IME 426 Automotive Structure, Ride, and Safety ... 3

**Cast Metals Option**

IME 300 Cooperative Education (in Cast Metals Industry) ... 3
IME 456 Process Testing and Measurement ... 3

**Plastics Option**

IME 350 Production Thermoplastic Processing ... 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 in the Plastics Industry ... 3

**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 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**

IME 142 Engineering Graphics ... 3
IME 150 Introduction to Manufacturing ... 3
IME 328 Quality Assurance and Control ... 3

**Approved Electives — 9 hours**

Select three (3) courses:

- ID 222 Wood Processing ... 3
- MSE 254 Properties of Materials ... 3
- MSE 255 Materials Science Laboratory ... 1
- ECE 100 Fundamentals of Circuits and Electronics ... 3
- ECE 101 Fundamentals of Electronics and Machines ... 3
- ECE 250 Digital Logic I ... 3
- IME 122 Automobile in Society ... 3
- IME 254 Machining Processes ... 3
- IME 246 Introduction to Computer Aided Design ... 3
- IME 250 Plastics Properties and Processing ... 3
- IME 336 Operations Planning and Control ... 3
- IME 350 Production Thermoplastics Processing ... 3
- IME 352 Metal Casting ... 3
- IME 358 Computer Aided Manufacturing ... 3

**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 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, Purchasing Options, Insurance, Productivity, Maintenance, Societal Consequences and a history of the industry's record of successes and failures.

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, charting 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, 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 210 Engineering Cost Estimating (3–0) 3 hrs.
This course will cover engineering cost estimating principles including development of standard cost estimating, development of general overhead rates and burden rates, and quoting and estimating new jobs.

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 drafting and 3-dimensional wireframe part design creation. Emphasis placed upon factors affecting performance and capabilities of comparative CAD system 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, laminating, coating, welding, and decorating of thermoplastic and thermostet 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 (2–3) 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 STAT 261. Prerequisites: MATH 122 and a course in the use of computers.

IME 262 Probability for Engineers (3–0) 3 hrs.
Introduction to probability emphasizing applications in engineering. Topics include the use of discrete and continuous random variables. Goodness of Fit Tests, fitting of distributions, and elementary stochastic processes. This course is cross-listed with STAT 262. 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 members, 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. Basics of heat transfer. Prerequisites: 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: IME 281, PHYS 113/114.

IME 300 Cooperative Education (Arr.) 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 for 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.

Analysis and design of computer controlled manufacturing systems. Students must enroll in IME 308 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 lifecycle cost analysis. Prerequisite: MATH 123. For Mechanical Engineering Majors only.

IME 310 Engineering Economy (3–0) 3 hrs.
Application of principles of engineering economy to establishment of equipment and system feasibility. Interest, equivalence, taxes, depreciation, uncertainty and risk, incremental and sunk 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 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 including 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 selection of a variety of computer aids to aid the decision making process. Prerequisite: CS 106.

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 strategies for different situations. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: IME 102, junior standing.

IME 318 Statistical Quality Control (3–0) 3 hrs.
Methods of applying statistics and probability theory to control production processes. Application of computer programs to analyze quality control problems. Prerequisites: IME 206, 262.

IME 320 Engineering Cost Analysis (3–0) 3 hrs.
A course in engineering economics and the economic comparison of alternative technical systems. Includes: costs of investment, depreciation, taxes, and risk. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 122 or MATH 200.

IME 324 Automotive Power Systems (2–3) 3 hrs.
The construction, disassembly/reassembly, manufacture, examination of design, simulation, operation, testing of performance and durability serviceability, emissions and recyclability of current and contemporary power plants for automotive and truck use. Emphasis on current designs of SI and CI engines, ASTM tests of fuels, lubricants and coolants as well as evaluation of near-term alternatives such as synthetic diesel and fuel cells. Principles of mechanics, thermodynamics, dynamics and chemical principles as applied to engines and power systems. Prerequisite: IME 122.

IME 325 Automotive Electrical Systems (2–3) 3 hrs.
The study and simulation of electrical power production, regeneration, storage, use, and control in current and alternative automobiles and trucks. Focus on the wide variety of electronic operational enhancements as they aid vehicle, safety, comfort, with the reduction of emission, fuel consumption, driver effort, and skill. The manufacture of components and systems, interaction with other systems, efficiency, on-board and off-board diagnostics, and life cycle testing. Prerequisites: IME 122, ECE 101.
IME 326 Operations Planning and Control (3-6) 3 hrs.
Methods of controlling and coordinating production and planning including production planning, scheduling, inventory control, and forecasting. NOT FOR ENGINEERING CREDIT. Prerequisite: STAT 216 or 260 or 366.

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: STAT 216 or 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 interactive design, programming structure for modular entity creation, storing and retrieving object data, utilizing peripheral input and output devices, attribute regulation and control, and software transfer and documentation specifications. Prerequisites: 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 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 tools. The use of CAD is a major part of this course. Prerequisites: IME 254, 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 cost and profitability. Overview of processing machinery including transfer and injection equipment. Prerequisites: IME 250, and MSE 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 processes using green sand, investment, centrifugal, and lost foam processes. Prerequisites: IME 254, and MSE 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, anodizing, printing, and vacuum metalizing. Review of the impact of the assembly and finishing procedures on product quality and reliability. Prerequisites: IME 250, 251.

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 N/C 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 CAD information 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. Prerequisites: 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, continuous improvement and advanced quality systems. Computer tools to manage systems will be introduced. Philosophies of systems management will be discussed. Students will acquire advanced systems management skills as applied to multiple industries, including manufacturing and service. Prerequisites: 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, process design, equipment selection, materials handling, and plant layout. Includes an intensive 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 functions, production and inventory operations. Control of manufacturing production systems and modeling. Prerequisites: IME 205, 210, 311, 330.

IME 418 IE Senior Seminar 1 hr.
This course will discuss application of design principles, research methodology, including data collection and analysis, professional expectations in report preparation and presentation, and professional ethics. Students will be required to take the fundamentals of engineering examination given each fall by the State of Michigan as part of the course requirements. Prerequisites: IME 306, 318, 330, and Department approval.

IME 419 IE Senior Design 4 hrs.
This course is the capstone industrial engineering course. The course will require application of several IE design principles to a project. The projects are chosen by students or assigned by faculty. All students are required to present their projects at the Senior Engineering Design Conference hosted by the College of Engineering and Applied Sciences. Prerequisites: IME 414, 416, and 418.

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 to explore many facets of supervisory and managerial practices and procedures. A charge for transportation is required. Prerequisites: Spring session prior to graduation.

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 CVT's, 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.
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. Mechanical 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., Finite Element Analysis - FEA) and customized design evaluation (e.g., symmetrical 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: MISE 254, IME 281.

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, special fixtures. Mold and die construction using a wide range of cavity production methods. Computer analysis of temperature, pressure, and filling characteristics of a mold. Prerequisites: 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, STAT 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.

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 411. 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 491 Multidisciplinary Senior Proposal 2 hrs. Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for multidisciplinary senior project. This course, when completed satisfactorily with IME 492, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: Senior status and department approval.

IME 492 Multidisciplinary Senior Project 2 hrs. Open-ended multidisciplinary team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation. This course, when completed satisfactorily with IME 491, is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: Grade of "C" or better in IME 491 and approved project. Corequisite: IME 493.

IME 493 Multidisciplinary Senior Project Consultation 1 hr. Supervision of open-ended multidisciplinary team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation. Prerequisite: Grade of "C" or better in IME 491 and approved project. Corequisite: IME 492.

IME 495 Special Topics in Industrial and Manufacturing Engineering (3–0) 3 hrs. A specialized course dealing, each time it is scheduled, with some particular aspect of industrial or manufacturing engineering not usually included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Permission of instructor.

IME 498 Readings in Engineering (Arr.) 1–6 hrs. Independent readings in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

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 the Masters of Science degrees in Engineering Management or Industrial Engineering. Prerequisites: MATH 122 or 200, STAT 260 or 366, or equivalent.

IME 502 Manufacturing Engineering Fundamentals (3–3) 4 hrs. This course reviews the fundamental principles in Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), and metrology used in the practice of manufacturing engineering. Topics covered include: CAD documentation techniques, CAD modeling, Geometric Dimensioning and Tolerancing (GD & T), EIA/ISO format (G & M code) Numerical Control (N/C) programming, Graphical N/C programming (Pro, Verac), and Statistical Process Control (SPC). The laboratory includes hands-on experiences with commercial CAD/CAM systems, N/C machines, and instrumentation. The course may be used to meet the stated prerequisite requirements normally satisfied by IME 246, IME 356, and IME 481 in the graduate program. Prerequisites: MATH 122 or 200, CS 104 or 106, IME 142 and 254.

IME 503 Manufacturing Materials Fundamentals (2–3) 3 hrs. The course is focused upon the study of identification, properties, processing, applications, and testing techniques of industrial materials. Topics discussed include: plastics, metals, ceramics, wood, and composites materials. An emphasis on property definition utilizing standardized (appropriate) testing techniques will be carried out for selected industrial materials. Processing of plastics and composites will be investigated. 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.
MANUFACTURING ENGINEERING

John A. Patten, Chair
or
WMU Regional Offices:
Kellogg Community College
Battle Creek, MI 
(269) 965-5380
Muskegon Community College
Muskegon, MI 
(231) 777-0500

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 processing, 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, appliance, 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. The committee included a wide representation of manufacturers and represents their collective thinking as to what a modern-day manufacturing curriculum should include.

Manufacturing Engineering

Bachelor of Science in Engineering (Manufacturing)

Academic Advising
Students should contact an advisor at the WMU Regional Offices (Battle Creek or Muskegon) as early as possible in the program to set up an academic plan of work. Alternately, students can contact the Office of Advising and Admissions, College of Engineering and Applied Sciences, Room E-102 CEAS, Western Michigan University, Parkview Campus, Kalamazoo, Michigan (269) 276-3270.

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 ....... 4
IME 150 Introduction to Manufacturing ....... 3
IME 102 Technical Communication ....... 3
IME 142 Engineering Graphics ....... 3
Area I Fine Arts* ....... 3

Second Semester — 17 hours
MATH 123 Calculus II ....... 4
CHEM 110 General Chemistry I ....... 3
CHEM 111 General Chemistry Lab I ....... 1
MFE 120 Engineering Design and Verification ....... 3
PHIL 220 Critical Reappraisal ....... 3
Area II The United States: Cultures and Issues* ....... 3

Third Semester — 16 hours
MATH 272 Vector and Multivariate Calculus ....... 4
PHYS 205 Mechanics and Heat ....... 4
PHYS 206 Mechanics and Heat Lab ....... 1
CS 200 Programming Language Experience ....... 2
COM 104 Public Speaking ....... 3
Area VIII Health and Well-being ....... 2

Fourth Semester — 18 hours
MATH 374 Introduction to Linear Algebra and Differential Equations ....... 4
PHYS 207 Electricity and Light Lab ....... 1
MFE 261 Engineering Statistics ....... 3
ME 256 Statics ....... 3
MFE 220 Principles of NC/CNC Machining ....... 3

Fifth Semester — 16 hours
MFE 330 Manufacturing Materials I ....... 4
MFE 340 Design for People at Work ....... 3
ECE 212 Electronic Circuits and Machining ....... 3
ME 258 Dynamics ....... 3
PHIL 316 Ethics in Engineering and Technology ....... 3

Sixth Semester — 16 hours
MFE 360 Computer Control of Manufacturing Operations ....... 3
ME 257 Mechanics of Materials ....... 4
ECE 312 Fundamentals of Electronics and Machines ....... 3
IME 316 Report Preparation ....... 3
IME 310 Engineering Economy ....... 3
Seventh Semester — 15 hours
MFE 430 Manufacturing Materials II (3–3)
MFE 442 Quality Assurance (3)
MFE 440 Production Engineering (3)
MFE 480 Senior Design I (2)
Area IV Other Cultures and Civilizations* (3)

Eighth Semester — 15 hours
MFE 420 Advanced Manufacturing Processes (3–3)
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 earlier in this catalog. Numbers following course title indicate 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 (GD&T) in both metric and customary units will be applied in functional designs. An introduction to statistical process control and quality assurance using precision measurement instruments and coordinate measuring systems. Prerequisites: IME 150; a course in computer-aided design or consent of instructor.

MFE 220 Principles of NC/CNC Machining (2–3)
3 hrs.

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, CNC/CNC systems, robotics, and programmable logic controllers (PLC). The classroom lectures are reinforced with a series of laboratory experiments. Prerequisites: Digital Circuit Design, and undergraduate Electronic Engineering.

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 product 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 and 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 current simulation languages and simulators is presented. Every week an industrial case study is introduced and, in a lab environment, the simulation model is developed. Statistical analysis of input data and simulation results are examined. 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.

Materials Science and Engineering Courses (MSE)
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.

MSE 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. Prerequisites: MFE 31. Advanced materials from the current period ("The Materials Age") with applications for miniaturized computers ("lap-top"), space shuttle, biocompatible materials for implants in the human body, and construction of buildings, roads and bridges. Prospects for the future will be discussed.

MSE 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 122 or 200, CHEM 110. Not for Engineering credit.

MSE 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. Prerequisites: MSE 254 must be taken concurrently. Not for Engineering credit.

MSE 258 Materials Science Laboratory (1–0)
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 must be taken concurrently.

MSE 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.

MSE 354 Transport Phenomena in Materials (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, processing, heat treatment, coating, and corrosion and oxidation of materials. Prerequisites: MATH 374, MSE 353, and CHEM 430.
MSE 457 Mechanical Behavior of Materials (3-0)
3 hrs. Fundamentals of elasticity and plasticity theory. The mechanical and thermomechanical forming methods of materials. Prerequisites: ME 250, ME 253 or 256, MATH 272, and department approval.

MSE 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, mёssbauer spectroscopy, and thermal analysis. Prerequisite: ME 250, GECI 335, and consent of instructor.

MSE 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.

MSE 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.

MSE 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.

MSE 476 Failure Analysis and Corrosion (2-3)
3 hrs. Theory, design implications and case studies in the following areas: elastic deformation, plastic deformation, creep, fracture, fatigue, corrosion and oxidation. A technical paper based on a project will be submitted at the end of the course. Prerequisites: MSE 457, MSE 471, IME 261, and MATH 374.

MSE 485 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 MSE 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.

MSE 488 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 MSE 483, is approved as a writing-intensive course, which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisites: MSE 483 and approved project.

MSE 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.

MSE 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 not to exceed six credit hours. Prerequisite: Consent of department.

MSE 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.

MSE 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.

MECHANICAL AND AERONAUTICAL ENGINEERING

Parviz Merati, Chair
Judah Ari-Gur
Christopher S.K. Cho
Philip J. Guichelaar
Jerry H. Hamelink
Richard Hathaway
Arthur Haodley
James Karmann
Daniel Kujiwaki
Ho Sung Lee
William W. Liu
Koorosh Naghshineh
Kapseong Ro
Iskender Sahin
Rameshwar P. Sharma
Bade Shrestha
Dennis J. VandenBrink
Molly W. Williams

The Department of Mechanical and Aeronautical Engineering offers academic programs leading to the degree of Bachelor of Science in Engineering (Mechanical or Aeronautical). The two programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The programs are designed to provide engineering expertise appropriate to the diversity in the specific engineering program selected. These programs include mathematics, general education subjects, the basic sciences, the engineering sciences, product design, and an integrated computer experience. Electives may be used to deepen or broaden the program.

Mechanical engineers are found in almost every industry. Examples of areas for career opportunities include manufacturing, machine tool design, and product development; land, sea, air, and space vehicles and systems; energy conversion and energy distribution; computer hardware and computer software; environmental systems; and construction and urban development. Opportunities for mechanical engineers continue to develop with the rapid expansion of our knowledge base and population growth.

Aeronautical Engineers find career opportunities in the aerospace industry and other engineering areas capitalizing on their strong applied engineering background. Much of their course work is specialized to the aerospace fields.

Offerings for those interested in automotive engineering include internal combustion engines, engine design, vehicle design, vehicle dynamics, and vehicle structural design.

Academic Advising

Students should contact a mechanical or aeronautical engineering academic advisor as early as possible. Advisors are 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, the curriculum committee, and the department chair. The academic advisors are located in Room E-102, CEAS, (269) 276-2030.

Scholarships and Awards

Several scholarships are available through the College of Engineering and Applied Sciences. These include, but are not limited to, scholarships through the Gillies Associates, Lakehead-Pipeline, Society of Manufacturing Engineers, H. H. Harris Foundation, Kalamazoo Antique Auto Restorers Club, and

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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. Bluman Memorial Award—presented to an outstanding student of mechanical engineering who has demonstrated interest and ability in liberal studies. This is in honor and recognition of the late Dr. Bluman who, during his tenure as Professor and Chairman of Mechanical Engineering, was an active supporter of liberal education for engineering students.
- 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.

CURRICULA

Aeronautical Engineering

Bachelor of Science in Engineering (Aeronautical)

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The educational objectives for the Aeronautical Engineering program are:

1. Graduates will be prepared for professional practice in aeronautical engineering.
2. Graduates will have completed a strong core of courses in basic sciences, engineering analysis, and experimental techniques for engineering applications.
3. Graduates will be prepared for formal post-baccalaureate education.
4. The program integrates design and synthesis experiences, culminating in a capstone engineering design course.
5. The program provides knowledge of aeronautical engineering by requiring students to take courses in aerodynamics, flight vehicle performance, stability and control, structures, propulsion, aircraft design and design electives.
6. The program encourages industrial collaboration to actively involve faculty and students with current engineering problems.
7. The program instills in students a commitment for life-long learning.
8. The program prepares students for professional and ethical responsibilities.
9. The program emphasizes effective communication.

(For up-to-date educational objectives and learning outcomes, see the Department’s web page at www.mae.wmich.edu)

ADMISSION

1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Aeronautical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ME 356 Machine Design (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 "D-" 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Chemistry Laboratory I</td>
<td>1</td>
</tr>
<tr>
<td>CS 106</td>
<td>BASIC for Engineers</td>
<td>1</td>
</tr>
<tr>
<td>IME 102</td>
<td>Technical Communication</td>
<td>3</td>
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<tr>
<td>AREA I</td>
<td>General Education*</td>
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Second Semester — 17 hours

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MATH 205</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Physics I Lab</td>
<td>1</td>
</tr>
<tr>
<td>AAE 261</td>
<td>Introduction to Aeronautical</td>
<td>3</td>
</tr>
<tr>
<td>AREA II</td>
<td>General Education*</td>
<td>3</td>
</tr>
<tr>
<td>AREA VIII</td>
<td>General Education</td>
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Third Semester — 18 hours

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 272</td>
<td>Vector/Mult. Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208</td>
<td>Physics II Lab</td>
<td>1</td>
</tr>
<tr>
<td>MATH 232</td>
<td>Thermodynamics I</td>
<td>3</td>
</tr>
<tr>
<td>ME 256</td>
<td>Statics</td>
<td>3</td>
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<tr>
<td>AREA III</td>
<td>General Education</td>
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</table>

Fourth Semester — 17 hours

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Algebra and Diff. Eq.</td>
<td>4</td>
</tr>
<tr>
<td>ME 258</td>
<td>Dynamics</td>
<td>3</td>
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<tr>
<td>PHYS 309</td>
<td>Introductory Modern Physics</td>
<td>3</td>
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<tr>
<td>or</td>
<td>CHEM 112</td>
<td>3</td>
</tr>
<tr>
<td>AAE 250</td>
<td>Aeronautical Materials</td>
<td>3</td>
</tr>
<tr>
<td>ECE 210</td>
<td>Circuit Analysis</td>
<td>4</td>
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Fifth Semester — 17 hours

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<th>Course Code</th>
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<tbody>
<tr>
<td>IME 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ME 257</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 356</td>
<td>Mechanism Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ME 362</td>
<td>Theory of Engineering</td>
<td>3</td>
</tr>
<tr>
<td>AAE 361</td>
<td>Flight Vehicle Aerodynamics</td>
<td>4</td>
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Sixth Semester — 16 hours

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<th>Course Code</th>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ME 335</td>
<td>Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>ME 360</td>
<td>Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME 365</td>
<td>Machine Design I</td>
<td>3</td>
</tr>
<tr>
<td>AAE 371</td>
<td>Fundamentals of Aerodynamics</td>
<td>3</td>
</tr>
<tr>
<td>AREA IV</td>
<td>General Education*</td>
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Seventh Semester — 18 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ME 431</td>
<td>Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME 470</td>
<td>Mech/Aero Project Planning</td>
<td>1</td>
</tr>
<tr>
<td>AAE 450</td>
<td>Flight Vehicle Performance</td>
<td>3</td>
</tr>
<tr>
<td>AAE 460</td>
<td>Aircraft Stability and Control</td>
<td>3</td>
</tr>
<tr>
<td>AAE 463</td>
<td>Aircraft Structural Design</td>
<td>4</td>
</tr>
<tr>
<td>AAE 466</td>
<td>Aero Propulsion</td>
<td>4</td>
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</table>

Eighth Semester — 12 hours

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<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.

1. Graduates will be prepared for professional practice in mechanical engineering.
2. Graduates will have completed a strong core of courses in basic sciences, engineering analysis, and experimental techniques for engineering applications.
3. Graduates will be prepared for formal post-baccalaureate education.
4. The program integrates design and synthesis experiences, culminating in a capstone engineering design course.
5. The program provides flexibility for students to choose a series of course electives from Thermodynamics, Advanced Design, Fluid Dynamics, Solid Dynamics, Solid Mechanics and Structures, and Dynamics, depending on their educational objectives.

6. The program encourages industrial collaboration to actively involve faculty and students with current engineering problems.

7. The program instills in students a commitment for life-long learning.

8. The program prepares students for professional and ethical responsibilities.

9. The program emphasizes effective communication.

(Final up-to-date educational objectives and learning outcomes, see the Department's web page at www.mae.wmich.edu)

**ADMISSION**

1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section.

2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Mechanical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ME 365 Machine Design I and 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/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 pre-requisite 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 131-134 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First</td>
<td>MATH 122 Calculus I</td>
<td>4</td>
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<tr>
<td></td>
<td>IME 142 Engineering Graphics</td>
<td>3</td>
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<tr>
<td></td>
<td>CHEM 110 General Chemistry I</td>
<td>3</td>
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<tr>
<td></td>
<td>CHEM 111 General Chemistry Laboratory I</td>
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<td></td>
<td>IME 102 Tech Communication</td>
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<td></td>
<td>AREA I General Education*</td>
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<tr>
<td>Second</td>
<td>MATH 123 Calculus II</td>
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<tr>
<td></td>
<td>PHYS 205 Mechanics and Heat</td>
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<tr>
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<td>PHYS 206 Mechanics and Heat Lab</td>
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<td></td>
<td>ME 220 Processes and Materials in Manufacturing</td>
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<td></td>
<td>ME 250 Materials Science</td>
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<td></td>
<td>CS 106 BASIC for Engineers</td>
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<tr>
<td>Third</td>
<td>MATH 272 Vector/Multivariate Calculus</td>
<td>4</td>
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<tr>
<td></td>
<td>PHYS 207 Electricity and Light</td>
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<td>PHYS 208 Electricity and Light Lab</td>
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<td></td>
<td>ME 233 Thermodynamics I</td>
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<tr>
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<td>ME 256 Statics</td>
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<tr>
<td></td>
<td>AREA II General Education*</td>
<td>3</td>
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<tr>
<td>Fourth</td>
<td>MATH 374 Introduction to Linear Algebra and Diff. Equations</td>
<td>4</td>
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<tr>
<td></td>
<td>PHYS 309 Introductory Modern Physics</td>
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<td>AND OR PHYS 310 Introductory Modern Physics Lab</td>
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<tr>
<td></td>
<td>CHEM 112 General Chemistry II</td>
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<tr>
<td></td>
<td>AND CHEM 113 General Chemistry Laboratory II</td>
<td>3</td>
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<tr>
<td></td>
<td>ME 257 Mechanics of Materials</td>
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<td>ME 258 Dynamics</td>
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<td></td>
<td>ECE 210 Circuit Analysis I</td>
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<tr>
<td>Fifth</td>
<td>MATH 356 Fluid Mechanics</td>
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<td>ME 358 Machine Design Analysis</td>
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<td></td>
<td>ME 362 Theory of Engineering Experimentation</td>
<td>3</td>
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<td></td>
<td>ME 365 Machine Design I</td>
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<tr>
<td></td>
<td>ECE 211 Machine Design I Circuits</td>
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<td>ME Group 1 Elective</td>
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<td>Sixth</td>
<td>MATH 360 Control Systems</td>
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<td>ME 335 Mechanical Engineering Laboratory</td>
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<td>ME Group 3 Elective</td>
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<td>ME 431 Heat Transfer</td>
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<tr>
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<td>AREA III General Education*</td>
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<tr>
<td>Seventh</td>
<td>MATH 490 Mechanical and Aeronautical Engineering</td>
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<td>ME Group 2 Elective</td>
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<td></td>
<td>ME 479 Project Planning</td>
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<td>ME Group 3 Elective</td>
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<tr>
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<td>ME Group 4 Elective</td>
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<td>AREA V General Education*</td>
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<tr>
<td>Eighth</td>
<td>MATH 575 Tribology—Principles and Applications</td>
<td>3</td>
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<tr>
<td></td>
<td>ME 467 Machine Design II</td>
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<td>ME 468 Engine Design*</td>
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<td></td>
<td>ME 553 Advanced Product Design*</td>
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<td></td>
<td>ME 573 Engineering Materials</td>
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<tr>
<td></td>
<td>AAE 469 Aircraft Design</td>
<td>3</td>
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</tbody>
</table>

*At least two of these courses must be at the 300-400 level.

**Group electives include the following:**

**Group 1 — Thermodynamics**

- ME 432 Thermodynamics II
- AAE 496 Aeronautical Propulsion Systems
- ME 467 Internal Combustion Engines II

**Group 2 — Advanced Design**

- ME 453 Machine Design III
- ME 439 Design of Thermal Systems*
- ME 469 Engine Design*
- AAE 469 Aircraft Design

**Group 3 — Elective Emphasis**

- ME 361 Flight Vehicle Aerodynamics
- ME 476 Fluid Mechanics and Structures
- ME 457 Internal Combustion Engines I
- ME 465 Vehicle Structural Design
- ME 550 Materials Science II
- ME 575 Tribology—Principles and Applications
- AAE 463 Aircraft Structural Design

**Dynamics**

- ME 459 Dynamics of Machinery
- ME 465 Vehicle Dynamics
- ME 461 Vehicle Design (L)
- ME 555 Intermediate Dynamics
- ME 558 Mechanical Vibrations
- ME 564 Engineering Noise Control (L)
- AAE 460 Aircraft Stability and Control

**Design**

- ME 433 Environmental Systems Design in Buildings*
- ME 439 Design of Thermal Systems (L)*
- ME 453 Machine Design II
- ME 468 Engine Design* (L)
- ME 553 Advanced Product Design*
- ME 573 Engineering Materials
- AAE 469 Aircraft Design

*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 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. Effects of environment on material properties. This course is cross-listed with ME 250.

**Prerequisites:** CHEM 110 and 111, 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
4 hrs.
A study of dynamics of inviscid, viscous, incompressible and compressible flow for airfoils and bodies. Thin airfoil theory and finite wing subsonic and supersonic flow regimes. Introduction to computational aerodynamics. Prerequisites: AAE 361; MATH 374; ME 258.

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)
3 hrs.
Analysis and design of in-flight experiments, excluding expansion of the aircraft's flight envelope. Includes microprocessor based data acquisition system and electronic sensor interfacing. Laboratory projects emphasize the pre-test, flight and post-flight phases of flight testing with an emphasis on safety of flight issues. Prerequisite: AAE 450 and AAE 460.

AAE 460 Aircraft Stability and Control
3 hrs.
Analysis and synthesis of aircraft stability and control. Design of the aircraft control surfaces for different configurations to provide the required stability and control power. Manual machine interaction and effect on control surface sizing. Prerequisite: AAE 371.

AAE 463 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.

AAE 466 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 356 or AAE 371.

AAE 469 Aircraft Design (3–0)
3 hrs.
Conceptual and preliminary design of aircraft emphasizing performance, stability and control, and total vehicle efficiency. Prerequisite: AAE 460 and AAE 450.

AAE 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.

AAE 499 Independent Study (1–6)
1–6 hrs.
An independent study assignment available only by special arrangement with an instructor and approval 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 (2–2)
3 hrs.
First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers, and ceramics. Effects of environment on material properties. This course is cross-listed with AAE 250.

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 buckling. (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.

ME 257 Mechanics of Materials (4–0)
4 hrs.
Compression, tension, shear, torsion, and bending in structural members including stress distribution, deflection, buckling, and fatigue on engineering materials. Design and selection of simple machine members and a knowledge of design codes and standards are applied. Prerequisite: ME 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; CS 106.

ME 335 Instrumentation (2–3)
3 hrs.

ME 356 Fluid Mechanics (3–0)
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 channel flow. (Credit may not be earned in both ME 356 and IME 384.) Prerequisites: ME 258, 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 258.

ME 360 Control Systems (3–0)
3 hrs.

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: IME 142, ME 220 or AAE 261; ME 250 or AAE 250; ME 257, ME 358 (ME 358 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. Prerequisite: 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 (3–0)
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 or CHEG 320, ME 356.
combustion engines to meet specific mission requirements. Optimization of the design using mechanics, thermodynamics and fluid mechanics. Application of the knowledge of air-fuel mixtures. Combustion chamber design. Prerequisites: ME 363 or CHEG 311 may be taken concurrently.

ME 433 Environmental Systems Design in Buildings (3–0) 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 or CHEG 312; ME 432.

ME 459 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. Prerequisites: ME 335 or (CHEG 281 and ME 261), ME 431 or CHEG 312; ME 432.

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 456 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 aerodynamic 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 or AAE 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. Prerequisite: ME 355.

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 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 368, 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, research, 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 AAE 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 aspect of mechanical engineering not included in other course offerings. May be repeated for credit with a different topic up to six credits. Prerequisite: Consent of department.

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 530 Theoretical and Computational Fluid Mechanics (3–0) 3 hrs. The theory and numerical implementation of ideal flow, viscous effects, and exact solutions of Navier-Stokes equations. Special emphasis will be on planning methods, conformal mapping, and singular distributions for flows around two- and three-dimensional bodies. Familiarity with VMS and some FORTRAN experience are required. Prerequisites: ME 356 and consent of instructor.

ME 540 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. Prerequisite: ME 360.

ME 545 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 550 Materials Science II (3–0) 3 hrs. Advanced course in both metallic and non-metallic engineering materials, including commercial alloy systems, polymers, elastomers, composite materials, and ceramics. Mechanical and physical properties useful to design are related to production, atomic structure, and manufacturing processes. Includes failure mechanisms of metals, ceramics, polymers, and composites. Prerequisites: ME 220, ME 232, ME 250 or AAE 250, ME 257.

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 556 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 559 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 value and 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 (2–3) 3 hrs.

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.
Basic equations of compressible flow, isentropic relationships, and normal and oblique shock, Prandtl-Meyer expansion, Fanno Line, and Rayleigh Line flow. Applications to nozzles, diffusers, and supersonic wind tunnels. Linearized flows, method of characteristics. 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 or AAE 250 and ME 365 or MSE 457.

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 356, ME 365.

ME 576 Principles of Heat Exchanger Design (3–0) 3 hrs.
Overall heat transfer coefficients, UA-LMTD method, E-NTU method, counterflow and cross flow heat exchangers, heat transfer enhancement, phase-change heat exchangers, fouling phenomena, heat exchanger systems, and optimization of heat exchangers. 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 servo 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 discipline. This course is cross-listed as ECE 586. Prerequisite: ECE 580 or ME 580.

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 ENGINEERING, CHEMICAL ENGINEERING, AND IMAGING

Academic Advising
Students should contact the Paper Engineering, Chemical Engineering, and Imaging 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 Engineering, Chemical Engineering, and Imaging is Dr. Raja Aravamuthan. The academic advisor for Chemical Engineering is Dr. Peter Parker. Apointments can be made by calling the Engineering Advising Office at (269) 276-3270.

Work Experience
Industrial experience is encouraged through employment by paper, imaging, 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. Students graduating from Paper Science, Paper Engineering, Chemical Engineering, or with a Paper or Chemical Engineering minor, must earn a grade of "C" or better in all CHEG and IMAG and PAPP prefixed prerequisite courses or their equivalent.
CURRICULA—MAJORS
Chemical Engineering
Bachelor of Science in Engineering (Chemical)
The educational objectives for the Chemical Engineering program are:
1. Graduates of the Chemical Engineering program will be ready, willing, and able to
accept expected job responsibilities upon employment.
2. Graduates of the Chemical Engineering program will perform well, demonstrating
the ability to use critical thinking, scientific inquiry, and effective verbal and
written communication skills.
3. Graduates of the Chemical Engineering program will develop an appreciation for
the role of Chemical Engineering in society.
4. Graduates of the Chemical Engineering program will stay current with new
technologies and chemical engineering practices.

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/IMAG/PAPR prefixed courses
submitted for graduation.
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 options. One option must
be selected and taken in entirety. The courses below are examples leading to
graduation in eight semesters, beginning in fall. However, depending on the individual's curricular and scheduling needs, the
courses can be taken 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 4
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 296 Material and Energy Balance 4
CHEM 225 Quantitative Analysis 3
CHEM 236 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
Approved Elective** 4
AREA V General Education* 3

Sixth Semester — 16 hours
CHEG 312 Unit Operations II 3
CHEG 330 Mass Transfer 3
CHEG 382 Computer Modeling and Simulation—Fluid Flow 1
CHEM 375 Organic Chemistry Laboratory 1
CHEM 376 Organic Chemistry Laboratory 1
AREA II General Education 3
AREA VII General Education 2

Seventh Semester — 17 hours
CHEG 410 Chemical Reaction Engineering 3
CHEG 450 Plant 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.

Energy Management Option
17 Hours Minimum

Required Courses:
PAPR 484 Process Control II 4
CHEG 310 Work Experience 1–2
CHEG 444 Energy Management Engineering 3

Elect the balance of the 17 hours from the following:
ECE 210 Circuit Analysis 4
ECE 211 Machines and Electronic Controls 3
PAPR 451 Air Pollution Control 3
ME 432 Thermodynamics II 3
ME 433 Environmental Systems Design in Buildings 3
ME 439 Design of Thermal Systems 3
IME 142 Engineering Graphics 3

Inks and Imaging Option
16–17 Hours

IMAG 150 Fundamentals of Graphic Arts 3
IMAG 151 Imaging and Digital Imaging 3
PAPP 103 Printing Processes 2
IMAG 157 Imaging Systems 3
IMAG 250 Lithographic Technology 3
IMAG 251 Design and Electronic Publishing 3
IMAG 257 Computer Graphics 3
CHEG 310 Industrial Experience 1–2
IMAG 357 Digital Color Imaging Processes 3
IMAG 358 Flexographic Presswork 4
IMAG 359 Gravure Presswork 3
IMAG 415 Inks and Imaging 3
IMAG 416 Imaging Materials and Processes 4
**Life Sciences Option**

Choose at least 17 hours from the following, including at least one 400-level course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOS 150</td>
<td>Molecular and Cellular Biology</td>
<td>4</td>
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<tr>
<td>BIOS 151</td>
<td>Organismal Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 211</td>
<td>Human Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 232</td>
<td>Microbiology and Infectious Diseases</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 240</td>
<td>Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 250</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 420</td>
<td>Human Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 437</td>
<td>Histology</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 497</td>
<td>Senior Seminar offered as Microbial Ecology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 355</td>
<td>Introduction to Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEG 310</td>
<td>Work Experience/Co-op</td>
<td>1-2</td>
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**Pollution Prevention Option**

Choose at least 17 hours from the following:

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BIOS 105</td>
<td>Environmental Biology</td>
<td>3</td>
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<tr>
<td>GEOL 144</td>
<td>Environmental Earth Science</td>
<td>3</td>
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<tr>
<td>CHEM 525</td>
<td>Techniques in Water Analysis</td>
<td>2</td>
</tr>
<tr>
<td>PAPR 348</td>
<td>Water Quality and Regulation</td>
<td>2</td>
</tr>
<tr>
<td>PAPR 349</td>
<td>Water Quality and Regulation</td>
<td>2</td>
</tr>
<tr>
<td>PAPR 353</td>
<td>Waste Water Treatment</td>
<td>4</td>
</tr>
<tr>
<td>PAPR 450</td>
<td>Solid Waste Treatment</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 451</td>
<td>Air Pollution Control</td>
<td>3</td>
</tr>
<tr>
<td>CHEG 310</td>
<td>Work Experience/Co-op</td>
<td>1-2</td>
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**Pulp and Paper Option**

17 Hours Minimum

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<th>Hours</th>
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<tr>
<td>PAPR 203</td>
<td>Pulping and Bleaching</td>
<td>4</td>
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<tr>
<td>PAPR 204</td>
<td>Stock Preparation and Papermaking</td>
<td>4</td>
</tr>
<tr>
<td>PAPR 305</td>
<td>Paper Physics Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>CHEG 310</td>
<td>Industrial Experience</td>
<td>1-2</td>
</tr>
<tr>
<td>PAPR 333</td>
<td>Carbohydrate and Lignin Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 341</td>
<td>Converting Processes</td>
<td>2</td>
</tr>
<tr>
<td>PAPR 342</td>
<td>Converting</td>
<td>4</td>
</tr>
<tr>
<td>PAPR 430</td>
<td>Surface and Wet End Science</td>
<td>3</td>
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</table>

**Imaging**

**Bachelor of Science**

Candidates for the Bachelor of Science in Imaging 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.

**BACCAULAUREATE WRITING REQUIREMENT**

Students who have chosen the Imaging major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 485 Research Design.

**Management Option**

**First Semester — 16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>IMAG 150</td>
<td>Fundamentals of Graphic Arts</td>
<td>3</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Finite Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>General Chemistry II</td>
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<tr>
<td>IME 102</td>
<td>Technical Communication</td>
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**Second Semester — 15 hours**

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<tr>
<td>PAPR 100</td>
<td>Introduction to Pulping and Papermaking</td>
<td>3</td>
</tr>
<tr>
<td>IMAG 157</td>
<td>Imaging Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 216</td>
<td>Business Statistics</td>
<td>3</td>
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<tr>
<td>AREA I General Education*</td>
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**Third Semester — 16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>IMAG 250</td>
<td>Lithographic Technology</td>
<td>3</td>
</tr>
<tr>
<td>IMAG 251</td>
<td>Design and Electronic Publishing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 200</td>
<td>Calculus with Applications</td>
<td>4</td>
</tr>
<tr>
<td>IME 150</td>
<td>Introduction to Manufacturing</td>
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<td>ECON 202</td>
<td>Principles of Macroeconomics</td>
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**Fourth Semester — 17 hours**

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<tr>
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<tbody>
<tr>
<td>PAPR 160</td>
<td>Introduction to Industrial Environmental Control</td>
<td>3</td>
</tr>
<tr>
<td>IMAG 215</td>
<td>Introduction to Ink</td>
<td>3</td>
</tr>
<tr>
<td>IMAG 257</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ACTY 210</td>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>IME 305</td>
<td>Work Analysis</td>
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<tr>
<td>AREA VIII General Education</td>
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**Fifth Semester — 16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>IMAG 357</td>
<td>Digital Color Imaging Processes</td>
<td>3</td>
</tr>
<tr>
<td>IMAG 359</td>
<td>Gravure Presswork</td>
<td>4</td>
</tr>
<tr>
<td>MGMT 250</td>
<td>Organizational Behavior</td>
<td>3</td>
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<tr>
<td>IME 326</td>
<td>Operations Planning and Control</td>
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**Sixth Semester — 16 hours**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>IMAG 358</td>
<td>Flexographic Presswork</td>
<td>4</td>
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<tr>
<td>IME 326</td>
<td>Quality Assurance and Principles</td>
<td>3</td>
</tr>
<tr>
<td>IME 402</td>
<td>Supervision of Industrial Operations</td>
<td>3</td>
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<tr>
<td>AREA III General Education*</td>
<td>3</td>
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<td>Approved Elective**</td>
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**Seventh Semester — 15 hours**

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<tbody>
<tr>
<td>PAPR 310</td>
<td>Work Experience/Coop</td>
<td>1</td>
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<tr>
<td>IMAG 462</td>
<td>Print Estimating</td>
<td>4</td>
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<tr>
<td>IMAG 463</td>
<td>Finishing/Binding</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 408</td>
<td>Research Design</td>
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<tr>
<td>PAPR 558</td>
<td>Advanced Presswork</td>
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**Eighth Semester — 16 hours**

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<tr>
<td>PAPR 440</td>
<td>Seminar</td>
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<td>IMAG 454</td>
<td>Advanced Lithographic Presswork</td>
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<tr>
<td>IMAG 457</td>
<td>Advanced Digital Imaging</td>
<td>3</td>
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<tr>
<td>IMAG 466</td>
<td>Systems in Printing Management</td>
<td>3</td>
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<td>MGMT 352</td>
<td>Human Resource Management</td>
<td>3</td>
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<tr>
<td>AREA IV General Education*</td>
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**Marketing Option**

**First Semester — 16 hours**

<table>
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<tbody>
<tr>
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<td>Finite Mathematics</td>
<td>3</td>
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<tr>
<td>CHEM 111</td>
<td>General Chemistry I</td>
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<tr>
<td>CHEM 316</td>
<td>Ethics in Engineering and Technology</td>
<td>3</td>
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**Second Semester — 15 hours**

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<tr>
<td>PAPR 100</td>
<td>Introduction to Pulping and Papermaking</td>
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<td>ECON 201</td>
<td>Principles of Microeconomics</td>
<td>3</td>
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<td>IMAG 157</td>
<td>Imaging Systems</td>
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<td>STAT 216</td>
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**Third Semester — 16 hours**

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<tbody>
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<td>Lithographic Technology</td>
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**Fourth Semester — 14 hours**

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<td>PAPR 160</td>
<td>Introduction to Industrial Environmental Control</td>
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<td>IMAG 215</td>
<td>Introduction to Ink</td>
<td>3</td>
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<tr>
<td>IMAG 257</td>
<td>Computer Graphics</td>
<td>3</td>
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<tr>
<td>ACTY 210</td>
<td>Principles of Accounting</td>
<td>3</td>
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<tr>
<td>IME 305</td>
<td>Work Analysis</td>
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**Fifth Semester — 16 hours**

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<tbody>
<tr>
<td>IMAG 357</td>
<td>Digital Color Imaging Processes</td>
<td>3</td>
</tr>
<tr>
<td>IMAG 359</td>
<td>Gravure Presswork</td>
<td>4</td>
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<tr>
<td>MKTG 371</td>
<td>Marketing Research</td>
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<td>MKTG 376</td>
<td>Sales Administration</td>
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**Sixth Semester — 17 hours**

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<tbody>
<tr>
<td>IMAG 358</td>
<td>Flexographic Presswork</td>
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<tr>
<td>MKTG 372</td>
<td>Purchasing Management</td>
<td>3</td>
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<tr>
<td>MKTG 374</td>
<td>Advertising</td>
<td>3</td>
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**Seventh Semester — 17 hours**

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<td>Work Experience/Coop</td>
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<td>IMAG 462</td>
<td>Print Estimating</td>
<td>4</td>
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<td>IMAG 463</td>
<td>Finishing/Binding</td>
<td>3</td>
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<td>PAPR 485</td>
<td>Research Design</td>
<td>3</td>
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<td>MKTG 484</td>
<td>Marketing Logistics</td>
<td>3</td>
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**Eighth Semester — 16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>PAPR 440</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>IMAG 454</td>
<td>Advanced Lithographic Presswork</td>
<td>3</td>
</tr>
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<td>IMAG 457</td>
<td>Advanced Digital Imaging</td>
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<tr>
<td>IMAG 466</td>
<td>Systems in Printing Management</td>
<td>3</td>
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<tr>
<td>MGMT 352</td>
<td>Human Resource Management</td>
<td>3</td>
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<tr>
<td>AREA IV General Education*</td>
<td>3</td>
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</tbody>
</table>

**CHEM 370/371** Introduction to Organic Chemistry/Lab | 4 |
IMTG 470 Business Marketing Strategy 3

AREA IV General Education* 3

* 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 112/113 General Chemistry II/Lab 3/1

CHEM 370/371 Introduction to Organic Chemistry/Lab 3/1

PAPR 466 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

FCL 310 Introduction to Financial Markets 3

ACTY 211 Principles of Accounting II 3

COM 104 Public Speaking 3

PHIL 316 Ethics in Engineering and Technology 3

Paper Engineering

Bachelor of Science in Engineering (Paper)

The educational objectives for the Paper Engineering program are:

1. Enable a student to become a job-ready graduate by acquiring the technical skills, knowledge and experience required of a process engineer working in the pulp, paper, and related industry.

2. Enable a student to develop organizational, leadership, teamwork, and communication skills.

3. Promote the development of personal attributes of a thirst for knowledge and discovery, global perspective, and moral and ethical responsibility to help the graduates become responsible members of society.

(For up-to-date educational objectives and learning outcomes, see the Department's web page at www.wmich.edu/ppse)

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 465 Research Design.

REQUIREMENTS

Candidates for the Bachelor of Science in Engineering (Paper) must satisfy the following requirements in addition to those required by Western Michigan University:

1. 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 complete a "C" or better grade in all PAPR/IME/PAPR prefixed courses submitted for graduation.

3. No more than two grades of "D" or "DC" may be presented for graduation.

4. At least ten of the General Education courses must be at the 300–400 level.

5. Students must complete the following program requirements by the 136 semester credit hours, which includes the courses in one of the following elective sequences: Paper Engineering/Process 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 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 Manufacturing 3

CHEM 110 General Chemistry I 3

CHEM 111 General Chemistry Laboratory I 1

MATH 122 Calculus I 4

CS 106 BASIC for Engineers 1

AREA I General Education 3

Second Semester — 16 hours

PAPR 103 Printing Processes 2

CHEM 112 General Chemistry II 3

CHEM 113 General Chemistry Laboratory II 1

MATH 123 Calculus II 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 3

CHEM 376 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 Multivariate Equations 4

PHYS 207 Electricity and Light 4

AREA IV General Education 4

Fifth Semester — 17 hours

PAPR 305 Paper Physics Fundamentals 4

CHEG 296 Material and Energy Balance 4

PAPR 333 Carbohydrate and Lignin Chemistry 3

AREA V General Education (ECON 201) 3

ELECTIVE 1

Sixth Semester — 17 hours

CHEG 312 Unit Operations in Chemical Engineering II 3

PAPR 347 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 1

CHEG 483 Process Control 4

PAPR 485 Research Design 3

CHEM 430 Physical Chemistry 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 3

PAPR 484 Process Control II 4

PAPR 496 Independent Research 3

CHEG 381 Computer Modeling and Simulation—Chemical Processes 4

STAT 567 Statistical Design and Analysis 4

MAE 253 Statistics and Mechanics of Materials 4

ECE 210 Circuit Analysis 4

IME 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 Manufacturing 3

CHEM 110 General Chemistry I 3

CHEM 111 General Chemistry Laboratory I 1

MATH 122 Calculus I 4

CS 106 BASIC for Engineers 1

AREA I General Education 3

Second Semester — 16 hours

PAPR 103 Printing Processes 2

CHEM 112 General Chemistry II 3

CHEM 113 General Chemistry Laboratory II 1

MATH 123 Calculus II 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 3

CHEM 376 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 Multivariate Equations 4

PHYS 207 Electricity and Light 4

AREA IV General Education 4

Fifth Semester — 17 hours

PAPR 305 Paper Physics Fundamentals 4

CHEG 296 Material and Energy Balance 4

PAPR 333 Carbohydrate and Lignin Chemistry 3

AREA V General Education (ECON 201) 3

ELECTIVE 1

Sixth Semester — 17 hours

CHEG 312 Unit Operations in Chemical Engineering II 3

PAPR 347 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 1

CHEG 483 Process Control 4

PAPR 485 Research Design 3

CHEM 430 Physical Chemistry 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 3

PAPR 484 Process Control II 4

PAPR 496 Independent Research 3

CHEG 381 Computer Modeling and Simulation—Chemical Processes 4

STAT 567 Statistical Design and Analysis 4

MAE 253 Statistics and Mechanics of Materials 4

ECE 210 Circuit Analysis 4

IME 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.
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 IV General Education 4

Fifth Semester — 17 hours
PAPR 305 Paper Physics Fundamentals 4
CHEG 296 Material and Energy Balance 4
PAPR 333 Carbohydrate and Lignin Chemistry 3
AREA V General Education (ECON 201) 3
*ELECTIVE 4

Sixth Semester — 17 hours
CHEM 312 Unit Operations in Chemical Engineering 3
PAPR 342 Coating 4
PAPR 430 Surface and Wet End Science 3
MATH 374 Introduction to Linear Algebra and Differential Equations 4

Seventh Semester — 16 hours
PAPR 103 Printing Processes 2
CHEM 112 General Chemistry II 3
CHEM 113 General Chemistry Laboratory II 1
CHEG 311 Unit Operations in Chemical Engineering I 3
CHEG 296 Material and Energy Balance 4
CHEM 430 Physical Chemistry I 3

Eighth Semester — 15 hours
PAPR 440 Seminar 1
CHEM 112 General Chemistry II 3
CHEM 113 General Chemistry Laboratory II 1
MATH 122 Calculus I 4
CS 106 Introductory Visual BASIC 4
AREA VIII General Education 2
AREA I General Education 3

CURRICULA—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 296, 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 20 semester hours of departmental courses: IMAG 150, 157, 250, 251, and at least six hours elected from among IMAG 215, 257, 314, 357, 358, 359, 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 296, CHEG 311, CHEG 312, CHEG 330, and CHEG 410. In addition, students would complete CHEM 112/113 and CHEG 430 as prerequisites for CHEG 410. The minor is most suitable for other engineering graduates, as well as physics and chemistry graduates, as they will have most of the prerequisites for these courses.

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, and design principles 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 technologies and processes will be stressed. Prerequisites: 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 295 Material and Energy Balance (3–3) 4 hrs.
Fundamentals of chemical engineering dealing with behavior of gases, thermophysical properties of solids, liquids and gases, thermochernistry and associated problem solving. Emphasis is on material and energy balances. The laboratory session will be included as a problem solving workshop. Prerequisite: CHEM 110 and 111, MATH 123, PHYS 205.

CHEG 300 Work Experience/Coop 1–2 hrs.
Full-time employment in chemical process industries that provide first-hand experience in application of chemical engineering principles. A written report at the end of the semester is required. Prerequisite: 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, fundamental mechanisms, 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 296.

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 296.

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. Prerequisites: CHEM 112 and 113, CHEG 296.

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 setup, data inputting and optimization techniques. Prerequisite: CHEG 296.

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 equations 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 320.

CHEG 420 Separation Processes (2–3) 3 hrs.

CHEG 444 Energy Management Engineering 3 hrs.
Energy systems including combustion processes and steam generation and distribution. Practical issues and equipment used in the energy industry. Energy efficiency, economic operation, and reduction of emissions. Prerequisites: (CHEG 312 and 320) or (ME 431 and 432).

CHEG 450 Plant Economics and Project Design 3 hrs.
Energy systems including combustion processes and steam generation and distribution. Practical issues and equipment used in the energy industry. Energy efficiency, economic operation, and reduction of emissions. Prerequisites: (CHEG 312 and 320) or (ME 431 and 432).

CHEG 483 Process Control I (1–3) 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 (PC and RL) and circuit laws. Prerequisites: PHYS 207, 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 report, and oral presentation. This course is approved as a writing-intensive course which may fulfill the baccalaureate-level writing requirement of the student's curriculum. Prerequisite: 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.

Imaging Courses (IMAG)

IMAG 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. A comparison of all printing methods. Lithography and screen process printing.

IMAG 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 spectral instrumentation and image analysis. Prerequisite: IMAG 150.

IMAG 215 Introduction to Ink (2–3) 3 hrs.
Formulation, manufacturing, quality evaluation, and waste disposal of ink pigments. Relationship between the chemical and physical properties of inks and their printing quality. Concepts of rheology and surface energy. Prerequisites: IMAG 150, CHEM 110 and 111.

IMAG 250 Lithographic Technology (2–3) 3 hrs.
Experience in basic lithographic offset principles, press operations, mechanical adjustments, simple chemical reactions, as well as the advantages and disadvantages of lithography. Multi-color processes, inks, and papers used in lithographic printing. Prerequisite: IMAG 150.

IMAG 251 Design and Electronic Publishing (2–3) 3 hrs.
Prepress preparation of text and graphics for printing. The evolution of text and graphics 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: IMAG 150, BIS 102 or CS 105 or CS 106.
Computer graphics from the point of view of hardware and software. The representation, display, and manipulation of graphical objects. The relationships of displayed graphics to printed graphics, both direct digital and conventional. Prerequisites: IMAG 157, 251.

IMAG 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: IMAG 257.

IMAG 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: IMAG 150, CHEM 110 and 111.

IMAG 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: IMAG 150, CHEM 110 and 111.

IMAG 416 Imaging Materials and Processes (3–3) 4 hrs.
A course designed to provide science and engineering majors with a basic understanding of formation, manufacture, and testing of different printing inks. Ink constituents and their properties, formulations for specific end use applications, special purpose inks, curing systems, and environmental issues will be some of the topics covered in the course. Prerequisites: IMAG 150, CHEM 375, 376, and 430, and MATH 272.

Paper Science and Paper 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 hour). The following will be offered as honors courses for interested students: CHEG 261, 296, 311, 312, 457 and PAPR 430, 460, 496.

PAPR 100 Introduction to Pulp and Paper Manufacture (2–3) 3 hrs.
A lecture-laboratory consideration of the fundamentals of paper manufacturing processes and equipment. Some time will also be spent on coating, printing and other uses of paper. The student will acquire a basic understanding of the nature and scope of the paper industry. Prerequisites: 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: printability, performance factors of substrates, and different types of printing inks. Prerequisite: PAPR 100 or CHEG 101.

PAPR 180 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 using efficient management methods and regulations. The topics are covered in concert with public health, ethical, social, legal and economic concerns.

PAPR 203 Pulpbing 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. Prerequisites: PAPR 100 or CHEG 101; CHEM 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, fourdrini 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. Prerequisites: PAPR 203.

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. Basic of paper testing and reclaimed fibers are also studied. The laboratory consists of fiber identification and a papermachine trial.

PAPR 310 Work Experience / Co-op 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 papers in both the liquid state and the solid state (after application). It includes the measurement of surface energy, surface tension, contact angle and wetting, rheological properties, densitometry, colorimetry, opacity, image analysis, and microscopy. Prerequisites: PAPR 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 lignin 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 packaging materials will be covered. Prerequisite: PAPR 204.

PAPR 342 Coating (3–3) 4 hrs.
A lecture-lab course dealing with the fundamentals of pigment and functional coatings 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 305.

PAPR 346 Water Quality and Regulations (2–0) 2 hrs.
Physical, chemical and biological characteristics of water. Hydrology, governmental regulations, 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 adults.) 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 wastewater treatment. Physical, physicochemical, and biological treatments are considered. Prerequisites: CHEG 296, PAPR 345, PAPR 349.

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 staff 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 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:
The mission of the College of Fine Arts is to provide scholarly activity, creative experiences and research that inform and support 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 enriches 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 engender 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.

The main goal of the School of Art is to provide education in the visual arts to the students of Western Michigan University. An innovative foundation program integrates traditional skills with recent computer technologies; while rigorous upper division coursework allows the student to specialize in one or more media. The faculty fosters the technical skills, critical thinking, and creative freedom necessary to prepare students for careers in the competitive fields of studio art, graphic design, art education, and art history. Through our programs we also provide visual arts education to the wider university population in an effort to enhance art appreciation and visual literacy.

The School of Art also acts as a regional resource, working to advance the arts and their roles in our community. We provide facilities and instruction for special programs in the public school system, K-12. Through the exhibitions in our galleries, a visiting artists and scholars program, and a campus wide sculpture tour, we provide the community access to local, national, and international artists and scholars.

As artists and scholars ourselves, we also exhibit and publish our creative work and research. Through these activities we not only advance our respective fields in the visual arts, but we are better equipped to mentor our students in a world of constantly changing methodologies, technologies, and expectations for art.

Accreditation
Western Michigan University is an accredited member of the National Association of Schools of Art and Design and subscribes to the recommendations of this organization.

Admission
Only the Office of Admissions 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.
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 Education will satisfy the Baccalaureate Writing Requirement by successfully completing ES/ED 395 School and Society.

**Computer Usage**
The School of Art utilizes computers in virtually all aspects of the visual arts. No major 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 18 slides of their art work before receiving the grade for their graduation presentation.

**Grading**
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

**Programs**
The School 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 History, Bachelor of Arts with a major in Graphic Design, Bachelor of Arts with a major in Art History, Bachelor of Arts with a major in Art History. 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 18 slides of their art work before receiving the grade for their graduation presentation.

**Advising**
Transfer Credit
Transfer credit may be utilized to fulfill no more than half of the number of credit hours required for the student's 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 completion of a 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 a course you feel would fulfill a required art course, or for any course needed to fulfill a prerequisite for a course you wish to take, you must present a portfolio for consideration. Based on the results of this portfolio review, the course in question will either receive a direct course equivalency or remain as 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: School of Art. Art History majors who have completed or are enrolled in 12 hours of Art History courses at the 300- or 400-level, or at the 500-level with permission of instructor, are eligible to apply for the elective requirement in art history.

At least two additional Art History courses at the 300- or 400-level will be required. Three (3) hours of non-Western Art History may be applied to the elective requirement in certain emphases, with advisor approval.

**Graduation Presentation**
Select one from:

- **ART 490** Graduation Presentation and Seminar—Painting
- **ART 491** Graduation Presentation and Seminar—Sculpture
- **ART 493** Graduation Presentation and Seminar—Photography
- **ART 494** Graduation Presentation and Seminar—Printmaking
- **ART 496** Graduation Presentation and Seminar—Ceramics

**Graphic Design Major—Bachelor of Fine Arts**

This degree is designed for qualified students who intend to become professional graphic designers or pursue graduate study in graphic design. Art majors must make specific application for B.F.A. candidacy with a major in graphic design to a departmental committee of graphic design faculty. Courses in the program are sequential beginning in the fall semester of each year and will take a minimum of three years to complete after admission.

Application requires a portfolio review, personal interview, submission of an unofficial transcript, and completion of application forms. Applications and deadlines may be obtained from the advising office. Reviews are held in the spring semester for students currently in their junior fall semester. Students must have completed at least 20 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 the 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 School of Art and the College of Fine Arts must be satisfied. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows. 85 hours

**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 will be required. Three (3) hours of non-Western Art History may be applied to the elective requirement in certain emphases, with advisor approval.

**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-Western Art History may be applied to the elective requirement in certain emphases, with advisor approval.

**Graduation Presentation**

Select one from:

- **ART 490** Graduation Presentation and Seminar—Painting
- **ART 491** Graduation Presentation and Seminar—Sculpture
- **ART 493** Graduation Presentation and Seminar—Photography
- **ART 494** Graduation Presentation and Seminar—Printmaking
- **ART 496** Graduation Presentation and Seminar—Ceramics

This degree is designed for qualified students who intend to become professional graphic designers or pursue graduate study in graphic design. Art majors must make specific application for B.F.A. candidacy with a major in graphic design to a departmental committee of graphic design faculty. Courses in the program are sequential beginning in the fall semester of each year and will take a minimum of three years to complete after admission.

Application requires a portfolio review, personal interview, submission of an unofficial transcript, and completion of application forms. Applications and deadlines may be obtained from the advising office. Reviews are held in the spring semester for students currently in their junior fall semester. Students must have completed at least 20 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 the 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 School of Art and the College of Fine Arts must be satisfied. Eighty-five hours in art satisfy the major requirements of this curriculum and are distributed as follows.
ART 105 Drawing Studio 3
ART 107 Form and Surface 3
ART 108 Form and Space 3

GRAPHIC DESIGN COURSES ............ 43
ART 251 Typography I .................. 3
ART 250 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 .................. 3
ART 570 Intern I .................. 3
ART 571 Intern II .................. 6

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 student who wants 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 to 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 should be determined in consultation with a faculty advisor within the studio area of emphasis. Three (3) hours of non-Western Art History may be applied to the elective requirement.

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 America, and Western Art ranging from prehistoric to contemporary. The faculty combines expertise to ensure that students are broadly educated in a variety of Historical methods, including a traditional formalist approach, as well as more recent post-modern and post-colonial theories. The program, while housed in the School of Art, is interdisciplinary in nature and requires or encourages complementary course work in History, Anthropology, Languages, and other areas. Students receive a variety of classroom-related experiences, as well as opportunities for internships and study abroad.

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
or
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 1900-1945 .................. 3
ART 390 20th-Century Art 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 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)
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)
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

ELECTIVES
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 from 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, anthropology 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 can also be applied to the requirement. Students may test out of this requirement by placement in the 200-level or above on a Foreign Language Proficiency Examination. The foreign language requirement credits are counted under Proficiency 4 of the General Education requirements.

Art Education Major—Bachelor of Arts

64–65 credit hours

Procedures for Admission to Art Education Major

Students who wish to declare an Art Education Major are required to apply before registering for ART 252. Application includes a portfolio review, letter of intent, and other requirements, including an overall gpa of 2.5. Students should complete this process the semester before they plan to take this class. For complete information available in the Art Advising Office.

Program Requirements

This program is intended to develop artist-teachers certified to teach Art at the elementary and secondary levels, and who will be prepared to continue their studies at the graduate level. The requirements of the secondary curriculum of the College of Education must be satisfied. Sixty to sixty-five credit hours in art satisfy the major/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

200-LEVEL REQUIREMENT ............ 15
ART 210 Life Drawing .................. 3
ART 230 Ceramics .................. 3
ART 238 Jewelry and Metalsmithing or other related courses .................. 3
ART 231 Sculpture .................. 3
ART 240 Painting I .................. 3
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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 104</td>
<td>Object Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART 105</td>
<td>Drawing Studio</td>
<td>3</td>
</tr>
<tr>
<td>ART 107</td>
<td>Form and Surface</td>
<td>3</td>
</tr>
<tr>
<td>ART 108</td>
<td>Form and Space</td>
<td>3</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 220</td>
<td>History of Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 221</td>
<td>History of Art</td>
<td>3</td>
</tr>
</tbody>
</table>

**ART HISTORY ELECTIVES**

**CHOOSE ONE NON-WESTERN ART HISTORY ELECTIVE FROM AMONG**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 222</td>
<td>Art of Africa, Oceania, and the Americas</td>
<td>3</td>
</tr>
<tr>
<td>ART 223</td>
<td>Introduction to Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 321</td>
<td>Topics in Art History (with a non-Western topic)</td>
<td>3</td>
</tr>
<tr>
<td>ART 363</td>
<td>Native American Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 364</td>
<td>African Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 365</td>
<td>Chinese Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 366</td>
<td>Japanese Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 367</td>
<td>Arts of India</td>
<td>3</td>
</tr>
</tbody>
</table>

**CHOOSE THREE ART HISTORY ELECTIVES FROM AMONG THE FOLLOWING; ONE COURSE MUST BE AT THE 400- OR 500-LEVEL**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 321</td>
<td>Topics in Art History</td>
<td>3</td>
</tr>
<tr>
<td>ART 322</td>
<td>Introduction to Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 323</td>
<td>Topics in Art History</td>
<td>3</td>
</tr>
<tr>
<td>ART 381</td>
<td>Greek and Roman Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 383</td>
<td>Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 385</td>
<td>Renaissance Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 386</td>
<td>Baroque Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 388</td>
<td>Nineteenth Century European and American Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 389</td>
<td>European and American Art</td>
<td>1900-1945</td>
</tr>
<tr>
<td>ART 390</td>
<td>Twentieth-Century Art</td>
<td>1945-present</td>
</tr>
<tr>
<td>ART 391</td>
<td>Women in Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 392</td>
<td>Twentieth-Century Design</td>
<td>3</td>
</tr>
<tr>
<td>HIST 315</td>
<td>Popular Art and Architecture in America</td>
<td>3</td>
</tr>
<tr>
<td>ART 435</td>
<td>Art of the Book</td>
<td>3</td>
</tr>
<tr>
<td>ART 436</td>
<td>Contemporary/Alternative Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 437</td>
<td>History of Photography</td>
<td>3</td>
</tr>
<tr>
<td>ART 466</td>
<td>Buddhist Art</td>
<td>3</td>
</tr>
<tr>
<td>HIST 468</td>
<td>Topics in European History: Russian Art and Art Patronage</td>
<td>3</td>
</tr>
<tr>
<td>ART 520</td>
<td>Independent Study in Art History</td>
<td>3</td>
</tr>
<tr>
<td>ART 521</td>
<td>Topics in Art History</td>
<td>3</td>
</tr>
<tr>
<td>ART 522</td>
<td>Topics in Medieval and Renaissance Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 523</td>
<td>Topics in Modern Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 524</td>
<td>Pass/Fail: Open to majors within the College of Fine Arts, or minors with the consent of instructor. This course will fulfill Western computer literacy requirement. The course is cross-listed with 3 hours.</td>
<td>3</td>
</tr>
<tr>
<td>ART 525</td>
<td>Topics in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 527</td>
<td>Art History Methods</td>
<td>3</td>
</tr>
<tr>
<td>ART 529</td>
<td>Art History Internship</td>
<td>1-3</td>
</tr>
</tbody>
</table>
ART 105, ART 107, ART 108.

Prerequisites: Art, Dance, Music, or Theatre major or minor with consent of instructor.

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 expression, art and society, the role of art in the political world, and the history of art. Prerequisite: ART 105, ART 107, ART 108.

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) 4 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 respond 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 self-expression with many art media. Prerequisite: Integrated Creative Arts Minor only. This course waves 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 develop a basic understanding of color and composition, 2) to learn the fundamental techniques of application for acrylic paint, and 3) to develop a personal expression using 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, proportion, foreshortening, structure, and articulation) and their synthesis into a coherent drawing attitude. Prerequisites: ART 104, ART 105, ART 107.

ART 220 History of Art 3 hrs.
An historical survey of art from the 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 India. 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 space. Mechanical, structural and compositional principles will be studied. An overview of historical sculptural forms will be presented. Prerequisites: ART 104, ART 105, ART 107, ART 109.

ART 238 Jewelry and Metalsmithing 3 hrs.
A survey of jewelry projects with instruction in design and metal craft. Copper, brass, and sterling are the principal materials. Basic stone setting and casting procedures are usually included. Students generally fashion several jewelry pieces in this class. 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.
A survey 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. Prerequisite: 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. Prerequisite: 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—include basic color printing procedures. Prerequisite: ART 104, ART 105, ART 107, ART 108.

ART 248 Photography I
3 hrs.
Introductory course covering the function of the camera, exposure meter, lenses, blw films, processing and printing. Emphasis is placed upon perceptive imagery and development of technical proficiency. Prerequisite: 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. Prerequisite: 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. Spring
Studies in the design of letters 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. Prerequisite: ART 250, ART 260.

ART 252 Art Education Workshop (Majors)
3 hrs. color/materials
A studio course involving projects, media, and materials, handled on an aesthetic level but appropriate for the creative and institutional ability of the K-12 art student. Prerequisite: ART 104, ART 105, ART 107, ART 108. Acceptance into Art Education major is required.

ART 256 Computer Imaging
3 hrs.
A course that offers the studio art major the basic skills of computer imaging. Students investigate the power of digital manipulation to transform the aesthetic and conceptual values of media as it passes through the digital domain. Students learn about the acquisition, manipulation, and output of 2D media, in addition to basic animation and interactivity through a variety of software. Prerequisite: 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. Prerequisite: 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. Spring
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. Prerequisite: ART 250, 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 15 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. Prerequisite: ART 220 or 221 for all School of Art 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. Prerequisite: 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 336 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 and apply methods of technique appropriate to their 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 II
3 hrs.
A course that provides an exploration of the technical and conceptual application of color in photography. Studies in the theories of subtractive and additive color. Instruction on both traditional color printing practice and non-traditional means of color image generation and digital technologies will be included. Emphasis is placed upon the function of color to develop individual imagery. Prerequisite: ART 248.

ART 350 Typography II
3 hrs. Fall
Exploring compositional relationships involving the single word, line, column, page arrangement and structural systems. Semantic and syntactic issues will be investigated in projects and exercises. Computer technology will be investigated. Prerequisite: ART 261, ART 251.

ART 351 Typography III
3 hrs. Spring
Dealing 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. Prerequisite: ART 350, ART 360.
ART 356 Web Design 3 hrs.
A course that provides the advanced student the opportunity to explore artistic production through the network environment. The class will focus on art made expressly to be experienced on the World Wide Web and will investigate the role of the artist working in this on-line environment. Critical issues relating to new media will be discussed. Personal expression and content development will be emphasized along with techniques for webpage construction. 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. Spring
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 people 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 African people from 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 18th 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, photographics, type as image, applied color, visual translation, and any additional topic of interest. Prerequisites: ART 350, ART 360.

ART 381 Greek and Roman Art 3 hrs.
Discussion of Greek and Roman art from 3000 BCE to 400 CE. Material covered will include Cycladic, Minoan, 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 220.

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 craftspeople. 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: ART 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: ART 221.

ART 448 Photography III 3 hrs.
A course that provides an introduction to the new camera, studio lighting, and advanced techniques in black and white and color photography. Technical assignments will focus on the mastery of this equipment and the integration of advanced skills into creative work. Prerequisite: ART 348.

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 course deals 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 Education major status.

ART 456 Introduction to Time Based Media 3 hrs.
A course that provides an introduction to multimedia authoring software that combines image, text, animation, video, sound, and user interactivity. The class will focus on the effective presentation of ideas and the development of well-crafted and effective user interfaces. Prerequisite: ART 356.

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. Spring**

Individual Senior Thesis projects. Involves topics 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. **Prerequisite:** ART 223, or ART 365, or ART 366, or ART 367.

**ART 471 Special Topics in Photography and Intermedia 3 hrs.**

An advanced seminar class which focuses on contemporary critical discourses in photography and intermedia. Critical readings are partnered with studio projects. Course topic varies from semester to semester. **Prequisite:** ART 348.

**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 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 encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in printmaking to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. **Prerequisites:** Senior standing and BFA candidacy.

**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 reviews a research paper written in an upper division course in order to produce a paper of publication quality. Art History majors only; registration requires approval by supervising faculty member.

**Open to Upperclass and Graduate Students**

**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 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 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:** Art History majors or minors with junior status or 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 higher; MFA candidates and other undergraduate and graduate students with permission of instructor.

**ART 528 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 metals. Permission of instructor is required. Repeatable for credit.

ART 538 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 338. 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 Workshop
1–4 hrs.
Professional development through research in advanced projects. Course is repeatable for credit. Prerequisite: ART 448.

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 education 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 graduate and non-degree level students.

ART 556 Video
1–4 hrs.
A course that provides an advanced studio experience for students interested in working with computer tools and ideas that have affected the growth of new visual media. The class begins with the introduction to single camera video production strategies, concepts, and non-linear video editing. This course is repeatable for credit. Prerequisite: ART 456.

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, Spring
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. Spring
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 460, ART 560.

DANCE

DANCE 233

Nina Nelson, Chair
Jane Baas
Trudy Cobb
Wendy Cornish
David Curwen
Derrick Evans
Sharon Garber
Janet Stillwell

Western Michigan University is an accredited institutional member of the National Association of Schools of Dance. The Department's web site may be accessed at www.wmich.edu/dance

Department Mission

Western Michigan University's Department of Dance is nationally recognized as a community that values aesthetic breadth, student choice, and disciplinary excellence. As a dance community we are committed to:

- The highest aesthetic standards,
- Being of service to our diverse cultural community,
- Excellence in creative and scholarly research,
- Exemplary, experientially-based teaching.

It is the goal of this student-centered department to prepare the dance student who
- delight in the practice of dance,
- can integrate theory and practice with discerning sensibilities,
- have a firm foundation upon which to carve their own careers,
- have the conviction to hold firm in their aesthetic goals,
- have the skills necessary for survival in an ever-changing field.

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 BFA program emphasizes performance, choreographic and aesthetic training and is designed for the student seeking employment at the professional level. The BA program offers an opportunity to explore the diversity of the dance profession within a strong liberal arts component, and BA students individualize their program by choosing electives that support their dance career goals. The Dance Minor is designed for students who wish to continue their dance studies as an avocation. Dance courses offered include four levels of ballet, jazz, and modern dance, three levels of choreography, three dance history courses, dance science and analysis, conditioning, pedagogy and production. An audition is required for acceptance into all dance major programs. For additional information, please refer to specific Program Requirements.

Courses for General Students

Introductory dance courses are offered for general students. Dance technique courses open to general students without audition include: DANC 101, 102, 103, 104, 125, 181, and 225. A fee is required for each student enrolled in DANC 101, 102, 103, 125, and 225 in order to provide a musical accompanist. DANC 145, a dance survey course, may be elected by any student to satisfy Area I—Fine Arts of the University General Education Program beginning in Fall 1996. A $10 fee is required for each student to provide funding for guest artists.
Admission
Admission to the University is granted only by the Office of Admissions and Orientation for undergraduate students. Applications are available by writing to the Office of Admissions and Orientation, calling at (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 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 students may also elect to apply for scholarships via the November or February audition dates. In addition to the three weeks following the audition or petition. 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: jine bais@wmich.edu.

Transfer Credit
Dance credit from other institutions transfers as a direct equivalent to a WMU course, as an undergraduate dance credit, or as credit by non-degree study. For credit to be department recommendation only. Transfer students should schedule an appointment with the dance academic advisor immediately after admittance 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 advisor each semester in order to be recommended for graduation. Graduation requirements must be completed as stipulated in the Undergraduate Catalog in effect at the time the student is admitted. Requirements cannot be added during the student's enrollment; however, the student may take advantage of course and curriculum alterations if these changes enhance the student's education. Each student is responsible for knowing the requirements of the degree and for taking the steps necessary for completion of these requirements. All dance students are urged to take advantage of advising services in the Department of Dance for assistance in making educational choices and for interpretation of requirements stated in the Undergraduate Catalog.

Miscellaneous

Focus of Major Technique Courses
Distribution Program.

GENERAL EDUCATION REQUIREMENTS

The student enrolled in the BFA in Dance must complete all General Education Requirements as described in this catalog. Students in the BFA in Dance is a credit-hour intensive curriculum, the BFA student may count DANC 145 as an elective course. Students must be enrolled in at least one major/midor technique course during rehearsal and performance periods and be in good academic standing in order to perform in departmental concerts. The Department is committed to publicly presenting the dances of students who demonstrate choreographic proficiency. Special opportunities exist for non-majors in which choreography are available on- and off-campus and are posted as they occur.

Dance Major—Bachelor of Fine Arts

80 hours

Students may petition for entrance into the BFA program after completion of:

1. At least one semester of the student's enrollment. In order to continue in the BFA program, the student must: demonstrate a professional commitment in the dance department advisor. Petition forms are posted in November and March.

2. DANC 180 Choreography I
3. DANC 181 Improvisation
4. At least one dance theory course.

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: jine bais@wmich.edu.

Class Fees for Major Technique Courses
A fee is required from each student enrolled in DANC 110, 120, 121, 125, 130, 145, 210, 220, 225, 230, 310, 320, 330, 395, 425, and 440. A majority of the fee is used to provide a musical accompanist. The remainder is used to pay the fees and related expenses to provide such special events as class performances, choreography, and lectures by guest artists.

Scholarships
Scholarships, awards and assistantships are available for new and current students. Awarded 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. Student 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 call the Office of Financial Aid at (616) 387-6000.

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. Juniors and seniors enrolled in the Bachelor of Fine Arts program will be required to attend an additional meeting regarding BFA required projects on the same day of the department meeting. A winter department meeting is held in January to inform students of additional events and changes that affect them.

Additional Study Options
Students are encouraged to study with dance professionals whenever possible and to afford themselves the opportunity for study with artists-in-residence on Western's campus. Limited 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, graduating presentations, special college-related performances, workshops, competitions, area musicals and operas, and the department performing ensemble. Students must be enrolled in at least one major/midor technique course during rehearsal and performance periods and be in good academic standing in order to perform in department concerts. Students whose cumulative GPA falls below 0.0 may not audition for formal dance concerts. The Department is committed to publicly presenting the dances of students who demonstrate choreographic proficiency. Special opportunities exist for non-majors in which choreography are available on- and off-campus and are posted as they occur.

Dance for assistance in making educational choices and for interpretation of requirements stated in the Undergraduate Catalog.

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Performance and Choreographic Opportunities
Students have a variety of opportunities to perform in department concerts, informal showings, graduating presentations, special college-related performances, workshops, competitions, area musicals and operas, and the department performing ensemble. Students must be enrolled in at least one major/midor technique course during rehearsal and performance periods and be in good academic standing in order to perform in department concerts. Students whose cumulative GPA falls below 0.0 may not audition for formal dance concerts. The Department is committed to publicly presenting the dances of students who demonstrate choreographic proficiency. Special opportunities exist for non-majors in which choreography are available on- and off-campus and are posted as they occur.
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.

BACHELOR'S DEGREE REQUIREMENTS
Students who have chosen the Dance major will satisfy the baccalaureate-level writing requirement by successfully completing DANC 345 Twentieth Century American Dance.

REQUIRED COURSES IN TECHNIQUE AND PERFORMANCE—32 total hours
BFA students must enroll in two major technique courses (DANC 110, 120, 210, 220, 230, 310, 320, 330) each semester of the freshman, sophomore, and junior years. During the senior year, candidates must: enroll in at least one major technique course each semester; serve as a demonstrator in one technique class during the fall semester; and through enrollment in DANC 400, serve as a teaching assistant in a technique course during the spring semester. Courses must be selected to ensure the student is participating in a technique class five days per week. At least four hours must be selected from performance courses (DANC 460, 465). The student must complete at least two semesters each of ballet, jazz, and modern technique courses; one semester of DANC 121, and at least one semester of two of the following: DANC 310, 320, 330. DANCE 125, 225, and 425 may be used to complete the Technique/Performance requirement.

REQUIRED COURSES IN CHOREOGRAPHY—10 total hours
DANC 180 Choreography I (Prereq: consent of advisor) 2
DANC 181 Choreography II (Prereq: 180, 181) 2
DANC 280 Choreography III (Prereq: 280) 2
DANC 480 Graduating Presentation (Prereq: 380) 3

REQUIRED COURSES IN THEORETICAL STUDIES—29 total hours
HISTORY
DANC 145 Experiencing Dance (also counts in General Education Area I) 3
DANC 245 Ballet History (Prereq: 145) 3
DANC 345 Twentieth Century American Dance (Prereq: 145) (Dance majors use this course to meet the University Baccalaureate-level Writing Requirement) 3
MUSIC
DANC 185 Music Fundamentals for Dancers 2
DANC 285 Music Style and Form for Dancers (Prereq: 185) 2

PRODUCTION AND MANAGEMENT
DANC 389 Lighting and Staging for Dance (Prereq: Approved application required) 2
DANC 489 Dance Management (Prereq: Approved application required) 2

DANCE SCIENCE/ANALYSIS
DANC 195 Introduction to Barteneff Fundamentals 1
DANC 196 Conditioning for Dancers 2
DANC 295 Introduction to Dance Science and Kinesiology 3
DANC 296 Laban Movement Analysis (Prereq: Sophomore standing) 2

PEDAGOGY
DANC 440 Teaching Dance Technique (Prereq: Consent of advisor) 2

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 professional 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 145 Experiencing Dance 3
DANC 145 Experiencing Dance (also counts in General Education Requirement) 3
DANC 180 Choreography I (Prereq: Consent of advisor) 2
DANC 181 Dance Improvisation 1
DANC 185 Music Fundamentals for Dancers (Prereq: 180, 181) 2
DANC 280 Choreography III (Prereq: 280) 2
DANC 480 Graduating Presentation (Prereq: 380) 3

REQUIREMENT—22 total hours
ED 230 The Nature of Creativity: Variable topics 4
ENGL 110 Literary Interpretation 4
ENGL 150 Literature and Other Arts 4
ENGL 305 Professional Writing 4
FREN 101 Basic French I 2
FREN 101 Basic French II (Prereq: 100 or equivalent) 4
HIST 315 Senior Seminar in Dance and Architecture in America 3
MGMT 210 Small Business Management 3
MUS 150 Music Appreciation—Live Music 1
MUS 151 Music Appreciation—Pop/Jazz 1
MUS 350 American Music 4
MUS 352 Non-Western Music 4
MUS 450 Music Appreciation: The Symphony 3
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 would fulfill the focus area. The practicum proposal must be approved by a member of the dance faculty, who agrees to supervise the practicum experience, prior to 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 REQUIREMENTS
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.

BACHELOR'S DEGREE REQUIREMENTS
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 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, 130, 210, 220, 230, 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 DANC 121. 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
CHOREOGRAPHY
DANC 197 Choreography (Prereq: consent of advisor) 2
DANC 280 Choreography II (Prereq: 180, 181) 2

MUSIC
DANC 185 Music Fundamentals for Dancers 2
DANC 285 Music Style and Form for Dancers (Prereq: 185) 2

PRODUCTION
DANC 389 Lighting and Staging for Dance (Prereq: Approved application required) 2

DANC 345 Twentieth Century American
DANC 325 Special Studies in Dance
DANC 296 Introduction to Laban
DANC 295 Introduction to Dance
DANC 196 Conditioning for Dancers 2
DANC 245 Ballet History 3
DANC 195 Introduction to Bartenieff

A minimum of two hours to be elected 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, 130, 210, 220, 230, 310, 320, 330, 425—if one of these courses has not been elected under Required Courses in Technique listed above.

Dance Courses (DANC)

DANC 101 Beginning Ballet 2 hrs.
Elementary ballet technique for the general student. The emphasis is placed on line, control, alignment, movement isolation, and musicality.

DANC 102 Beginning Jazz 2 hrs.
Elementary jazz technique for the general student. Rhythmical 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. The emphasis is placed on 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 developing control, balance, 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 111 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 developing control, balance, 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 rhythm, syncopation, movement isolation, and improvisation. Live accompaniment and historic music recordings will be used for classes. Required for dance minors. Recommended for dance minors and music theatre performance majors. Not-repeatable for credit. Prerequisite: Advisor consent.

DANC 125 Special Studies in Introductory Dance Technique 1-6 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 kinesthetic principles. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

DANC 126 First Year Dance Performance 1 hr.
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 kinesthetic principles. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

DANC 127 Senior Seminar (Prereq: DANC 400 Practicum) 1 hr.
A maximum of two hours to be elected from the following courses, in consultation with the dance academic advisor.

DANC 128 Dance Science and Kinesiology 2 hrs.
A minimum of two hours to be elected from the following courses, in consultation with the dance academic advisor.

DANC 131 Ballet Technique II 2 hrs.
An introduction to 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 132 Modern Technique II 2 hrs.
An introduction to 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 133 Modern Technique III 2 hrs.
An introduction to 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 134 Twentieth Century American Dance 2 hrs.
A maximum of two hours to be elected from the following courses, in consultation with the dance academic advisor.

DANC 135 Digital Media in the Arts 3 hrs.
This course will introduce students in Art, Dance, Music, and Theatre to the audio, graphics, video, and other digital tools used by professionals in the arts. All instruction will be delivered on-line, and students must have a WMU email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. Open only to majors within the College of Fine Arts, or minors with the consent of instructor. The course will fulfill Western Michigan University’s computer literacy graduation requirement. The course is cross-listed with ART 114, MUS 114, and THEA 114. Prerequisite: Art, Dance, Music, or Theatre major, or minor with consent of instructor.

DANC 136 Lighting and Staging for Dance 2 hrs.
An introduction to the art of 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 137 Jazz Technique II 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 rhythm, syncopation, movement isolation, and improvisation. Live accompaniment and historic music recordings will be used for classes. Required for dance minors. Recommended for dance majors and music theatre performance majors. Not-repeatable for credit. Prerequisite: Advisor consent.

DANC 138 Dance Management 2 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 139 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 kinesthetic principles. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

DANC 140 Dance Movement Analysis 2 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 141 Direct Encounter with the Arts 3 hrs.
This course will introduce students in Art, Dance, Music, and Theatre to the audio, graphics, video, and other digital tools used by professionals in the arts. All instruction will be delivered on-line, and students must have a WMU email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. Open only to majors within the College of Fine Arts, or minors with the consent of instructor. The course will fulfill Western Michigan University’s computer literacy graduation requirement. The course is cross-listed with ART 114, MUS 114, and THEA 114. Prerequisite: Art, Dance, Music, or Theatre major, or minor with consent of instructor.

DANC 142 Dance Movement Awareness 2 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, video/ film, 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 will address 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 143 Direct Encounter with the Arts 3 hrs.
This course will introduce students in Art, Dance, Music, and Theatre to the audio, graphics, video, and other digital tools used by professionals in the arts. All instruction will be delivered on-line, and students must have a WMU email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. Open only to majors within the College of Fine Arts, or minors with the consent of instructor. The course will fulfill Western Michigan University’s computer literacy graduation requirement. The course is cross-listed with ART 114, MUS 114, and THEA 114. Prerequisite: Art, Dance, Music, or Theatre major, or minor with consent of instructor.

DANC 144 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 firsthand experiences in a number of arts: cinema, photography, theater, sculpture, music, poetry, dance, and architecture. Classroom discussions are held in various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. Open only to majors within the College of Fine Arts, or minors with the consent of instructor. The course will fulfill Western Michigan University’s computer literacy graduation requirement. The course is cross-listed with ART 114, MUS 114, and THEA 114. Prerequisite: Art, Dance, Music, or Theatre major, or minor with consent of instructor.
DANCE 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.

DANCE 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.

DANCE 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, clefs, scales, key signatures, intervals and triads. The rhythm work begins with reading of simple abstract formal designs. This course introduces Irmgard Bartenieff's to read and perform rhythmic patterns using a sense of ensemble. Students will be introduced to formal concepts and compound meters and progresses toward consent.

DANC 185Music Fundamentals for Dancers
2 hrs.

DANC 195 Introduction to Bartenieff Fundamentals®
1 hr.
This course introduces Irmgard Bartenieff's theories of functional movement. Through practice students will explore major Fundamentals concepts such as body connections, sequencing, movement initiation, mobility/stability and spatial intent. Students will also learn the "Basic Six," a series of movement sequences which are distillation of Bartenieff'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 as a means of enhancing dance performance, including instruction on equipment such as rotator disks, Therabands and the Current Concepts Reformer utilizing the Dancer Specific™ technique. This course, in combination 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 placed on the ability to creatively analyze and skillfully reproduce complex movement 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 and trends of the 20th century, including modernism, neo-classicism and the influences of other dance forms. Prerequisite: DANC 145.

DANC 280 Musical Style and Form for Dancers
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 twelfth 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 activity to young 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 Bartenieff Fundamentals®. Prerequisite: Sophomore standing.

DANC 310 Ballet Technique III
2 hrs.
Ballet technique for the advanced/pre-professional student in the classical idioms. Emphasis is placed on complex movement sequences, and vocabulary awareness, points 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 of dance theory not included in existing courses. Examples of possible topics include: writing and criticism, costuming; make-up; technology (e.g., audio and video techniques; computer applications for music, lighting design, notation or choreography); and dance for the exceptional student. May be offered with a visiting instructor or artist-in-residence. Repeatable for credit up to 6 hours. Prerequisite: Advisor consent.

DANC 330 Modern Technique III
2 hrs.
Technique for the advanced/pre-professional student in the modern idioms. 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 from the beginning of the twentieth century to the present. Relationships are examined between dance and general cultural developments in the United States in each decade of this century. Topics covered include: the forerunners and pioneers of modern dance; avant-garde and post-modernists; and artists of jazz, tap, Broadway, movies and the current mass 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 the light staging production and reading process 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 his/her project with the dance academic advisor prior to registration for the course. Through reading and practice, the student will have an opportunity to explore a topic of interest in dance. Repeatable for credit up to 4 hours. **Prerequisite:** 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 hr.
An exploration of current trends, literature and developments in dance in a seminar format. Students will discuss, compare and analyze ideas generated by assigned readings, as well as their work on capstone projects. **Prerequisite:** Senior standing.

**DANC 460 Performance Variable**
1–4 hrs.
An experience in student or faculty choreographed dance works, in fully produced projects not encompassed in specific dance courses. Application with approval of the dance advisor, the faculty evaluator, and the department chair; must be completed and submitted to the dance advisor at least one month prior to performance. Registration occurs after performance has been completed. Repeatable for credit up to 4 hours. **Prerequisite:** Advisor consent.

**DANC 465 Dance Ensemble**
1–3 hrs.
An experience in a performing ensemble which provides one or more of the following: master classes, residencies, lecture-demonstrations, and concerts in various dance styles in the region. Members must show proficiency in performance, improvisation, teaching, and public speaking. Members must concurrently enroll in at least one technique course at the 200 or 300 level as specified by the ensemble director. Repeatable for credit. **Prerequisite:** Sophomore, Junior or Senior standing required and audition or consent of ensemble director.

**DANC 480 Graduating Presentation**
3 hrs.
The preparation and presentation of an advanced choreographic project accompanied by a portfolio and an oral examination. Prior to registration the student must complete an application, select a faculty advisory committee, and secure the approval of the dance academic advisor. Course guidelines are available from the Department and should be reviewed by the student at least one semester prior to enrollment. **Prerequisite:** DANC 380, successful completion of BFA junior solo requirement and approved application.

**DANC 489 Dance Management**
2 hrs.
Course covers front-of-house management and publicity, budget, programming, organization of elements involved in company management, and grantsmanship. Practical application of these principles will be evaluated wherever possible. **Prerequisite:** 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 395.

**DANC 496 Performance in Music Theatre**
2 hrs.
Students will perform in music 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.

**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.

**DANC 499 Non-Reading Independent Study in Dance**
1–4 hrs.
Advanced undergraduate students with good academic standing may elect to independently pursue the study of some area of dance through the creative process. Topics are chosen and arrangements are made to suit the needs of each particular student. Repeatable for credit up to 4 hours. **Prerequisite:** Approved application required.

**Open to Upperclass and Graduate Students**

**DANC 545 Arts Administration Seminar**
1 hr.
To be taken in conjunction with PADM 641. Administering Arts Organizations. The seminar will offer the student an opportunity through readings and discussions to focus on those administrative issues specific to the student's arts discipline. **Prerequisite:** Admission to M.F.A. in Performing Arts Administration program or permission of program director.

**DANC 589 Season Planning and Production**
2 hrs.
This course will address two components. The Season Planning component will cover the programming of an entire season of live performances focusing on program concepts, choices of facilities, scheduling, budgeting and marketing. The Production component will address planning, schedules, touring, front-of-house management, contracting, technical production, stage management, rehearsals, and performances. **Prerequisite:** Admission to M.F.A. in Performing Arts Administration program or permission of program director.
Music is dedicated to the advancement of the musical arts through traditional study and state, national and international communities. The School of Music serves local, state, national and international communities through performance, educational and therapeutic applications, composition, research, and technological innovation. The School of Music is a member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published regulations of NASM and the National Council for Accreditation of Teacher Education. The School's program in music therapy is eligible to sit for the Board Certified Music Therapist—Board Certified. Those students seeking a music major must secure a minor slip from the advisor in the School of Music in order that the declaration of the minor be official. Official declaration of the music minor must be made prior to registration for the final eight hours of music course work which will apply to that minor.

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. Approval to become a music major 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 college community. 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 they are available. The School of Music accepts students who have a good background in applied music (instrumental or vocal study or performance) but the student may take advantage of course work which is ineffect 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 Music Student Advising Office provides 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. In the event that the student is admitted, the student may take advantage of the advising program, but the student may take advantage of course work which is ineffect at the time the student is initially advised about classes.

Visiting Students

An exchange program exists between the School of Music and a number of conservatories and universities throughout the world. The School of Music offers foreign students an opportunity to study here, to participate in performances and to enjoy the cultural life of the university and the city of Kalamazoo. For information about the program, which is ineffect at the time the student is initially advised about classes, write the Music Student Advisor in the School of Music.

Miscellaneous

In addition to required course work, all students must satisfy additional requirements in recital attendance and recital performance. All music majors are required to attend Music Convocation (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 "Performance Electives" requirement has not been completed at the time of the transfer, at least two of the remaining credits (six) must be completed in major ensembles. Advisors will assist transfer students in finding ways of applying credit hours, not applicable to music curriculum requirements, toward General Education electives or free electives.

Three areas—applied music, music theory, and piano proficiency for non-pianists—are, by nature, skills courses which require competency at one level before the student is ready for the next level of course in a sequence. This competency can only be determined by determining by demonstration through examination, which precludes the automatic transfer of credit in these areas.

Presumably, the transfer student will have completed many of the core requirements (see below) before enrolling at Western. In that case, the student must elect a major area of concentration within the music curriculum prior to enrollment. In order to maintain good standing as a major in music performance, composition, jazz studies, music history, or music theory, the student must maintain a grade point average of 3.0 in all courses in the major area of concentration. The student who elects music education or music therapy as a major must maintain a grade point average of 3.0 in all courses in the major area of concentration in order to be recommended for intern teaching (music education) or music therapy internships. All transfer students must take a Piano Placement Examination before admission in order to project the feasibility of completion of piano proficiency requirements.

For further information regarding the transfer of music credits, contact the Music Advisor in the School of Music.

Advising

Advisor: Margaret J. Hamilton

Appointments: 2146 Dalton Center

(616-387-4672)

The Music Student Advising Office provides one-stop advising for all students in a music curriculum. Advice on general education or music therapy as a major must be obtained by writing the Music Student Advisor in the School of Music. All transfer students must take a Piano Placement Examination before admission in order to project the feasibility of completion of piano proficiency requirements.

Transfer Credit

Music credit from another institution is normally acceptable providing course substance is equivalent to a similar course required in the student's curriculum at Western and the student has earned a grade of "C" or better in that course. No credit hours exceeding the number granted for parallel work at Western will be accepted for transfer from another institution. In order to earn a Bachelor of Music degree from Western Michigan University, a student may not transfer more than thirty-seven (37) semester credit hours in music courses taken at a community college toward music curriculum requirements. If the 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.
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 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 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.

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 has 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 of the student’s choice or (2) receive credit for the course(s) in which competency is demonstrated by paying an examination fee according to the schedule approved by the Board of Trustees.

Scholarships and Grants in Music are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these stipends at the time of their audition for admission to the music curriculum. Decisions on music scholarships are made beginning in mid-March, so early auditions are advised.

CURRICULA

When a student is admitted to the music curriculum, a major area of concentration is usually not declared. Before any student may declare a major area of concentration the student must complete the 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 who are 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 provided for them to register for Field Experience courses.

BACCALAUREATE WRITING REQUIREMENT

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>
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<th>Music Convocation 101 (7 semesters)</th>
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<td>Major Area of Concentration</td>
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<td>Free Electives to make a minimum of 122 semester credit hours</td>
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<td>Music Clearance (verification of completion of recital performance and attendance requirements)</td>
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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 theory/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 in the 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 required 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 have at least one jazz experience/concert ensemble.

All students wishing to earn a teaching certificate should have minimal 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.

2. The remaining four semester hours of performance electives may be selected from the following:
   - Please note: All keyboard majors are required to elect only one large ensemble, except that Keyboard/Music Education—Choral/General majors must elect a vocal ensemble and Keyboard/Music Education—Instrumental majors must elect an instrumental ensemble.

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.

Theoretical electives may be selected from the following:
- MUS 263, 360, 555, 558, 560, 565, 566, 567.
- MUS History/Literature electives may be selected from the following list of courses:
  - MUS 570, 571, 572, 573, 574, 577, 578, 579, 580, 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 at the time 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 approved for this major by taking a major 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. The student 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, the student must have completed 35 hours of course work, completed the music core in theory/history, aural comprehension/conducting, and in addition, have 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 2.5 in the area of the major in order to be recommended for an internship (music therapy) or for a intern teaching assignment (music education).

If the student does not qualify according to the guidelines outlined above, the application will be submitted to the faculty committee in the area of the major for approval. In the event that approval is denied and the student does not qualify for any other major area of concentration the music advisor will outline the course work in music which may be applied toward the Bachelor of Arts degree with a major in music.

Music Education: Choral/General Major
Grants certification to teach music at any grade level (K-12) 17 hrs.

- General Music Methods 336 3
- General Music Core 336 3
- Special Education (385), Technology in Music Education (386)

Second Instrument 4

- Piano 220, 221, 320, 321 and/or pass the examination administered by keyboard and professional education areas. Students who do not pass for entry at the 220 level must complete Keyboard Fundamentals (321) and/or 121 as a deficiency.

- Voice Class 117 1

College of Education Courses 21

- Human Development 250 3
- K-12 Content Literacy 305 3
- School and Society 305 3
- Seminar in Intern Teaching 410 2
- Intern Teaching 475 10

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: Instrumental Emphasis
Grants certification to teach music at any grade level (K-12) 18 hrs.

- Instrumental Methods 1 (344) 3
- Methods Elective I 3
- Methods Elective II 3

Select from the following:

- Music Core 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

Band—Complete these courses:

- Flute/Conductor (145), Oboe/Bassoon (142), Trumpet/French Horn (143), Trombone/Tuba (144), Percussion (130), Clarinet (133)

String—Complete three courses from those listed above for band emphasis and complete three semesters of study on a minimum of two string instruments other than own major string instrument, or complete MUS 129 and 129 plus four 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 (128), String Class—Violin, Viola (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 "compl" 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 305 3
- Seminar in Intern Teaching 410 2
- Intern Teaching 475 10

Wind/Percussion students must complete two semesters of Marching Band (109). All other instrumental emphasis majors are also strongly urged to elect MUS 109 (see "Exclusions To Core Requirements").

Before the student will be recommended for intern teaching, she/he must have completed all courses in the major with a minimum grade point 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, 321 3
- Fundamentals of Guitar 126 1
- Voice Class 117 1
- Instruments of the Band and Orchestra 279 and Instruments of the Music Classroom 280 2

Professional Electives: select from 123, 128, 129, 130, 133, 142, 143, 144, 145, 336, 366, 555, 558, Applied Music 300, Performance Electives (selected from electives listed under Core Requirements) 5

Psychology 100 and 250 6

Special Education 533 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 GT 200 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; see Electives above) 2

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 264 2

Jazz Arranging 555, 556 4

Jazz Improvisation 558, 559 4

Jazz History and Literature 583 4

Professional Electives (choose from Piano 100, Composition 262/263, Conducting 300/331, Technology in Music and Music Education 396, 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) 200 4

Applied Music (in addition to Core requirements) 300 10

Performance Electives (in addition to Core Requirements; see Electives above) 2

Chamber Music 218 2

Composition 262 2
Advanced History/Literature (in addition to Core Requirements) 2
Counterpoint 560 2
Keyboard Literature 560 2
Keyboard Pedagogy 590 2
Music Electives 1
Senior Recital (required for Music Clearance) 0

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

Opera Workshop 2
Keyboard Musicianship 220, 221, 320, 321 4
Foreign Languages 8
Vocal Pedagogy 590 2
Diction (Choose from 233, 234) 2
Music electives 2
Senior Recital (required for Music Clearance) 0

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
Orchestrion 567-568 4
Professional Electives (choose from Composition 263, Seminar in Electronic Music Composition 564, Seminar in Music Composition 362, Musical Acoustics 566, Style Analysis 380, Jazz Arranging 555, Jazz Improvisation 558) 6

All Bachelor of Music—Music Theory candidates must pass a piano proficiency examination as outlined below.

Composition
MUS 220 Keyboard Musicianship 1
MUS 262–263 4
MUS 362 16
MUS 564 8
MUS 560–561 4
MUS 100 3
MUS 567, 569 4

The composition student must have previous composition experience before being admitted to a composition major. This experience may be acquired by transferring approved credit in composition from another institution or by successful completion of Composition 262–263. All Bachelor of Music: Composition candidates are required to present a Senior Recital consisting of thirty minutes of original compositions which are an outgrowth of the candidate's course work and which have been approved by the composition faculty.

It is recommended that the student also consider electing ART 120, ENGL 150, and THEA 100.

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, Orchestration 567/568, Medieval Music 585, Renaissance Music 566) 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) 0
   Applied Music 200 (must pass sophomore hearing) 8
   Basic Music 160–161, 260–261 12
   Aural Comprehension 152, 163, 259, 260 4
   Keyboard Fundamentals 120–121 2
   Music History/Literature 170, 270, 271 8
   Performance Electives (major ensemble) 4
   Music Electives 12
3. A minor in another department in University (minimum) 16
   (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.)
   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 one foreign language are presented for entrance, the requirements for foreign language may be waived.

BACHELOR OF FINE ARTS

Music Theatre Performance
See description under the Theatre section of this undergraduate catalog.

BACHELOR OF SCIENCE

Elementary Education—Music
See description under the College of Education section of this undergraduate catalog.

MUSIC MINOR

24 hours
Minors must take the following basic courses:
Fundamentals of Music 159 2
Basic Music 160 3
Aural Comprehens 162 1

Minors must choose one of the following two groups:

*Applied Music 100 2
*Performance Electives 2
*(Select from 107, 108, 110, 111, 112, 113)

Music Appreciation: Live Music 150 4
American Music 350 1
*Personal auditions required (pending space availability).

Electives (10 to 14 hours); minors select from:
Keyboard Musicianship 230, 231, 330, 331, 332, 320, 321, 322, Voice Class 122, 123; Music Appreciation 150, 151, 350, 352, 450; Basic Music 161, 260, 261, electives; Aural Comprehension 152, 259, 260; Conducting 215, 330, 331, Composition 262, 263, 362, 564; Music History and Literature 170, 270, 271, electives; Jazz Studies 264, 555, 556, 558, 559, 563; Applied Music 100; Performance Electives 107, 108, 109, 110, 111, 112, 113, 118, 190, 210, 211, 212, 219, 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 fall seminars. 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 orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and performed 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 219 Gold Company
1 hr.
A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and techniques for a specific musical medium will be taught. 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 directing 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 certain 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 classes 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.
This level of applied music indicates "upper 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.
This level of applied music indicates "upper division" standing in applied music and is used to designate junior- and senior-level applied music. A maximum of four credits per semester may be earned at this level.

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 musical medium (instrument or 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 meetings of the entire class for the purpose of dealing with materials and techniques common to all performers. The class may be repeated for credit. Music majors only.

Music Classes

MUS 101 Music Convocation
No Credit
A series of special musical events required of music majors. Programs include lectures and recitals by faculty, selected students, and guest artists. (A $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
1 hr.
This is a beginning course for the development of piano playing skills for non-music majors and minors. The course will cover fundamentals of music reading, keyboard techniques, sight-reading, and harmonization.
MUS 103 Piano Class II
2 hrs.
A continuation of MUS 102 Piano Class I. Because course goals do not align with other keyboard classes in the School of Music, the student will be required to progress into other piano classes offered for music majors/minors. Prerequisite: MUS 102 or instructor consent.

MUS 114 Digital Media in the Arts
3 hrs.
This course will introduce students in Art, Dance, Music, and Theatre to the audio, graphics, video, and other digital tools used by professionals in the arts. All instruction will be delivered online, and students must have a WMU email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. Open only to majors within the College of Fine Arts, or minors with the consent of instructor. The course will fulfill Western Michigan University's computer literacy graduation requirement. The course is cross-listed with ART 114, DANC 114, and THEA 114. Prerequisite: Art, Dance, Music, or Theatre major, or minor with consent of instructor.

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 lyric songs 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 I
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 or broken chord accompaniment, transposition, harmonization of melodies using primary and secondary harmonies, and improvisation using penta scales and specified chord progressions. Prerequisite: MUS 120 or instructor consent.

MUS 122 Voice Class I
1 hr.
A study of the fundamental processes of breath control and tone production, providing some individual instruction in preparing singing standard song literature. The course is designed to benefit students interested in solo and choral singing.

MUS 123 Voice Class II
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 literature, 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. Instruction 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 a 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 to demonstrate a working knowledge of percussion instruments, including methods and materials, care and maintenance, and the function of the percussion section in a band or orchestra. For music majors only.

MUS 133 Clarinet Class
1 hr.
Fundamentals of clarinet pedagogy and performance. For music majors only.

MUS 141 Music in Special Education
3 hrs.
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 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 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 148, DANC 148, THEA 148. May be taken only once from College of Fine Arts Department.

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 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, and electric guitar 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,
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 voicing 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 rhythm/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 analyzing including the inversion of diatonic triads 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, subdivisions 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 late Baroque 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 5-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. ($10 fee)
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, playing the piano and informal instruments, and through responding to music rhythmically. Creative aspects and values of music are emphasized, and materials are studied in relation to their future uses in the classroom.

MUS 259 Aural Comprehension III 1 hr.
A continuation of MUS 163. 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 163 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 basically 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 245 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 Romanic 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. Students will learn the proper techniques for playing various percussion instruments commonly used in the classroom and will be given the opportunity to expose one or more of the brasses, 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 381 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 populations, offer instruction in social-recreational instruments, allow for a more in-depth study of appropriate music materials and activities, and allow for experience in designing and implementing music therapy treatment procedures for individuals and groups. Class time will be primarily used for instruction with some selected help times to allow for more individualized instruction. Exams will be of a written, playing, and/or presentational format. Prerequisite: MUS 126 and MUS 261, 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 presentational format. Prerequisite: MUS 126 and MUS 281, 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 (EEM) majors. The course will include accompanying techniques, harmonization using secondary dominants, transposition, open-score reading, sight-reading, and sight-singing. 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 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, ostinato, 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.
Beginning methods for homogeneous and heterogeneous groups will be used with students acting as conductor-takers 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 teaching 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-half day a week. Prerequisite: Acceptance into the 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 ratios 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 objectives needed to implement and maintain a choral program will be identified. Advanced techniques for production of musicals and madrigal dinners, and the principles involved in 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 the 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, 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, concept hierarchies, sequencing techniques, program goals, 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. Practice experiences in junior high/middle school general music classroom which provide the student with opportunities to apply principles developed in the class are a part of course requirements. Prerequisite: MUS 336 or MUS 344 with a "C" or better.

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 required.

MUS 352 Non-Western Music
4 hrs.
A study of the traditional music of China, Japan, Southeast Asia, Korea and the Arabic countries, as well as of the non-literate cultures around the world, such as American Indian, Australian Aborigine, African, and Micronesian. One or several cultures will be selected for close study and a particular attempt will be made to understand the 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 260 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 363.

MUS 360 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 musicality; the nature of
musical memory; the underlying bases for musical taste and for aesthetic experience in music with emphasis on cultural influences.  
**Prerequisite:** PSY 100

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 observations.  
**Prerequisite:** MUS 281 or concurrent. Reserve time for observation.

MUS 385 Music for the Special Student 2 hrs.  
The course will provide an overview of disabilities, federal and state requirements, and programs 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 348 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 and problems of the gifted, talented, and other related tools for professional tasks in 2) for 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 395 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, routines of a song or aria, and projection and auditioning techniques.  
**Prerequisite:** Consent of advisor and THEA 249 (or 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 383. 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 music therapy.  
**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 130 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 potentials, and will cover voicings, 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 basic chord and scale construction and recognition, harmonic function, chord-scale relationships and basic blues and popular song forms. All students will be required to develop aural and performance skills relative to those theory skills.  
**Prerequisite:** MUS 158 or 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.  
Original music composition with digital and analogue synthesizers and computers. Creation of sound scores for concert performance, 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 293 or permission of the instructor.

MUS 566 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 556 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; intervals and scales; turning and temperament; auditorium and room acoustics; psychoacoustics. In addition, the instruments of the orchestra, the human voice, and recent developments in sound system components will be investigated. Prerequisite: MUS 161.

MUS 567 Orchestration  2 hrs.
A study of the characteristics of instruments, and of arranging for the various individual choirs, for combinations of choirs, and for full orchestra. Prerequisite: MUS 261.

MUS 568 Orchestration  2 hrs.
A continuation of MUS 567. Prerequisite: MUS 567.

MUS 570 Introduction to Musicology I  3 hrs.
A course in the general methods and techniques of research in the field of music. Students will complete annotated note cards on important reference tools and a research paper on a topic of their choice. Prerequisite: Permission of instructor.

MUS 571 Introduction to Musicology II  3 hrs.
The course will deal with the history, purposes, and scope of musicology. Topics to be studied include the development of style from monody through the Baroque and the Classical periods. Attention is given both to traditional techniques in 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 nationalism. 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 Orchestral 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 wind ensembles and literature from the Renaissance period through the twentieth century. Prerequisites: 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 grasp the essentials 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. Problems of performance practice will receive special attention with emphasis 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. Developments in the major musical genre of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be explored. Prerequisites: MUS 270 and MUS 271.

MUS 587 Contemporary Music  2 hrs.
A survey of trends in European music and music of the Americas 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 theatrical 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.
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 predominately a 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 complete 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 recording technology. Prerequisite: MUS 596 and approval by instructor.
Theatre

D. Terry Williams, Chair
Cheryl Bruey
James Daniels
Micha Espinosa
C. J. Gianakaris
Joan Herrington
Matthew A. Knewton
Mark Liermann
Gwendolyn Nagle
Greg D. Roehrick
Geoffrey Stephenson
Van H. Washington

The Department of Theatre offers programs leading to the Bachelor of Arts and the Bachelor of Fine Arts degrees. Students should refer to degree and General Education requirements within this catalog for specifics. The Department of Theatre concentrates on undergraduate programs that stress the interdependence of academic and production experiences. Westernization of the 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. Audition 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. Enrolment in a theatre or music-theatre curricula is contingent upon admission to the University and approval of the Department of Theatre. Departmental 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 Audition/Interview Application from the Department of Theatre. The student is urged to commence application procedures early in the year of high school, or in the final year at a community college.

Approval to become a theatre or music-theatre major is based upon the student’s capabilities, as demonstrated by the audition or interview, upon academic abilities reflected in grade point average, various scholastic goals as they are available, and upon letters of recommendation.

Further information regarding admission to a theatre or music theatre curricula may be obtained by writing to 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 Majors should meet with their respective advisor.

Transfer Credit

It is department policy to accept no more than 16 hours of transferred credit toward a non-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 two majors—Theatre and Music Theatre Performance—and one minor—Theatre.

Argentina

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 combining a broad background in theatre with a concentration in Performance or a concentration in Design and Technical Production or a concentration in Theatre Studies.

REQUIRED CORE COURSES

THEA 120 Stagecraft I 3
THEA 141 Introduction to Acting 3
THEA 142 Acting I: Action and Personalization 3
THEA 170 Script Analysis 3
THEA 232 Scenic Design 3
THEA 290 Theatre Practice 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 (TPR)

THEA 241 Voice and Movement I 3
THEA 242 Voice and Movement II 3
THEA 245 Acting II: Character and Language 3
THEA 246 Acting III: Character, Action, Language 3

and two (2) of the following three (3) courses:

THEA 344 Acting IV: Period Styles of Acting 3
THEA 345 Acting V: Contemporary Drama 3
THEA 347 Voice and Movement Lab 3
THEA 352 Directing II 3

THEA 441 Acting Studio 3
THEA 443 Acting for the Camera 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

Required Courses for THEATRE STUDIES Concentration (THS)

Electives 18

In addition to the 39 hours of Required Core Courses, Theatre Studies students must select 18 hours from Theatre Department courses or related courses offered in other departments. The program of each individual student will reflect the approval of the Theatre Department Advisor and a designated faculty mentor.

A grade of "C" or better is required in all courses.

SUGGESTED COURSE OF STUDY FOR PERFORMANCE MAJORS (THDR)

First Year—Fall
THEA 120, 141, *170, 290
First Year—Spring
THEA 142, 230
(*These courses may be taken either semester)

Second Year—Fall
THEA 241, 245, 290, ENGL 252 (General Education, prerequisite to THEA 370)
(*This course may be taken either semester.)

Second Year—Spring
THEA 242, 246, 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 courses.

Performance students should take the three required design courses THEA 232, 331, and 332 between second year spring semester and fourth year spring semester.

Third Year—Fall
THEA 290, *351, 370
(*This course may be taken either semester.)

Third Year—Spring
THEA 290, 371

Junior and senior level performance students must choose two of the following: THEA 344, 345, 347**, 352, 441, 443

(**Repeatable for credit.)

Fourth Year—Fall/Spring
THEA 470

SUGGESTED COURSE OF STUDY FOR DESIGN AND TECHNICAL PRODUCTION MAJORS (THDR)

First Year—Fall
THEA 120, 131, 141, *170, 290
First Year—Spring
THEA 132, 142, 290
(*Courses may be taken fall or Spring semester)

Second Year—Fall
THEA 232 or 331 or 332, 290
Second Year—Spring
THEA 220, 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)
Third Year—Spring
THEA 290, *351, 371, *Elective (see list below)
(*Courses may be taken third or fourth year)
All students following this course of study are reviewed by the Design and Technical Production faculty at the end of the third year to assess progress toward completion of the major and to discuss fourth-year projects and post-graduate planning.

Fourth Year—Fall
THEA *351, 431 or 432 (as offered), 470
*THEA 351 may be taken third or fourth year

Following options. The remainder of these courses are strongly recommended as fourth-year projects and post-graduate preparation.

ART 140 Studio Experience (2D)
ART 201 Drawing
ART 208 Watercolor
ART 220 History of Art
ART 221 History of Art
FCS 124 Apparel Construction
FCS 326 History of Costume
ENGL 105 Thought and Writing
IME 142 Engineering Graphics
IME 246 Introduction to Computer Design
THEA 352 Directing II
THEA 390 Professional Theatre Internship
THEA 400 Special Topics in Theatre
THEA 490 Individualized Study in Theatre

Theatre Minor
24 credit hours

REQUIRED COURSES
THEA 120 Stagecraft I 3
THEA 141 Introduction to Acting 3
THEA 142 Acting I: Action and Personalization 3
THEA 170 Script Analysis 3
THEA 290 Theatre Practicum 3
THEA 371 Stagecraft II 3
THEA 371 Theatre History II 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.

Music Theatre Performance
Bachelor of Fine Arts
84 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 courses in dance and/or music.

Fourth Year—Spring
*Elective (see list below)

THEATRE COURSES (THEA)
A list of approved General Education courses can be found earlier in this catalog.

THEA 100 Introduction to Theatre 3 hrs.
Considers 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 a African-American perspective examining the activities and developments of African-American life as evidenced through its theatre, with emphasis on history, philosophy, dramatic creations, criticism, and concerns. Includes lectures on traditional theatre of Western Civilization and African contributions.

THEA 114 Digital Media in the Arts 3 hrs.
This course will introduce students in Art, Dance, Music, and Theatre to the audio, graphics, video, and other digital tools used by professionals in the arts. All instruction will be delivered on-line, and students must have a WMU email account before the first class of the semester. Course assignments will be comprised primarily of projects created in the various open computer labs within the College of Fine Arts. The course will be graded on a Credit/No Credit basis. Open only to majors within the College of Fine Arts, or minors in Theatre with the consent of instructor. The course will fulfill Western Michigan University’s computer literacy graduation requirement. The course is cross-listed with ART 114, DANC 114, and MUS 114. Prerequisite: Art, Dance, Music, or Theatre major, or minor with consent of instructor.

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 sets, 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 techniques of drafting for 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 Introduction to Acting 3 hrs.
An initial approach to the study of dramatic action using scripted and unscripted material, basic acting exercises and improvisational techniques. Emphasis is placed upon use of the imagination, creating ensemble and creative risk-taking while cultivating self-awareness and the ability to critique objectively and nonjudgmentally.

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 General Education Distribution Program requirements as outlined in this catalog. Within these specifications, it is recommended that the student take two semesters of the following foreign languages: FREN 100, 101 and GER 100, 101
A grade of "C" or better is required in all courses.

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.
THEA 120 Acting I: Action and Personalization
3 hrs.
Study and practice of scene-work from a basic Stanislavski point of view. 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 response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross listed with DANCE 149, 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 performance or production areas. Students must submit a summer theatre application to the Department Chair. Repeatable 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. Lab fee required. Prerequisite: THEA 120 and permission of instructor.

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 the scenic models, and including further development of skills in drafting for the theatre. Prerequisites: THEA 120 and 170.

THEA 241 Voice and Movement I
3 hrs.
Development and training of the actor's vocal and physical instrument for theatrical performance. To be taken concurrently with THEA 245. Prerequisites: THEA 141, THEA 142, and concurrent enrollment in THEA 245.

THEA 242 Voice and Movement II
3 hrs.
Continued development of the actor's vocal and physical instrument for theatrical performance. Prerequisites: THEA 241, THEA 245, and concurrent enrollment in THEA 246.

THEA 245 Acting II: Character and Action
3 hrs.
Integration of theories and practices of introduction to Acting and Acting I with an emphasis upon character development in the process of scene study. To be taken concurrently with THEA 241. Prerequisites: THEA 141, THEA 142, and concurrent enrollment in THEA 241.

THEA 246 Acting III: Character, Action, Language
3 hrs.
Integration of character development and scene study with an emphasis upon classical texts or other intensive language-oriented texts. To be taken concurrently with THEA 242. Prerequisites: THEA 241, THEA 245, and concurrent enrollment in THEA 242.

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.

THEA 290 Theatre Practicum
1–6 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 344 Acting IV: 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. Prerequisites: THEA 242 and THEA 246.

THEA 345 Acting V: Contemporary Drama
3 hrs.
Study and practice of acting in plays from current and twentieth century drama. Prerequisites: THEA 242 and THEA 246.

THEA 347 Voice and Movement Lab
3 hrs.
An advanced course in voice and movement with an emphasis on the individual needs of the student actor. This course provides the student with an opportunity to investigate special topics in voice and movement training and to receive individual and small group tutorials. Prerequisites: THEA 241 and THEA 242.

THEA 351 Directing I
3 hrs.
Focus is upon principles and problems of directing for the non-proscenium stage and expansion of directorial approaches to production. Students prepare and direct scenes and one short play using non-proscenium staging. 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: 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. Repeatable for credit under a different title. Examples of topics for study may include: dialects, mime, puppetry, script writing, advanced directing, theatre administration, touring theatre, advanced improvisation, stage management, and technical direction.

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 231, 132, and one of the following: THEA 233 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 and practice 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.
Study and practice of auditioning and cold readings with an emphasis upon preparation for graduation schools, internships, and the professional world of the actor. Prerequisites: Either 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.  
Prerequisite: Either THEA 344 or THEA 345.

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 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 560 Audience Development  
2 hrs.  
This course will focus on the goals, functions, and means of audience development, with special attention to audience education in the arts. Topics will include the use of quantitative and qualitative analytical techniques to determine bases for creating programs to reach targeted, potential audiences based on demographics, developing master classes, residencies, special presentation, instructional material and post-performance experiences for targeted groups, and methods of evaluating the results of specific programs developed for a specific purpose.  
Prerequisite: Admission to the M.F.A. in Performing Arts Administration program or permission of program director.

THEA 561 Facility and Ticket Office Operations  
2 hrs.  
This course will address issues in facility management for presenting and producing performances and special events (e.g., handling food service for premieres and openings of shows, fundraisers, rentals, etc.) with consideration for the size of the performance space including an overview of the physical operations of such a facility, and the use of auxiliary spaces (e.g., Miller Auditorium, Gilmore Theatre Complex, Dalton Center Recital Hall, Multi-Media Room, Dance Studio B, etc.). The course will also include basics of setting up and running a ticket office for both manual and computerized systems, as well as special sales, audit requirements and artist payments based on percentages. Personnel requirements will be included in relation to the variable above.  
Prerequisite: Admission to the M.F.A. in Performing Arts Administration program or permission of program director.
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 Interdisciplinary Services; Bachelor of Science in 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 Blindness and Low Vision Studies and the Department of Counselor Education and Counseling Psychology) and Teaching Children Who are Visually Impaired/Orientation and Mobility (administered jointly by the Department of Blindness and Low Vision Studies and the Department of Educational Studies). Additionally, the Doctor of Philosophy in Interdisciplinary Health Studies is offered.

The College also provides programs in Holistic Health Care at the graduate level, Alcohol and Drug Abuse and Gerontology at the undergraduate and graduate levels, and Clinical Trials Administration at the graduate level. The Department of Occupational Therapy offers a program in hippotherapy at the graduate level.

Mission
Consistent with the University’s mission of a student-centered research institution, the College of Health and Human Services is committed to educating exemplary professionals in health care, rehabilitation, and social services, and to conducting research, disseminating knowledge, and developing mutually enriching community partnerships.

The College supports and develops innovative methods of education and of evidence-based professional practice in a manner that is interdisciplinary, holistic, and respectful of human diversity.

The vision of the College is to be the recognized leader in health and human services undergraduate and graduate professional education, interdisciplinary and best practices research, and responsive community service.

In achieving its vision and mission, the College of Health and Human Services values service that improves quality of life; compassion and cooperation as integral to professional competence; interdisciplinary, holistic, and collaborative education, research, and service; multidimensional scholarship and lifelong learning; environments that are healthful, intellectually stimulating, supportive, and respectful of differences; and partnerships with the community.

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.

INTERDISCIPLINARY PROGRAM AND COURSES

Interdisciplinary Health Services Major—Bachelor of Science

122 hours at a minimum

This degree program educates students in the knowledge and skills required by all health and human service workers. The program will prepare students for careers in health and human service administration and provide preparation for candidacy in health and human service professional graduate degree and certificate programs. It will also provide health and human service professionals with registration, certification, or licensure credentialing with a baccalaureate completion program.

Once enrolled in the program, students will complete a 30-semester hour professional core curriculum which will educate them in the common competencies required by all health and human service workers. In addition, students will gain specialized knowledge through the selection of a minor or an approved concentration. Finally, as a capstone experience, students will have the opportunity to apply the knowledge and skills they have learned in a 6-semester hour internship in a clinical (if the student is already clinically qualified) or administrative setting, or through applied research.

ADMISSION
Minimum of 30 academic credits and completion of the pre-professional requirement with a cumulative grade point average of 2.5 or minimum of 30 academic credits with a cumulative grade point average of 2.5 and current registration, certification, or licensure as a health or human services provider.

Special note: The Occupational Therapy concentration requires a separate admissions process. Please refer to the Occupational Therapy section for additional information.

ACADEMIC ADVISING

The College of Health and Human Services provides advising to all students who wish to enroll in and who are admitted to the Bachelor of Science in Interdisciplinary Health Services. Students should contact an advisor as early as possible. Advisors will assist students in
program planning, in the selection of a pre-professional sequence and concentration, and in the choice of electives. Failure to meet with the advisor on a regular basis may result in difficulty in completing the program in a timely manner.

**GRADUATION REQUIREMENTS**

Students must meet the University’s graduation requirements. In addition, students must maintain a grade point average of 2.5, with no less than a “C” in any professional core or concentration course. Please refer to the Occupational Therapy section for information on specific graduation requirements. Students may repeat no more than once, one course in the professional core, with the exception of HSV 470 which may not be repeated, and one course in a concentration. Specific program requirements follow. (Refer to the Occupational Therapy section for specific information regarding the Occupational Therapy program.)

**UNIVERSITY GENERAL EDUCATION (37 hrs.)**

Students must successfully complete the University’s General Education Proficiencies and Distribution requirements. It is recommended that students select the following as part of their Distribution requirements:

- PSY 100 General Psychology ............. 3
- HOL 100 Choices in Living ................. 3

**PRE-PROFESSIONAL REQUIREMENT (14 hrs. at a minimum)**

Students must successfully complete a pre-professional sequence. This sequence will be tailored to the student’s interests. Currently registered, certified, or licensed health and human services providers may be granted academic credit for previous work completed at an academically or professionally accredited program or institution. These credits will be evaluated on a course-by-course basis and applied to the pre-professional requirements. All students must also complete the following two courses in addition to a pre-professional sequence:

- MDSC 301 Medical Terminology .......... 1
- HSV HHS Career Seminar ................. 1

**PROFESSIONAL CORE (30 hrs.)**

Students must complete all the courses in the Professional Core:

- HOL 536 Counseling Skills for Health Professionals ....................... 3
- HHS 511 The Health System and Its Environment .................................. 3
- HSV 410 Legal Issues in Health and Human Services ......................... 3
- HSV 420 HHS Research and Statistics .............................................. 3
- HSV 430 Major Issues in Health and Human Services ......................... 3
- OT 478 U.S. Policy in Health and Human Services .......................... 3
- OT 480 Health Services Practice Management .................................. 3

One of the following:

- PHIL 201 Introduction to Ethics ............... 4
- PHIL 334 Biomedical Ethics ................. 4

One of the following:

- COM 332 Group Problem-Solving ........... 3
- SOC 201 Modern Social Problems .......... 3
- PSY 344 Organizational Behavior ........... 3

One of the following:

- COM 170 Interpersonal Communication 3
- COM 200 Introduction to Communication 3
- COM 474 Intercultural Communication 3
- COM 484 Human Communication 3
- SOC 314 Ethnic Relations 3

**BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Bachelor of Science in Interdisciplinary Health Services will satisfy the Baccalaureate Writing Requirement by successfully completing OT 478 U.S. Policy in Health and Human Services.

**CONCENTRATIONS/ACADEMIC MINORS (14 hrs. at a minimum)**

The Professional Core will be complemented by advanced study in an area of concentration or academic minor. Some concentrations and minors will prepare students for candidacy in professional graduate programs. Others will enable students to enter administrative positions in a variety of public and private agency and institutional settings and prepare them for candidacy in a graduate certificate program. Students who elect a concentration will do so in consultation with the Program Director or the advisor. A concentration will be designed to fit the student’s individual learning objectives. It must consist of a minimum of 14 semester hours, at least 9 of which must be from 300-, 400-, or 500-level course work. All concentrations must be pre-approved by an advisor:

**INTERNSHIP (6 hrs.)**

The capstone experience is a required internship of a minimum of 240 clock hours in the U.S. or abroad, designed to provide students with the opportunity to integrate and apply the knowledge and abilities learned and to hone skills in readiness for employment or graduate study. The requirements of the internship are:

1. Completion of all course work in the Professional Core prior to enrollment in the internship, HSV 470 Internship (6 hrs.).
2. Contact must be made with the Program Director one semester prior to the semester in which the student wishes to begin the internship.
3. Prior to the internship, the student must choose a faculty mentor to advise the student regarding the internship, the paper, and the presentation requirements.
4. Selection, from a list of approved sites, of an internship location.
5. Preparation of a reflective paper documenting the student’s professional growth through the internship experience.
6. Presentation of the reflective paper at a seminar session.

**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 capabilities within the various program models. Through student examination, manual preparation, selected readings, oral presentation, and classroom interaction 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 how those have been adapted to the EAP profession. An examination of policies, procedures and actual practices are highlighted in this class. **Prerequisite:** EAP 220.

**EAP 420 EAP Consultation (3 hrs.)**

This course is designed to provide a classroom 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.

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 history of health care delivery, roles and 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.
Information Systems for Health Care Professionals is designed to familiarize the undergraduate health care student with the present and potential impact of health care information systems on the health disciplines and how informatics tools and systems can assist in providing solutions to health care provider education and practice. An emphasis is placed upon the provider’s role as a leader and advocate for change in this rapidly emerging field. Prerequisite: Proof of computer literacy as defined by the University.

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 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 applied to health care management. The course will provide a basis for understanding the financial management function in a health care administrative 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 techniques and 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 foundation 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 topics 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 pharmaco-therapeutics. Principles necessary for a general understanding of the 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 areas 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 studies. 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 598 Directed Independent Study in Health and Human Services
1-6 hrs.
Individualized independent study (reading or research) under guidance of 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.

Interdisciplinary Health Services Courses (HSV)

HSV 100 Health and Human Services Career Seminar
1 hr.
Explores careers in the health and human services professions. This course is designed to assist students in making informed choices regarding career opportunities and in selecting the necessary programs of study for non-clinical careers and for preparation for candidacy in health and human service professional degree and certificate programs.

HSV 410 Legal Issues in Health and Human Services
2 hrs.
An overview of the law and its administration as it applies to the policies and procedures that are designed to improve and protect the health and social well-being of the population. The course will provide a survey of the basic concepts and content in the major areas of health and human service law, an explanation and identification of sources of legal authority and responsibility, and a familiarity with legal language.

HSV 420 Health and Human Services Research and Statistics
3 hrs.
An introduction to the fundamentals of research design and statistics used in health and human service research and the application of this research to the improvement of care and service delivery. This course provides students with the basic skills to critically evaluate and analyze research and conduct computer literature searches and reviews.

HSV 430 Major Issues in Health and Human Services
3 hrs.
Examines the major issues which influence health and human services and their delivery, including special population service provision, advocacy, patient/client-centered care, psycho-social aspects of disease and wellness, health promotion and education, quality and cost controls, and interdisciplinary team approaches to service delivery. The importance of services responsive to the needs of a diverse and multicultural population is also stressed. Students will receive instruction OSHA, Universal Precautions, CPR, and first aid.

HSV 460 Health and Human Services Independent Research
3 hrs.
This course requires the completion of a credible research project related to a current issue in health and human services. The project must be approved and supervised by faculty. This course is only open to students who are registered, certified, or licensed health care providers who wish to substitute a research project and an elective course (3 hrs.) for the required HSV 470 internship. Prerequisite: Department approval.
BLINDNESS AND LOW VISION STUDIES

Paul Ponchillia, Chair
Nancy Beukema
David Guth
HeLEN Lee
James LeJa
Richard Long
Susan Ponchillia
Annette Skellenger
Marvin Weessies
Jennifer Wiebold
William R. Wiener

The Department of Blindness and Low Vision Studies offers graduate-level, professional education programs in orientation and mobility, rehabilitation teaching, rehabilitation counseling/teaching (administered jointly with the Department of Counselor Education and Counseling Psychology). Teaching Children Who are Visually Impaired/Orientation and Mobility (administered jointly with the Department of Educational Studies), and a baccalaureate-level, professional program in travel instruction. 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 who are cognitively impaired. The focus is on how to best serve this population, how to design an appropriate program.
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—31 hrs.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 301</td>
<td>Small &quot;N&quot; Research Design</td>
<td>3</td>
</tr>
<tr>
<td>BLS 412</td>
<td>Internship in Independent Travel</td>
<td>4</td>
</tr>
<tr>
<td>BLS 577</td>
<td>Services for People with Disabilities</td>
<td>2</td>
</tr>
<tr>
<td>BLS 586</td>
<td>Job Analysis and Job Placement</td>
<td>3</td>
</tr>
<tr>
<td>BLS 588</td>
<td>Psychosocial Aspects of Disability</td>
<td>2</td>
</tr>
<tr>
<td>BLS 589</td>
<td>Medical and Functional Aspects of Disability</td>
<td>2</td>
</tr>
<tr>
<td>CECP 520</td>
<td>Foundations of Rehabilitation Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>

Interdisciplinary Minor—19 credit hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS 306</td>
<td>Introduction to Adults with Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>OT 478</td>
<td>U.S. Policy in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>OT 225</td>
<td>Growth, Development, and Aging</td>
<td>3</td>
</tr>
<tr>
<td>SPED 530</td>
<td>Introduction to Special Education</td>
<td>3</td>
</tr>
<tr>
<td>SPED 540</td>
<td>Introduction to Mental Retardation</td>
<td>3</td>
</tr>
<tr>
<td>SPPA 200</td>
<td>Communication Disorders and Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Blindness and Low Vision Studies Courses (BLS)

A list of approved General Education courses can be found earlier in this catalog.

BLS 306 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.

BLS 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 Blindness and Low Vision Studies and would like to further explore their interest. An overview of visual impairment will be provided with both theoretical and practical components.

BLS 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.

BLS 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 function independently, and the capabilities of persons with disabilities. The student will gain an overview of medical aspects of disability, the demographics of disability, and issues relating to integration into society. The various components which make up independent function in our society will be examined as will the adjustment issues relating to disability.

BLS 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, 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.

BLS 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.

BLS 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 BLS 412 Internship in Travel Instruction. In addition to weekly clinical hours, students will attend a weekly lecture class. Graded on a Credit-No Credit basis. Prerequisites: Completion of the following BLS courses with a grade of “C” or better: BLS 300, 302, 394, 395, 501, and 577.

BLS 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.

BLS 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 BLS 396 Practicum in Travel Instruction.

Open to Upperclass Students
BLS 577 Services to Individuals with Blindness or Other Disabilities 1-2 hrs.
This course explores issues that affect services for people who are blind or have other disabilities. It includes prevalence and incidence of various disabling conditions, adaptive recreation, history and current status of service legislation, consumer organizations, professional organizations, accreditation, models of services delivery, national and international agencies and organizations, national and international resources, social service programs, and trends and future issues.

BLS 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.

BLS 586 Job Analysis and Job Placement 3 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.

BLS 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.

BLS 589 Medical and Functional Aspects of Disability 2 hrs.
This course presents an interdisciplinary approach to the study of multi-handicapping conditions in rehabilitation. It includes information on the major disabling conditions such as traumatic brain injury, orthopedic, neuromuscular, visual, learning, speech and hearing, cardiovascular, mental and emotional disabilities; and other select disabilities. Emphasis is placed upon cumulative effects of concomitant disabilities with additional emphasis on visual impairment.

BLS 590 Physiology and Function of the Eye 2 hrs.
The anatomy, structure, and function of the eye. Various eye diseases and malfunctions are stressed. The student is given an opportunity to observe all eyes of eye conditions and eye prostheses.

BLS 591 Braille and 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.

BLS 592 Orientation and Mobility with Children 2 hrs.
This course will provide strategies for teaching orientation and mobility to children. Methods for teaching the typical orientation and mobility curriculum to children (indoor travel to business travel) will be presented. In addition, strategies for teaching areas specific to children, such as body image, sensory-motor, and concept development will be addressed. The focus will be on practical application in educational settings.

BLS 594 Principles of Orientation and Mobility 3 hrs.
An examination and application of the fundamental principles underlying the acquisition of sensorv information by severely visually impaired individuals.

BLS 595 Introduction to Orientation and Mobility 2-4 hrs.
The content of this course relates to problems of independent travel which result from reduced vision. Simulated experiences are provided which emphasize the sensory, conceptual, and performance levels needed for independent travel in a variety of environments. Course is repeatable.

BLS 596 Introduction to Electronic Travel Aids 1 hr.
Systematic instruction in use of fundamental electronic travel aids and overview of major electronic devices. Prerequisite: BLS 595.

BLS 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 low vision services are stressed. The concepts are explored that deal with initial intake procedures, assessment of near and distant visual acuity, assessment of near and distant visual field, color testing, evaluation of sunwear, evaluation of optical aids, training in the use of optical and non-optical aids, and use of equipment such as the lensometer and tonometer. Prerequisite: Approval of advisor.

BLS 598 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.
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 credits 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 which enables the student to pursue a major area of interest that augments the professional studies.

A second track, 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 complete 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.

BIO 191 Introduction to Human Biology and Anatomy 4 hrs.
BIO 240 Human Physiology 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.
Fine Arts (Area A General Education) 3 hrs.
College-level writing/Proficiency 1 1/4 hrs.
OT 225 Growth, Development, and Aging 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.

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 maintain 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 Bronson School of Nursing Student Affairs Committee. Further, students may only repeat such courses once following the initial enrollment. The Bronson School of Nursing Student Affairs Committee will notify students to repeat a course only once it is consistent with policies and procedures for schools of nursing certified or approved by the Commission on Collegiate Nursing Education. Students who wish to 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 s/he will be dropped from the program. Students who wish to continue in the program must appeal to the Bronson School of Nursing Student Affairs Committee. Students whose cumulative grade point average falls below 2.0 will also be dropped from the program. 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 Bronson School of Nursing 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 Bronson School of Nursing policies in effect at that time. Students be offered 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 complete a minor 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 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 required courses in the curriculum toward a minor. Examples of academic minors that 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.

**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.

<table>
<thead>
<tr>
<th>Fine Arts (Area I General Education)</th>
<th>3 hrs.</th>
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</thead>
<tbody>
<tr>
<td>Humanities (Area II General Education)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Approved computer usage course</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>SCS 200: Philosophy of Sociology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>College-level writing (Proficiency 1)</td>
<td>3/4 hrs.</td>
</tr>
</tbody>
</table>

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 for 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**

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. Forty-eight hours of credit for prior nursing study, clinical experience and successful NCLEX completion 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***

<table>
<thead>
<tr>
<th>Supporting Courses</th>
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<tbody>
<tr>
<td>Approved computer usage course</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>General Education Area I (Fine Arts)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>General Education Area II (Humanities)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>General Education Area III (U.S. Culture and Issues)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>General Education Area IV (Other Cultures)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>HHS 161: Physical Education</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PHIL 334: Biomedical Ethics</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>SOC 320: Introduction to Social Psychology or</td>
<td></td>
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<tr>
<td>SOC 390: Marriage and Family Relations OR</td>
<td></td>
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<tr>
<td>SOC 479: Female/Male Interaction</td>
<td>3 hrs.</td>
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<tr>
<td>STAT 266: Introduction to Statistics</td>
<td>3 hrs.</td>
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</table>

**Nursing—23 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 204: Nurses’ Role in Primary Health Care (RN)</td>
<td>6 hrs.</td>
</tr>
<tr>
<td>NUR 308: Nurses’ Role in Facilitating Health and Self-Care (RN)</td>
<td>8 hrs.</td>
</tr>
<tr>
<td>NUR 412: Nurses’ Role in Prevention, Treatment, and Control of Health Problems (RN)</td>
<td>8 hrs.</td>
</tr>
<tr>
<td>NUR 430: Special Topics in Nursing</td>
<td>1 hr.</td>
</tr>
</tbody>
</table>

*In addition to the courses listed above, diploma graduates must also complete the following course work:*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>College-level writing course or elective</td>
<td>3/4 hrs.</td>
</tr>
<tr>
<td>SOF 200: Principles of Sociology</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Baccalaureate Level Writing Requirement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Students enrolled in the Registered Nurse Progression Track of the nursing curriculum will satisfy this requirement through the completion of NUR 306 Nurses’ Role in Facilitating Self-Care (RN).</td>
<td></td>
</tr>
</tbody>
</table>

**Concentration or Academic Minor—minimum of 12 hours**

The faculty believes it is important that students be offered 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 credit-hour intensive than areas of concentration, students will be allowed to count required courses in the curriculum toward a minor. Examples of academic minors that 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.

---

**NUR 102 Introduction to the Profession of Nursing**

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 Pre-nursing curriculum.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 202: Nurses’ Role in Primary Health Care I</td>
<td>6 hrs.</td>
</tr>
</tbody>
</table>

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 OT 225; corequisite HHS 535.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 203: Nurses’ Role in Primary Health Care II</td>
<td>6 hrs.</td>
</tr>
</tbody>
</table>

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; HHS 535.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 204: Nurses’ Role in Primary Health Care (RN)</td>
<td>6 hrs.</td>
</tr>
</tbody>
</table>

The major focus 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 306: Nurses’ Role in Facilitating Health and Self-Care I</td>
<td>9 hrs.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 307: Nurses’ Role in Facilitating Health and Self-Care II</td>
<td>9 hrs.</td>
</tr>
</tbody>
</table>

In the second semester of a two-course sequence, students will focus on the concepts of health care systems, nursing as a profession, nursing case management, collaboration, and negotiation and research. Nursing practice will be provided in settings such as Housing and Urban Development (HUD) housing units, group homes and half-way houses, and senior centers. 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).

Prerequisite: Completion of NUR 306 with a grade of “C” or better; PHIL 334 Biomedical Ethics.
GERONTOLOGY PROGRAM

Donna Weinreich, Advisor for Graduate Certificate Program
Room B-328 Ellworth Hall

Melinda Lockett, 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 specialty known as geriatrics. Interest in the older population has surged in the United States with the recognition that currently our population includes more than 30,000,000 persons beyond age 65—and that population segment is growing. Universities have responded by offering courses in gerontology 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:

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<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 and Blindness</td>
<td>2</td>
</tr>
<tr>
<td>OT 470</td>
<td>Gerontology 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>Communication Problems of the Aged</td>
<td>3</td>
</tr>
<tr>
<td>SWRK 464</td>
<td>Problem Solving in Gerontology</td>
<td>3</td>
</tr>
</tbody>
</table>

The remainder 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/or 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 credit hours. Sixteen hours are required:

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRN 470</td>
<td>Introduction to Gerontology</td>
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<td>BIOS 240</td>
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<td>3</td>
</tr>
<tr>
<td>OT 470</td>
<td>Gerontology of the Older Adult</td>
<td>3</td>
</tr>
</tbody>
</table>

The remainder of the twenty-one-hour requirement will be acquired through elective courses chosen from a list of approved courses.

Gerontology Courses (GRN)

**GRN 470 Introduction to Gerontology** 3 hrs.

This course is designed to provide a basic and broad introduction to the issues facing older persons, their providers, and caregivers. This is the first course in a sequence of courses, which satisfy the baccalaureate-level writing requirement of the General Education curriculum.

**GRN 490 Field Education in Gerontology** 1-4 hrs.

This course is designed to give the student hands-on experience. The student will apply knowledge and information acquired in the gerontology academic setting within a service-learning model. The student will hone his/her professional skills with the guidance and assistance of professionals currently working in field and his/her gerontology advisor. The course is cross-listed with ADA 545.

**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 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 scheduled. 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 illness in old age, depression and dementia. Consideration will be given to etologies, 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 issue compounded by stereotypical views of aging and the aged. This course focuses on social, psychological, etiological, and epidemiological issues related to dementia together with the problems of diagnosis and treatment. Alzheimer’s Disease, probably 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. Prerequisites: Consent of instructor and program advisor.

OCCUPATIONAL THERAPY

Cindee Quake-Rapp, Chair
Ben Atchison
Richard Cooper
Diane Drette
Sandra Edwards
Debra L. Hazel
Paula Jamison
David Orchanian
Stanley Paul
Jacinly West-Frasier

Occupational Therapy

The Accreditation Council for Occupational Therapy Education (ACOTE) has elected to require a master’s degree for the practice of occupational therapy. This change will take effect in 2007. In response to this change, the WMU Occupational Therapy Department has implemented a 4 + 1, or five-year, academic program of study leading to the completion of a Bachelor of Science in Interdisciplinary Health Services with a dedicated track in occupational therapy. Following a six-month internship, students will return to campus to complete a one-year Master of Science in Occupational Therapy.

Admission Requirements for Occupational Therapy Concentration in the Bachelor of Science in Interdisciplinary Health Services

Students interested in admission to the occupational therapy concentration are encouraged to contact the College of Health and Human Services advisor—(269) 387-2656—well in advance of applying to the University. Official transcripts from all colleges and universities attended must be sent to the University Admissions Office in time to be processed prior to the department deadline; 1) admission to the University does not guarantee admission to the professional occupational therapy curriculum. Official transcripts from all colleges and universities attended must be sent to the University Admissions Office in time to be processed prior to the department deadline; 2) admission to the University does not guarantee admission to the professional occupational therapy curriculum. Official transcripts from all colleges and universities attended must be sent to the University Admissions Office in time to be processed prior to the department deadline; 3) admission to the University does not guarantee admission to the professional occupational therapy curriculum. Official transcripts from all colleges and universities attended must be sent to the University Admissions Office in time to be processed prior to the department deadline; 4) admission to the University does not guarantee admission to the professional occupational therapy curriculum. Official transcripts from all colleges and universities attended must be sent to the University Admissions Office in time to be processed prior to the department deadline;

INCOMING FRESHMEN
- Minimum high school GPA of 2.8
- ACT/SAT scores as required by WMU
- In addition to academic performance, students will be evaluated on the completion of narratives on the following topics: work and/or volunteer experiences; statement of leadership roles; statement of cultural/ethnic diversity and competence
- Students admitted as freshmen to the professional occupational therapy concentration will be tracked through the prerequisite course work prior to beginning the courses in the concentration.
- Application deadline for entering freshmen: February 15.

CURRENT WMU AND TRANSFER STUDENTS
- Minimum GPA of 2.8 from WMU and/or transfer institution (if the student has attended two or more institutions, the grades from all institutions will be averaged together)
- WMU OT department application
- Course equivalencies from the following WMU prerequisites:
  - BIOS 240 Human Physiology
  - ENGL 105 Freshman Composition
  - OT 200 Human Functional Anatomy
  - OT 222 Introduction to Occupational Therapy
  - OT 225 Growth, Development, and Aging
  - PSY 100 General Psychology
  - PSY 250 Abnormal Psychology
- Prerequisite courses must be complete with a grade of "C" or better. Current WMU and transfer students must have completed all prerequisite courses prior to beginning the professional occupational therapy concentration.

In addition to academic performance, students will be evaluated on the completion of narratives on the following topics: work and/or volunteer experiences; statement of leadership roles; statement of cultural/ethnic diversity and competence.

Application deadline for current WMU students: January 31 of each year for full semester admission; September 1 of each year for spring semester admission.

Please note the following: 1) In the admission process, a formula is employed that assigns points to grades and to the completed essays. Admission to the program is based on the compilation of all points; 2) admission to the University does not guarantee admission to the professional occupational therapy curriculum. Official transcripts from all colleges and universities attended must be sent to the University Admissions Office in time to be processed prior to the department deadline; 3) occupational therapy is a profession that is regulated on national and state levels, and everyone who wishes to practice as an occupational therapist is required to pass the NBCOT Certification Exam after graduating from an accredited program. Individuals who have been convicted of a felony or who have been charged with a felony and convicted of a misdemeanor, while not prohibited from taking the NBCOT certification examination, may not be able to practice.

THE BACHELOR OF SCIENCE IN INTERDISCIPLINARY HEALTH SERVICES CURRICULUM

All students admitted to the Occupational Therapy Program must also complete the professional core of the Bachelor of Science in Interdisciplinary Health Services. Please refer to the Bachelor of Science in Interdisciplinary Health Services for a listing of those required courses.

THE OCCUPATIONAL THERAPY CONCENTRATION

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHS 530</td>
<td>Cross Cultural Practice for Helping Professionals</td>
<td>3</td>
</tr>
<tr>
<td>OT 370</td>
<td>OT Process</td>
<td>4</td>
</tr>
<tr>
<td>OT 374</td>
<td>Disabling Conditions</td>
<td>4</td>
</tr>
<tr>
<td>OT 375</td>
<td>Applied Neurology and Kinesiology</td>
<td>6</td>
</tr>
<tr>
<td>OT 381</td>
<td>Occupational Therapy Practice I (Birth to 18 years)</td>
<td>6</td>
</tr>
<tr>
<td>OT 382</td>
<td>Occupational Therapy Practice II (19 years to Geriatric)</td>
<td>6</td>
</tr>
<tr>
<td>OT 470</td>
<td>Functioning of the Older Adult</td>
<td>3</td>
</tr>
<tr>
<td>OT 471</td>
<td>Research in Occupational Therapy</td>
<td>3</td>
</tr>
<tr>
<td>OT 472</td>
<td>Occupational Analysis and Adaptation</td>
<td>3</td>
</tr>
<tr>
<td>OT 475</td>
<td>Occupational Therapy Practicum I</td>
<td>4</td>
</tr>
<tr>
<td>OT 478</td>
<td>U.S. Policy in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>OT 479</td>
<td>Occupational Therapy in Psychosocial Settings</td>
<td>3</td>
</tr>
<tr>
<td>OT 480</td>
<td>Health Services Practice Management</td>
<td>3</td>
</tr>
<tr>
<td>OT 482</td>
<td>Occupational Therapy Practicum II</td>
<td>4</td>
</tr>
<tr>
<td>OT 580</td>
<td>Advanced Application of Occupational Therapy</td>
<td>3</td>
</tr>
</tbody>
</table>

Approved Occupational Therapy Elective: 3

BACCALAUREATE WRITING REQUIREMENT

Students who are admitted to the Occupational Therapy concentration in the Bachelor of Science in Interdisciplinary Health Services will satisfy the Baccalaureate Writing Requirement by successfully completing OT 478 U.S. Policy in Health and Human Services.
BENCHMARKS FOR ALL STUDENT ADMITTED TO THE OCCUPATIONAL THERAPY CONCENTRATION

- Minimum cumulative grade point average of 2.8 for the freshman and sophomore years.
- Minimum cumulative grade point average of 3.0 for the junior and senior years.
- Students will complete all required OT courses with a grade of "C" or better.
- Students may repeat only one required pre-professional course or departmental course, and that course only once, to attain a grade of "C" or better. Note that a withdrawal from a course is considered an enrollment failure.
- Students who fail to attain a grade of "C" or better in a professional course will be placed on departmental probation.
- Students who do not successfully complete departmental probation will not be permitted to continue in the program.
- A second unsuccessful enrollment will result in termination from the program.
- The student must manifest emotional and behavioral characteristics, which, in the judgment of the department faculty, will not jeopardize his/her professional competence.
- The student must achieve a score of 70% or above on Kasar's Professional Development Assessment (70% of items scored) or complete an approved remediation plan, form OT 202, 370, 381/382, 475, and 482.

Occupational Therapy Courses (OT)

NOTE: Materials fees are required for some courses.

OT 200 Human Functional Anatomy 4 hrs.
- This course involves a detailed study of the human neuro-musculo-skeletal anatomy of the head, neck, upper limbs, back, and lower limbs which underly function. Students will use standard atlas as a reference to analyze individual and group performance.

OT 202 Orientation to Occupational Therapy 3 hrs.
- Orientation to the profession of occupational therapy. Will include the history of the profession, current professional roles, issues and trends in the field. Included in this course are self-instructional modules in medical terminology as well as uniform terminology specific to occupational therapy.

OT 225 Growth, Development, and Aging 3 hrs. Fall, Winter
- A study of physical, mental, emotional, and social patterns of growth, development, and aging. Attention will be given special emphasis for the occupational therapy student will 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 or agency to provide experience with hospital procedure and an orientation to patient groups. A daily log is required. Student must submit a proposal for the course for departmental approval prior to registration. Prerequisite: 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 professional communication. Prerequisite: Admission to the professional Occupational Therapy program. Corequisite: OT 374.

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, immunotoxic, metabolic, psychiatric, and circulatory/respiratory. Prerequisite: Admission to the professional Occupational Therapy program. Corequisite: OT 370.

OT 375 Applied Neurology and Kinesiology 6 hrs.
- An applied study of human neurologic, neuro-muscular, neuro-motor, and sensori-motor function. Emphasis will be placed on development of normal occupational performance, assessment of the performance component, 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).

OT 380 Introduction to Assessment: OT Process, Psychometrics, Theory 2 hrs.
- This course provides investigation of occupational therapy theory 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 reporting, as well as use the 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 intervention 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 381.

OT 382 Occupational Therapy Practice II (19 Years to Geriatric) 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 intervention 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 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.

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, sleeping, vocation, and leisure. Prerequisites: OT 381 and 382. Corequisites: OT 475, 471, 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/leisure performance. Prerequisites: OT 381 and 382.

OT 475 Occupational Therapy Practicum I 4 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 381 and 382.

OT 478 U.S. Policy in Health and Human Services 3 hrs.
- This course will allow the student to critically read, analyze, and understand current U.S. policy in health and human services and to understand how these policies affect specific people in the community. The student will write advocacy letters, explanations (at the appropriate level of understanding) and recommendations for potential revisions of current health policies. Prerequisites: Completion of Proficiency 1 with a grade of "C" or better. Limited to students in the Bachelor of Science in Interdisciplinary Health Services program.

OT 480 Health Services Practice 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.

OT 481 Work Analysis and Consultation 3 hrs.
- This course introduces students to work analysis in a variety of settings. Students learn to write job descriptions using ADA (Americans with Disabilities Act) standards (essential and nonessential job functions) and will learn to evaluate workers to determine their individual capability to perform a certain job (work capacity evaluation). Students will
evaluate actual jobs to make recommendation (following current legislation) for modifications for the worker, work site, and work organization to decrease potential job-related injuries. Students will also develop a wellness and injury prevention program to address injury prevention for a specific population.


OT 482 Occupational Therapy Practicum I
4 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.


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 competencies required for occupational therapy. Departmental consent only.

Corequisites: OT 480, 481, and 483.

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. Prequisite: Completion of all basic professional course work 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. Prequisite: 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.

Prequisites: 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.

Prequisites: OT 475 or concurrent, or OTR, RPT, or consent.

OT 597 Studies in Occupational Therapy
2–4 hrs.
Examine selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit.

Prequisites: Advanced OT major or departmental permission.

PHYSICIAN ASSISTANT
James Van Rhoe, Chair
Sherrell Busboom
William H. Fenn
Barbara Grinwis
Thomas Holmes
Karen Homeffer–Ginter
James Kendrick
Suzan D. Olson
C. Dennis Simpson
Eric Vangans
Edo Weils

The Department of Physician Assistant offers a Master of Science in Medicine in Physician Assistant, an undergraduate minor and a graduate certificate program in Alcohol and Drug Abuse, a graduate certificate program in Clinical Trials Administration, and a graduate certificate program in Holistic Health Care. Please see the 2002–2004 Graduate Catalog for more information about the graduate programs and courses offered by the department.

While most of the department's courses are open to graduate students only, some courses are open to qualified undergraduates; see the program advisor for more information.

Alcohol and Drug Abuse Program
Advisors:
Jan Dekker, Advisor for Graduate Certificate Program
Room 9-329, Ellsworth Hall

Jeanine Bartholomew, Advisor for Undergraduate Minor
Room 9-121, Henry Hall

Western Michigan University's Specialty Program in Alcohol and Drug Abuse (SPADA) provides professional education for all those who are interested in the substance abuse field. Multidisciplinary in nature, SPADA provides a balanced orientation to theory and practice, considers a breadth of contemporary issues, and emphasizes a variety of methods for dealing with the problems of substance abuse.

SPADA offers a graduate certificate in alcohol and drug abuse which can be earned as an independent certificate or can be used to supplement graduate education in related fields such as biotechnological sciences, counseling psychology, occupational therapy, psychology, public administration, social work, and sociology, as well as other related disciplines. Specifically, the graduate certificate may be earned in one of three ways: as a post-baccalaureate certificate, in conjunction with a graduate degree, or to complement an earned graduate degree.

Graduates of SPADA are prepared to serve the profession in ways which address the personal, social, and economic costs of the use and abuse of psychoactive substances. Further details regarding this graduate program are available in the Graduate College Catalog.

Substance Abuse Services Minor
The minor in Substance Abuse Services is meant to supplement formal training in other fields such as education, psychology, sociology, social work, occupational therapy, and others. The six courses which comprise the 18-hour minor are ADA 320 Legal and Illegal Drugs; ADA 335 Substance Abuse Diagnosis and Treatment Planning; ADA 326 Substance Abuse Treatment Process; CECP 483 Treatment 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. 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, case finding, detoxification, inpatient treatment, residential treatment, therapeutic communities, day care, intensive 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 clinic 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.
The 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 policy issues of abuse and misuse 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 between substance abuse and violence. Specific foci are the relationships of substance abuse and domestic violence, child abuse, and other assultive behaviors.

ADA 567 Legal Offenders and Substance Abuse 3 hrs.
This course provides the student with knowledge of 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.
This course provides an 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.

### Clinical Trials Administration Courses (CTA)

**CTA 500 Introduction to Drug and Device Development** 3 hrs.
The 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** 1–3 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.

**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 are addressed. 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.

### Holistic Health Care Courses (HOL)

**HOL 100 Choices in Living** 3 hrs.
The course will focus on the relationship between individual choices and social responsibilities and ethical 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, attitudes, issues, and ethics about the current health and health care models. They will explore and critically evaluate a variety of holistic health 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, and 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 for majors in counselor education and counseling psychology or social work.

HOL 550 Introduction to Holism and Expressive Arts
3 hrs.
This course is a survey of expressive arts therapies used to facilitate the healing process and will deepen the student's understanding of the role of creative expression in health and healing. The use of arts therapies to promote health, reduce stress, and complement the traditional treatment of physical and mental illness will be discussed. Topics covered will be visual arts, sound/music, movement/dance, writing/poetry, and drama/psychodrama. The format for the course will be a combination of experiential creative activities, guest lectures, and video and audio presentations. No artistic experience or background required.

HOL 551 Holistic Approaches to Healing Through Visual Art
3 hrs.
This course introduces a holistic approach to the use of visual arts in healing; how to choose and present appropriate art experiences; spontaneous and directed theme art activities, resources, and materials; guides for interpreting art; and more. A variety of activities such as drawing, painting, clay, sand tray, collage, mandalas, and masks will be explored. The format for the course is a combination of experiential activities, lectures, video, and slide presentations. The course is designed to give students and professionals in the counselling, social work, psychology, health care, functional therapy, art, and other fields some practical tools and considerations for using art for health and healing with others or for personal growth. No artistic talent is required.

HOL 555 Successful Aging—Holistic Perspectives
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 positively treat chronic diseases will be presented along with programs and policies that enable older people to practice an active lifestyle. 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 588 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 the appropriate faculty member comes from the student, with consultation from the advisor.
Prerequisite: Consent of instructor.

The School of Social Work offers both undergraduate and graduate professional programs leading to a B.S.W. and M.S.W. respectively. Both programs are accredited by the Council on Social Work Education. Further information about the graduate program, designed to educate students for interpersonal practice and policy, planning, and administration positions in the field of social welfare, may be found in the Graduate Catalog.

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 welfare, social work theory and 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 6 hours of research, totaling 80-62 hours. As part of the program, students complete a 400-hour internship in a human service agency.

Social Work majors can obtain specialty certificates offered by the College of Health and Human Services in conjunction with their social work degree. Students with other majors can obtain a 15-hour minor in social work. For further information about certificate programs and the social work minor, please consult with the College of Health and Human Services academic advisor.
Admission Requirements

Students interested in 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 as evidenced in the establishment of deadlines occurs after review of all application by the Admissions and Student Services 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.

All coursework during the School of Social Work, following the application and interview process established and conducted by the Coordinator of Field Education. The timing of each student's field education is determined upon admission to the major during the program planning process. 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 Coordinator of Field Education. Failure to complete the application process according to the established deadlines 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 instructor at the agency and a faculty liaison at the University. Communication labs are conducted on-campus by the faculty liaison and is intended to help orient students to their placement. The University identifies overall expectations for professional performance, and 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. Student 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 labs 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 instructor, to develop social work skills and gain hands-on experiences. The Council on Social Work Education guidelines require a minimum of 400 hours per semester at the agency. Field education is graded on a Credit/No Credit basis.

Social Work Curriculum Requirements

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Social Work major will satisfy the Baccalaureate Writing Requirement by successfully completing OT 478 U.S. Health Policy in Health and Human Services or a comparable course approved by the B.S.W. coordinator.

GENERAL EDUCATION REQUIREMENTS

37 hrs.

REQUIREMENTS FOR THE SOCIAL WORK MAJOR

32 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.

SWRK 340 Social Work Research Methods 3

SOC 283 Methods of Data Analysis 3

REQUIRED GUIDED INTERDISCIPLINARY MINOR

22–24 hrs.

Includes:

COM 170 Interpersonal Communication I 3

OT 478 U.S. policy in Health and Human Services or a comparable course approved by the B.S.W. coordinator 3

ECON 107 Economic Issues in the U.S. Today 3

One of the following:

BIOC 112 Principles of Biology 3

SCI 133 Issues in Social Biology 4

One of the following:

PSCI 202 State and Local Government 4

PSCI 300 Urban Politics 3

One of the following:

PSY 100 General Psychology 3

PSY 160 Child Psychology 3

PSY 259 Abnormal Psychology 3

One of the following:

SOC 210 Modern Social Problems 3

SOC 300 Sociological Theory 3

SOC 352 Introduction to Social Gerontology 3

ELECTIVES

24–26 hrs.

Students are encouraged to elect additional courses in any area of their specific interest. Particularly recommended in preparation for social work practice are: anthropology, communications, economics, history, philosophy, political science, psychology, sociology, or women's studies. The following social work courses are also available as electives for undergraduate students.

SWRK 464 Problem Solving in Gerontology 3

SWRK 512 Social Policy Service Delivery in Selected Problem Areas 3

SWRK 562 Community Organization in Urban Areas 3

SWRK 564 Special Studies in Social Welfare Practice 1–4

SWRK 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas 1–4

SWRK 598 Readings in Social Work 1–4

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 higher 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 3

SWRK 300 Social Welfare as a Social Institution 3

plus Three of the following social work courses: 333, 340, 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:** Social Work Major 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 surveys the history of social welfare, considering racial and economic factors and their impact upon social policy and service delivery. **Prerequisites:** 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 client/stakeholder. 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. **Consent of instructor.**

SWRK 340 Social Work Research Methods
3 hrs.
This course is designed to increase students' knowledge of research as a tool for social work practice. Students will learn the basic skills and knowledge to utilize existing social research for practice-related decision-making as well as the capacity to carry out systematic methods of investigation. The implementation of these research skills will enhance service delivery and contribute to the knowledge base of the profession. The course also emphasizes program evaluation in human service organizations and offers the opportunity to integrate the content learned through experiential practice examples and application in social work. **Prerequisite:** Admission to the social work undergraduate program or departmental approval.

SWRK 350 Human Behavior and the Social Environment
3 hrs.
Human growth and behavior are studied across the life span and as social/cultural phenomena that are conditioned by economic, historical, political, geographic, and racial/ethnic diversity. Thus, human development and behavior are inseparable from the social context which affect and are affected by them and which modify 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-level 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. **Prerequisites:** SWRK 210, SWRK 350, and junior status.

SWRK 400 Social Work Practice: Engagement, Assessment, and Planning
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 generalist social work practice problems and working with individuals, families, and groups, including how to obtain, organize, and assess information. Students proceed to determine priorities for contracting and goal setting in preparation for the intervention phase. Students study the practice implications of gender, race, and other aspects of diversity. **Prerequisites:** SWRK 300, SWRK 350; acceptance in the BSW program and consent of the undergraduate advisor.

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 focus on problems related to violence, substance abuse, and crisis. Emphasizing the generalist intervention model, students learn social work roles, including advocate, facilitator, case manager, and broker. Monitoring and police evaluation are presented, including single-subject design. Students study the practice implications of gender, race, and other aspects of diversity. **Prerequisites:** SWRK 400 and concurrent enrollment in SWRK 410.

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 premises 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 environment including organizational change and utilization of organizational resources for effective service delivery. **Prerequisite:** 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, a three-day communication lab, and 12 hours in an on-campus seminar. 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. Students 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. **Prerequisite:** Senior status, Social Work Major status, consent of the Coordinator of Field Education, completion of SWRK 400, and concurrent enrollment in SWRK 401. Completed application is due 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 and 14 hours in an on-campus seminar. Students further integrate and apply social work skills and values in their field practicums, including the problem-solving process, interviewing, use of self, and understanding of diversity. Graded on a Credit/No Credit basis. Completion of SWRK 401 and 410, consent of the Coordinator of Field Education, and concurrent enrollment in SWRK 402.

SWRK 420 Ethical Issues in Substance Abuse Services
3 hrs.
Human service professionals have a responsibility to engage in ethical behavior. They are involved in situations which are increasingly more complex with fluctuating and competing values. The purpose of this course is to help students become more effective in dealing as professional persons with ethical questions in social policy and practice situations. The course focuses on ethical issues and laws impacting employee assistance programs. It is structured to facilitate development of a greater awareness of one's personal values and the values and ethics of the profession. It is presented from a social work perspective. Ethical values are presented at different levels—client, colleague, agency, community, and society. Students are introduced to moral and philosophical analysis of ethical problems and a model for ethical decision-making. **Prerequisite:** SWRK 400 and concurrent enrollment in SWRK 440.

SWRK 440 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.
SWRK 560 Social Work with Communities 3 hrs.
This course involves an examination of major theoretical and conceptual knowledge 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 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 562 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.

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 579 Teaching Apprenticeship in Selected Social Work Curriculum Areas 1–4 hrs.
The course focuses on the development of educational activities for social work students 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 6 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area.

SWRK 586 Readings in Social Work 1–4 hrs.
Offers advanced students with good scholastic records an independent study program of study, arranged in consultation with the instructor. One to four hours credit per semester.
a graduate level six credit hour school 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 the 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. 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, emotional, linguistic, physiological, and psychosocial bases of human communication and the ways in which it may be disordered. The impact of scientific investigation, technology, education, economics, health and rehabilitation on communication disorders will be addressed. Individual and societal variables related to communication and its disorders, the challenges of medical and technological advancements, and the quantitative tools used in assessment and rehabilitation will be stressed.

SPPA 203 Normal Language Acquisition 3 hrs.

A study of normal language acquisition as a basis for investigating disordered language. The course involves 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 transcription of speech behavior. Prerequisite: Consent of instructor or LANG 105 and BIDS 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, PHYS 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, PHYS 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 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, articular, 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 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 audiology, computer applications to speech pathology and audiology, augmentative communication, and contemporary professional issues.
The Extended University Programs 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. Extended University Programs 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 Extended University Programs, five colleges provide the full program or course work for 23 master's degrees, seven graduate certificates, four doctoral degrees, and eight undergraduate degree programs off-campus. Click on www.wmich.edu/eup/ to view academic offerings in each regional center.

Kalamazoo and Statewide Programs

Director: Ms. Natalie Morton
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.kzoo.wmich.edu

Distance Education

Director: Dr. Craig Kami
www.dde.wmich.edu
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-Instructional 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

Director: Ms. Janet Karpus
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.conferences.wmich.edu

Branch Campuses

Extended University Programs' administrative offices are located in Ellsworth Hall on Western's main campus in Kalamazoo. Branch campuses and sites follow:

Battle Creek
Mr. Anthony De Rose, Director
Kendall Center
50 W. Jackson
Battle Creek, MI 49017-3505
(616) 965-5380
www.bc.wmich.edu

Grand Rapids
Dr. James Schultz, Director
2333 East Beltline, S.E.
Grand Rapids, MI 49546-5936
(616) 771-9470
www.gr.wmich.edu

and

200 Ionia Avenue, S.W.
Grand Rapids, MI 49503
(616) 771-4100
272 EXTENDED UNIVERSITY PROGRAMS

Holland Regional Site at Hope College
B-55 100 E. 8th St.
Holland, MI 49423
(616) 392-1143
www.holland.wmich.edu

Lansing
Mr. Gus H. Bremmann, Director
Verndale Office Park
6105 W. Saint Joseph Hwy., Suite 205
Lansing, MI 48917
(517) 327-1480
www.lg.wmich.edu

Muskegon
Ms. Deborah N. Newson, Director
Stevenson Center for Higher Education
221 S. Quarterline Road
Muskegon, MI 49442-1742
(231) 777-0500
www.mi.wmich.edu

Southwest
Mr. Leonard Seawood, Director
2739 E. Naper Drive
Benton Harbor, MI 49022
(269) 934-1500
www.sw.wmich.edu

Traverse City
Ms. Mary Swartz, Director
220 Dendrinos Dr., Suite 200-S
Traverse City, MI 49684
(231) 995-1788
www.tc.wmich.edu

GENERAL UNIVERSITY STUDIES

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 (Spring), May (Summer I) and June (Summer II). To be admitted to this program, students should complete the admission steps at least two months prior to the start of classes.

PROGRAM AREAS

Occupational Education Studies

Geraldine Schma, 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 University admission requirements, applicants to this program must also meet the following prerequisites required for all degree candidates recommended for teaching certification by the College of Education 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.

PROGRAM REQUIREMENTS FOR OCCUPATIONAL EDUCATION STUDIES

1. Complete a teachable major: A minimum of 30 hours in a teachable technical/occupational program of study, which is approved by the Michigan Department of Education for the OES program and completed at one of the collaborating Michigan community colleges. If an approved program of study was not followed at a Michigan community college, the passing scores of the Michigan Occupational Competency Assessment Center (MOCAC) must be submitted.

2. Complete a teachable minor: A minimum of 20 hours in a teaching minor sequence for Secondary Education Curriculum approved in consultation with a university advisor.

3. Complete work experience: A minimum of 4,000 hours of recent and relevant work experience required in the teachable major.

4. Complete the following 21 hours of Professional Education Courses:
   - ED 305 K-12 Content Area Literacy
   - CTE 305 Career and Employability Skills
   - CTE 342 Curriculum Development in CTE
   - CTE 344 Teaching Methods for CTE
   - CTE 348 Student Assessment and Management
   - CTE 510 Special Populations in CTE
   - CTE 512 Principles of Career and Technical Education

5. Complete the following 12 hours internship and seminar courses:
   - CTE Seminar in Education
   - CTE Intern Teaching in CTE

Student Integrated Curriculum

Geraldine Schma, Advisor

The Student Integrated Curriculum (STC) is designed for those students in their senior year who seek to change from a specific degree to a general degree. The program appeals to those who late in their academic studies determine that they want to pursue a different career path but wish to use their previous studies to apply to a general degree. The degree also appeals to those who left the University and are already in a profession but wish to enhance themselves by completing their degree. A degree of Bachelor of Science or Bachelor of Arts will be awarded based on the topical areas applied. For more information, see the program advisor.

Student Planned Curriculum

Geraldine Schma, Advisor

The Student Planned Curriculum (STC) provides 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.
The Graduate College offers a wide variety of programs leading to the master's, specialist, and doctoral degrees.


A number of other programs at Western also lead to the Master of Arts: Anthropology, Applied Economics, Art, Communication, Comparative Religion, 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, Chemistry, Computational Mathematics, Computer Science, Construction Management, Earth Science, Engineering (Computer, Electrical, Industrial, and Mechanical), Engineering Management, Geology, Manufacturing Engineering, Materials Science and Engineering, Medicine, Molecular Biotechnology, 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 and in Performing Arts Administration), 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, and the Doctor of Audiology is also offered.

Please refer to The Graduate College Catalog, 2002-2004 for further information on these programs, as well as on admission and graduation requirements. Or visit The Graduate College website http://www.wmich.edu/grad
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: 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, 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 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.

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.
3. Students may not have others conduct research or prepare work for them without advance authorization from the faculty member.

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.

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

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

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.

Footnotes, endnotes, and in-text citations: One footnote, endnote, or in-text citation is usually enough to acknowledge indebtedness 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 Association (APA) style and Modern Languages Association (MLA) style.

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Complicity
Definition: Complicity is intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.
Clarification
Examples of complicity include knowingly allowing another to copy one’s paper during an examination or test, distributing test questions or substantive information about the materials to be tested before the scheduled exercise; collaborating on academic work knowing that the collaboration will not be reported; taking an examination or test for another student, or signing another’s name on an academic exercise.

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

Students should seek clarification when in doubt.)

Computer Misuse

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

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

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

Clarification
Examples of misconduct in research include but are not limited to:
1. Fabrication of Data: Deliberate invention or compilation, the falsification of data.
2. Falsification of Data: Dishonesty in reporting results, ranging from unauthorized alteration of data, improper revision or correcting of data, gross negligence in collecting or analyzing data, to selective reporting or omission of conflicting data.
3. Plagiarism and Other Misappropriation of the Work of Another: The representation of another person’s ideas or writing as one’s own, in such ways as stealing others’ results or methods, copying or presenting the writing or ideas of others without acknowledgment, or otherwise taking credit falsely. Representing another’s artistic or technical work or creation as one’s own. Just as there are standards to which one must adhere in the preparation and publication of written works, there are standards to which one must adhere in creative works in the tonal, temporal, visual, literary and dramatic arts.
4. Abuse of Confidentiality: Taking or releasing the name or data of others which were given in the expectation of confidentiality, e.g., stealing ideas from grant proposals, award documents, or manuscripts intended for publication or exhibition/performance when one is a reviewer for granting agencies or journals or when one is a juror.
5. Dishonesty in Preparation or Exhibition/Performance: Kn owingly publishing, exhibiting or performing work that will mislead, e.g., misrepresenting materials, methods, the student's originality, or adding or deleting the names of other authors without permission.
6. Deliberate Violation of Requirements: Failure to act honestly to fulfill the approval required for work under research regulations of federal, state, local or university agencies, including guidelines for the protection of human subjects or animal subjects and the use of recombinant DNA, radioactive material, and chemical or biological hazards.
7. Failure to Report Fraud: Concealing or otherwise failing to report known misconduct or breaches of research or artistic ethics.

Research Board Requirements
Misconduct in research includes failure to comply with requirements of the conduct of research and creative activities, e.g., the protection of human subjects, the welfare of laboratory animals, radiation, and biosafety. Allegations of misconduct may be brought by Human Subjects Institutional Review Board, the Institutional Animal Care and Use Committee and the Institutional Biosafety Committee.

CHARGES OF VIOLATIONS OF ACADEMIC HONESTY AND CONDUCT IN RESEARCH
Western Michigan University’s academic honesty and conduct in research policies have been created and defined by members of its academic community, recommended by its faculty senate, and approved by the University, of which the student is a member. The processes necessary to support these policies are managed and facilitated by the Office of Student Judicial Affairs (OSJA). If you have questions about the forms, the process, your role in the process, or anything else related to academic honesty, please call the Office of Student Judicial Affairs at 387-2160. The hearing will take place August 30, 1999, and supersede previous catalog sections entitled “Academic Policy and Status,” “Academic Conduct Violation: Consequences,” “Academic Grade Appeals Procedure,” and “General Appeals Procedure.” This section applies to cases in which a student is to be charged with a violation of the Academic Honesty Policy, including the policy on Academic Honesty and the policy on Conduct in Research.

1. Charging a student with a violation: An Academic Dishonesty/Conduct in Research Charge Form is filled out by the instructor for the purpose of charging the student. After the instructor completes the form, the instructor sends it (or may fax it) to the OSJA. A staff member in that office will then contact the student and schedule a meeting between the student and the OSJA. An OSJA staff member will also notify the Registrar of the pending case, and will institute a “disciplinary hold” preventing the student from dropping, adding, or registering in classes.
2. If the student admits the charge: If the student admits responsibility, the OSJA will contact the instructor and arrange an appointment between the instructor and the student to communicate the instructor’s penalty for the behavior, unless the instructor chooses not to meet with the student. The instructor may impose an academic penalty up to failure of the course in which the student is enrolled. The OSJA may also impose non-grade-related penalties ranging from reprimand to dismissal from the University.
3. If the student denies responsibility: If the student denies the charge, the OSJA will consult with the instructor to ascertain the instructor’s preference as to the hearing type. The hearing may be a meeting between the instructor and the student or a meeting between the student and an Academic Integrity Committee. An Academic Integrity Committee will consist of three faculty members and two students, selected using procedures established by the Professional Concerns Committee of the Faculty Senate. The choice of hearing type is the instructor’s. The OSJA will assist the instructor in setting up the hearing and will notify the student of its time, date, and location.
4. If the student wants to appeal a finding of responsibility after a hearing with the instructor: A student may appeal a finding of responsibility resulting from a hearing with the instructor to an Academic Integrity Committee within five University business days. The student cannot appeal after that time has elapsed.
5. The authority of the academic integrity committees: 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 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, the instructor so decides, or an Academic Integrity Committee so decides by majority vote. When that finding has occurred, the instructor may impose a grade penalty up to failure of the course in which the student is enrolled. A decision by the instructor regarding a grade penalty cannot be appealed by the student once the student has been found responsible and has exhausted or waived all appeals. Also, once the student has been found responsible and has exhausted or waived all appeals, that student’s continued attendance in the relevant class depends on the penalty imposed by the instructor and/or the OSJA. If the instructor determines to fail the student in the course, the student is not permitted to continue attending class. Again, a finding of responsible means that the OSJA may impose additional penalties ranging from reprimand to dismissal from the University. In all cases when a final finding of responsibility has been made, the Registrar will be notified and will note the finding on the student’s academic record.
7. If a finding of “not responsible” has been made: If a finding of “not responsible” has been made, the charge is dismissed and no penalties are imposed.
8. While a case is pending: A case is considered pending until one of two events occurs: (1) the student admits responsibility or (2) the hearing process is completed. While a case is pending, the student has the right to attend and participate in the class. If the case is pending at the end of the semester, the instructor must assign a grade to the student. The grade and the course in which the student is enrolled. The OSJA may also impose non-grade-related
these efforts are unsuccessful, the instructor's academic unit chair/director will appoint another qualified faculty member to assign the grade.

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

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

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

Faculty members will serve three-year terms (with staggered terms for the first AIC panel, to ensure continuity of experience and training). Students will serve one-year terms with reappointment possible for up to a total of three years. It will be necessary to include on the panel those who can serve in the spring and summer.

Each five-member AIC shall be composed of five faculty members and two student members. For a charge against an undergraduate student, both student members of the AIC shall be undergraduates. For a charge against a graduate student, both members shall be graduate students. Each AIC will elect a faculty member to chair the committee, and each AIC must have three faculty and two student members present to have a quorum. When necessary, faculty and/or student members of an AIC may be replaced with AIC panel members selected by the PCC.

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

Course Grade and Program Dismissal Appeals

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 the student from an academic program for reasons other than charges of violations of academic honesty and/or conduct related policies. Throughout this process, the Office of the University Ombuds is available to students and instructors for assistance on procedures and clarification of the rights of all parties.

1. Informal meeting with instructor: A student is encouraged to meet with the instructor who assigned the grade or the person(s) who made the program dismissal decision. Such meetings often offer students the opportunity to understand the grading practices of instructors and often lead to resolution of differences over grades.

2. Written or oral appeal 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 submitted within the time established by the academic unit chair/director. The instructor must submit the academic file to the chair/director 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 acceptable bases of appeal are:

   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 a grade or removed an incomplete or to initiate a grade change as agreed upon with the student.

   A grade appeal cannot be made in response to a status change, such as a grade penalty assessed as a result of an official finding of responsibility for 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 shall be handled through affirmative action or other office, pursuant to other University policies and procedures.

3. Appeal to committee: If the matter involves a program dismissal, or 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 subsequently re-evaluated the student's work, the student may appeal to the 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 Professional Concerns Committee (PCC). When the Ombuds receives the appeal, the Ombuds will schedule a meeting of a grade and program dismissal appeals committee using procedures 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 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 appeal 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.

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

The Family Educational Rights and Privacy Act

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

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

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

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

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

   • Financial information submitted by their parents
   • Confidential letters and recommendations associated with admissions, employment, or placement
   • Honors information to which they have waived their rights of inspection and review

   Educational records containing information about more than one student, in which case the institution will permit access only to that part of the
record which pertains to the inquiring student.

2. The right to request the amendment of the student's educational records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights. Students may ask the University to amend a record they believe is inaccurate or misleading. They should write the University official responsible for the records, clearly indicating the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosures of personally identifiable information contained in the student's educational records, except to the extent that FERPA authorizes disclosures without consent. One exception, which permits disclosure without consent, is to Disclosure University officials with legitimate educational interests and/or needs to review an educational record in order to fulfill his or her professional responsibilities. A University official for the purpose of this policy is defined as follows:

- Members of the faculty
- Members of the professional, executive and administrative staff, excluding any member of the WMU Police Department
- Students, when properly appointed as members of a hearing panel or screening committee
- Representatives of the State Auditor General when performing their legal function
- A person or company with whom the University has contracted (e.g., attorney, auditor, or collection agency) but limited to only the specific student information needed to fulfill their contract
- Others as designated in writing by the President, Vice President, or Dean
- Accrediting agencies performing an accreditation function

The University, upon request, may disclose educational records to officials of another school in which a student seeks to enroll, with a student's consent. Another exception that permits disclosure without consent is when the information consists solely of "Directory Information." Directory information may be published or released by University faculty and staff at their discretion. Unless a student specifically directs otherwise explained more fully in paragraph four (4) below, WMU designates all of the following categories of information about its students as "Directory Information."

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

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

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

5. The right to file a complaint with the U.S. Department of Education concerning alleged failures by WMU to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is Family Policy Compliance Office, U.S. Department of Education, 660 Independence Avenue SW, Washington, D.C. 20202-4605.

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, any individual so harassed, intimidated, or otherwise retaliated against may file a complaint alleging 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:

* Federal and state law, as well as University policy, protect an individual 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.

The University will take the strongest possible action, legal and otherwise, to discipline any employee, student, or other individual who retaliates against any complaints of alleged sexual harassment or sexism.

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 its elimination 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 Seibert Administration Building (387-3620). Students should report such conduct to the Office of Institutional Equity, Trimpe Bldg. (387-6316).

The Director of Compensation and Employee Relations and the Associate Vice President for Institutional Equity shall jointly establish appropriate procedures to implement this policy. They shall also investigate thoroughly any complaints of alleged sexual harassment or sexism, and then report the results of such investigation to the President of the University.

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 from many races and ethnic backgrounds live and work closely 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 backgrounds and origins. In this environment there is no room for any derogatory comments of a racial nature, be they in the form of slurs, posters, songs, jokes, graffiti, or the like.

Most members of the campus community need not be reminded of their role in this position. The very few who need 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 shall not 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 Office of Institutional Equity, 1220 Adrian Trimpe Building, 387-6316.

The Office of Institutional Equity will receive and investigate complaints of prohibited discrimination filed with the Office by students and may assist the 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 Office of Institutional Equity within 180 days of the alleged prohibited discrimination and/or harassment.

The Office of Institutional Equity will make reports and recommendations to the complaining students and/or to the academic dean or program director and/or Office of Student Conduct.

**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 institution of their choice, choosing to enroll at Western Michigan University requires a student to 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 processes. This process is designed, in part, to determine responsibility, or lack thereof, for violations of the Student Code only—not guilt or innocence relative to criminal matters. The University disciplinary process shall be informal in nature so as to provide substantial justice and it shall not be bound by legal jargon, court-like proceedings, 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, its focus shall be educational. This includes the possible use of suspension or expulsion as disciplinary measures as they may prove invaluable tools in the education of the University community. The student judicial system is not only concerned with the individual student's welfare, but also the welfare of the University community. Any question about the processes, rules, or policies, or any other concern not specifically covered by the Student Code shall be decided solely by the Dean of Students or his/her designee. Additionally, the Student Code provisions may be extended or amended to apply to new and unanticipated situations which may arise.

Enrollment in the University does not insulate students from their obligation to behave in a manner consistent with local, state, and federal law. Violation of local, state, and federal law while on University premises 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 and may assist the 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 Office of Institutional Equity within 180 days of the alleged prohibited discrimination and/or harassment.

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The complete text of the Western Michigan University Student Code is published by 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.
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 the exception of 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.

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, synchronized skating, 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 Men’s 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 102, Career Exploration 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 bulletins, 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 (269) 387-2745. The Office is located in A100 Ellsworth Hall. Web site: www.broncojobs.wmich.edu/

Children’s Place Learning Center
The Children’s Place Learning Center, located in the middle of campus at 2210 Wilbur, is open from 7:00 a.m. to 5:30 p.m. more than 360 days a year. The convenient location and flexible care schedules make the center an attractive child care option for WMU faculty, staff, and students. Children 15 months to 12 years old.

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, social interaction, rest and nutrition. The program is licensed by the State of Michigan. For more information and an application call (269) 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/scribes 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 (269) 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 are officially admitted 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 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 rooming options, hall meetings or studying, extensive fitness/exercise rooms, aerobic, saunas, television viewing areas, refrigerator rental, laundry, a four-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; spring—November, summer I and/or summer II—March) detailing the residence hall offerings available for the semester or session they expect to be enrolled.

Many of the hall environments are available and students are encouraged to indicate their preferred hall and roommate(s). Students will often prefer a specific hall because of location or assignment preference (coed). These preferences are honored as space is available. A few halls are reserved exclusively for upper-class and honor students. These 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 bath 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 eligible to live in residence halls. During the fall and winter semesters graduate and older students find Davis Hall of special interest. Students will often prefer to find their niche in the apartment community.

Most halls attract students interested in health and wellness, extended quiet hours, or international culture.

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The WMU residence halls are open throughout the entire year, including periods of University closures. All residence halls close between semesters and sessions, and residents who must remain in the area may make their own alternative housing arrangements during these periods. Additional information and resources are available on the WMU Housing website.

The WMU Dining Service is especially unique because students may eat as often as they wish, in the dining hall on campus. 7:00 a.m. through 6:30 p.m., five days a week (Saturday until 6:00 p.m.) and from 8:00 a.m. until 3:00 p.m. on Sunday. Two dining rooms (Burnham and Hazel Valley) are open until 8:00 p.m. Monday–Thursday.

For further information contact the Residence Hall Office, Faunce Student Services Building, 269-387-4725 or 800-545-6006. Web site: www.reslife.wmich.edu/

WMU APARTMENTS

Many students choose to live in one of three Western Michigan University Apartment complexes close to academic buildings, recreation areas, libraries, and the Bernhard Student Center. Student families, single graduates, and non-traditional undergraduates over 21 years are eligible. The apartments are inexpensive and convenient to campus.

Nearly 600 apartment homes are available. They are open all year and leases are renewable each semester. Residents are quick to find their niche in the apartment community and pleasant relationships are formed between neighbors that often continue long after graduation.

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Both undergraduate and graduate students are eligible to live in residence 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 closures. All other residence halls close between semesters and sessions, and residents who must remain in the area may make their own alternative housing arrangements during these periods. Additional information and resources are available on the WMU Housing website.

The award-winning WMU Dining Service has an excellent reputation with an extensive menu developed in consultation with residents and a professional dietitian. All residence halls are conveniently located together in Ellsworth Hall.

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For further information contact the Residence Hall Office, Faunce Student Services Building, 269-387-4725 or 800-545-6006. Web site: www.reslife.wmich.edu/
OFFICE OF INTERNATIONAL STUDENT AND SCHOLAR SERVICES (OISS)
Ms. Jolene Jackson, Director
A411 ELLsworth Hall
Western Michigan University
Kalamazoo MI 49008-5176
Telephone: (269) 387-5865; FAX (269) 387-5869
http://www.wmich.edu/oiss

The Office of International Student and Scholar Services handles admissions and special needs for international students. Services include:
- Processing of applications for admission
- Immigration advising
- Orientation program for newly arrived international students
- Assistance with housing arrangements
- Coordination of international student organizations and activities
- Liaison between international students and faculty sponsors
- Personal and social counseling

International students interested in seeking admission to Western Michigan University should contact OISS for application materials. (Application forms and an application status inquiry procedure also are available online: www.wmich.edu/oiss)

CAREER ENGLISH LANGUAGE CENTER FOR INTERNATIONAL STUDENTS (CEL CIS)
Ms. Laura Latulipe, Director
B0021 Ellsworth Hall
Western Michigan University
Kalamazoo MI 49008-5182
Telephone: (269) 387-4800; FAX (269) 387-4806
http://www.wmich.edu/celicis

The Career English Language Center for International Students (CELCIS) is an intensive English program designed to prepare second language learners to study in higher education in the United States. The program can also be useful for people who wish to improve their English skills for their jobs.

CELCIS is accredited by the Commission on English Language Program Accreditation (CEA) and agrees to uphold the CEA Standards for English Language Programs. For further information about this accreditation, contact the CEA, 700 S. Washington St., Suite 200, Alexandria, VA 22314, USA. CELCIS is also a member of the American Association of Intensive English Programs (AAIEP) and University and College Intensive English Programs (UCIEP).

The CELCIS program is intensive and demanding. There are four proficiency levels, from Elementary (students who have studied English in their countries for a year or two) to Advanced (students who have a minimum score of 450 on the TOEFL).

A 15-week semester in the regular intensive program consists of 20 hours per week of classes: 5 hours of speaking/listening, 5 hours of grammar, and 10 hours of an integrated reading/writing content-based class chosen by each student. The content class changes in the middle of the semester giving each student two choices per semester. Some of the content choices that the students have had in the past are: business, science, sports, education, travel and tourism, ecology, health and nutrition, cross-cultural communication, American history, and cities of the world.

In addition to four hours of class each weekday, students have access to a multimedia lab and computer labs for word-processing, e-mail and the web wide web.

Students can participate in language-building activities such as Theater Club, Book and Film Club, the CELCIS Newsletter, and visits to local schools to share information about their countries. They can also practice English conversation with conversation partners or in conversation groups, as well as get to know their classmates better playing sports, visiting local tourist attractions, and attending holiday parties and social hours. Depending on their proficiency level when entering CELCIS, students will study from two months to a year to attain the necessary TOEFL score and recommendation needed to enter Western Michigan University. TOEFL preparation classes are offered when there is sufficient student interest.

Contact the CELCIS office for application materials. (Materials also are available online: www.wmich.edu/celicis)

Dieder H. Haenicke Institute for International and Area Studies
Dr. Ronald Davis, Assistant Provost and Director
B200 ELLsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-3985; FAX (269) 387-0630
http://www.wmich.edu/hcenter

The Dieder H. Haenicke Institute for International and Area Studies, established by the Board of Trustees in 1998, works to promote globalization and internationalization of the academic domain of Western Michigan University. Specific activities and responsibilities are:

Curriculum Development: The Institute collaborates with colleges, departments and other interdisciplinary programs to develop and enhance international and area studies curricular programs, as well as other curricular programs strong in global and international content and focus. It offers occasional interdisciplinary courses in support of these programs.

International Faculty Hiring Initiative: The Institute administers a designated salary fund for the addition of faculty with specific international and area studies strengths, and authorizes searches for these faculty on the basis of departmental requests and consultations with the Provost and academic deans.

Internationalization of the Academic Environment: The Institute hosts conferences and visiting scholars, and predominately 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 focus is collaboration with other interdisciplinary institutes and centers at Western Michigan University.

Faculty Development and Research/Presentation Support: The Institute provides supplementary support, in the form of travel grants, research stipends, and other awards to assist faculty involved in global, international, area studies research, course development, or professional presentation travel to sites outside the United States and North America.

Study Abroad: The Institute administers the WMU Study Abroad Programs and is charged with the maintenance of existing Study Abroad sites and development of new venues.

Outreach: The Institute is intended to become a resource and information center on globalization and internationalization for the WMU community, but also for the region’s school systems, organizations and citizens. It is also intended as the principal focus of institutional collaboration on global and international academic initiatives.

OFFICE OF STUDY ABROAD (OSA)
Brett Berquist, Director
B200 ELLsworth Hall
Western Michigan University
Kalamazoo MI 49008-5245
Telephone: (269) 387-0630; FAX (269) 387-0630
http://www.wmich.edu/studyabroad

The Office of Study Abroad operates a large number of foreign study programs varying in length from a few weeks to a full academic year. OSA offers financial assistance for studying abroad at advanced levels in foreign languages offered at WMU, and for beginning study of languages not available at WMU as part of programs of study at institutions outside the United States.

In addition to competitive financial aid programs, OSA provides a number of important services to WMU students preparing to study, intern, or do research outside the United States. Services include orientation programs, International Student Identity Card (ISIC), Youth Hostel Passport, procedures, and current information about conditions in countries of destination. OSA maintains an extensive research and information base on programs offered by other colleges and universities. The office also serves as a contact point between WMU students overseas and the university.

Multicultural Affairs, The Division of

The Division of Multicultural 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 react to minority students’ needs and impact their environment. By doing so, students are ensured the greatest opportunity for a successful and relevant educational experience.

For more information about the Division’s programs and services, access their website (www.multicultural.wmich.edu) or call (269) 387-4420.

Parking and Vehicle Registration

Detailed regulations concerning the use of motor vehicles on campus are 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,每每once, and/or mop with the Parking Services and pay a registration fee.

Information concerning parking regulations, parking permits, and parking violations can be obtained by visiting Parking Services located at 2507 West Michigan Avenue (at the corner of West Michigan and Knollwood) or by telephoning 387-4660 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 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 units and bureaus have coordinated their efforts to create and maintain a feeling of security and safety within the University community. Information can be obtained by visiting the office, telephoning 387-5565 or 911 in an emergency.

Information concerning parking regulations, parking permits and parking violations can be obtained by visiting Parking Services located at 2507 West Michigan Avenue (at the corner of West Michigan and Knollwood) or by telephoning 387-4609 during normal university business hours.

Publications

Western Herald, WMIU's student newspaper, is published Mondays, Tuesdays, Wednesdays, and Thursdays during the fall and spring semesters, Mondays and Thursdays during the summer I session, and Wednesdays during the summer II session. The Western Herald is made available to students partially through support from the general fund of Western Michigan University. All positions on the paper are filled by students with the exception of the general manager/advisor.

Western News is the official publication for administration, faculty, and staff members. It is published every other Thursday by the Office of University Relations, which also produces WMIU—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

WMIU(FM) 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.

WMIU(FM) provides a cultural extension of the University through its broadcasts of 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) offers a unique opportunity for Western Michigan University students to gain experience in programming, promotion, and station operation.

Sindecuse Health Center

The Sindecuse Health Center is a student-oriented medical facility that exists to support and promote optimal health for the University community. As a student attending Western Michigan University, you have access to high-quality, convenient, low-cost health care through our many professional services. Our entire staff works as a team to assist you with your health care needs.

MEDICAL SERVICES

The Health Center provides evaluation and treatment for a variety of illnesses and injuries in addition to preventive health care. Medical specialties include family practice, internal medicine, gynecology, psychiatry, dermatology, podiatry, orthopedics, and sports medicine. In addition, Health Center physicians and physician assistants can refer students to other medical specialists in the Kalamazoo area wherever indicated.

Upon acceptance to the University, each student will receive a Health History Questionnaire. Completing and returning this questionnaire is important as it becomes a permanent part of a student's medical record and a reference when medical treatment is required.

Any student younger than 18 years of age must also complete and return a Medical Treatment Authorization form signed by a parent or guardian. This form will be included in the admissions packet.

All information and Health Center records are strictly confidential and not part of any other University record. Student signature is required for release.

PHARMACY

A full-service pharmacy provides prescription medications at a cost savings to students. It also carries a limited number of non-prescription medications. Prescriptions written by your personal physician from home can be filled, as well as prescriptions written by Sindecuse Health Center medical staff. If you have prescription drug coverage through outside insurance, bring the identification card with you as many major insurance cards are accepted.

LABORATORY SERVICES

The Center's full-service laboratory performs most standard diagnostic tests. These are often evaluated while you wait so that you receive prompt treatment, saving you both time and money. Electrocardiograms are also available.

X-RAY SERVICES

The radiology department performs general diagnostic x-rays. All x-rays are developed for immediate evaluation by Sindecuse Health Center clinicians and a later evaluation by a radiologist.

ALLERGY INJECTIONS

Students requesting allergy injections need to provide their antigen and injection schedule to Health Center staff. A nursing appointment is necessary for the first visit. Check with the Health Center for times injections are given.

IMMUNIZATIONS

Several serious diseases, including measles, mumps, German measles, tetanus, diphtheria, and hepatitis B, are all vaccine preventable. You should be immunized to protect yourself and the University community. The Sindecuse Health Center offers all immunization updates and immunizations required for overseas travel. Appointments for immunizations are required.

TUBERCULOSIS TESTING

Routine tuberculin testing, required for some classes and employment, is also available. No appointment is necessary. Check with the Health Center for times TB testing is performed.

HIV TESTING

Anonymous HIV testing with the oral HIV antibody test (Orasure) is available to all students. For more information, call 387-4HIV.

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. Physical therapy trainees. Orders from your home physician are honored.

NUTRITION COUNSELING

Appointments with a registered dietician are available for weight management, eating disorders, sports nutrition, diabetec diet management, and more.

OFFICE OF HEALTH PROMOTION AND EDUCATION PROGRAMS

The Office of Health Promotion and Education, Sindecuse Health Center, offers a variety of interactive computer resources, information, programs and preventive health services designed to help students maintain and enhance their physical and emotional well-being.

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.

Office of Health Promotion and Education, Hours: Monday through Friday, 8:00 a.m. to 5:00 p.m. Location: Room 1110, Lower Level, Sindecuse Health Center. 387-3263.

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 387-3290, 8:00 a.m. to 4:30 p.m., Monday through Wednesday and Friday, and 9:00 a.m. to 4:30 p.m. on Thursday. Allow about an hour for an appointment and longer if lab tests or x-rays are required. Please cancel an appointment if unable to keep it. There is a charge for missed appointments.

Urgent Care Clinic

Monday–Wednesday and Friday, 8:00 a.m. to 5:00 p.m.; Thursday, 9:00 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 short-term parking in the semicircular 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 in 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 extends from the first
The fee has been paid to the first day of one semester or two sessions after graduation.

remain eligible to be seen at the Health Center. Visits to hospital emergency rooms, outside the Health Center, and transportation immediate care centers, medical specialists, x-ray, and physical therapy services requested by clinicians outside the University can also be provided by 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 also charge 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 claims 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. It is important to verify 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 automatically 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 approved 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

Academics ........................................ 387-3290
Information ..................................... 387-3287
Insurance Information .................. 387-3266
Pharmacy ........................................ 387-3301
Health Services/Health Info ........... 387-3263
Sports Medicine Clinic .................. 387-3248
HIV Antibody Testing .................... 387-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 Science 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 70% of your time in college will be spent outside the classroom. The wide variety of student organizations at Western Michigan University offers students 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.

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 major 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
• Honorary

For more information, access the web site www.slap.wmich.edu

Student Volunteer Services

Student Volunteer Services (SVS) is dedicated to furthering the University’s service movement on campus and to enhancing the traditional classroom education through experiential service-learning opportunities.

The mission of 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, 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, Into the Streets, MLK Discovery Day, and the Volunteer Opportunities Fair. Presentations are offered throughout the academic year and include information on presenting opportunities, positions, and how to get involved.

Students are encouraged to visit the SVS office located in the Lee Honors College. Telephone: 387-3250. Website: www.wmich.edu/studentvolunteerservices

Substance Abuse Services

University Substance Abuse Services, located in the Sindsceous 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 provides assessment, information, assessment, training, counseling and supportive therapy, referral and follow-up services to individuals and groups. Services are offered to both sponsored and non-sponsored students 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 appointment through the Sindsceous Health Center, by calling 387-3290.

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 Buildings, 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:

Personal Counseling to assist individuals in better understanding themselves and the emotional conflicts that may interfere with their everyday lives 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.

Educational Counseling to help students deal with concerns and career counseling.

Career Counseling and Testing to provide students with the resources, skills, and experiences necessary for reasonable educational and career choices. Individual and group activities 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.

The Career Exploration/Media Center contains a wide and varied selection of printed materials with an emphasis on self-understanding, career exploration and preparation, occupational information, and job trends. 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 professional text material is also available for student/faculty review.

Training and Internship Programs for graduate students and interns from the Department of Counseling Education and Counseling Psychology, School of Social Work, and Department of Psychology are available. Included in the training experience are case consultations, supervision of treatment sessions, didactic presentations and professional growth opportunities.

National Standardized Testing is conducted by the University Counseling and Testing Center and is regularly administered: ACT, LSAT, GRE, MCAT, TOEFL and academic skills exams are offered as needed. Standardized testing information is available at the Center.

Test Scanning Services (optical scanning) for classroom exams and research data analysis is provided to the University community and greater Kalamazoo area. Information about scanning services is available; call 387-3911.

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, legal regulations 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 (Main) 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 the ever-expanding collection and 1,900 student study stations.

The total University Libraries' collection, which numbers over 3,920,000 bibliographic items, includes over 50,000 bound periodicals, electronic data bases, music scores, sound recordings, maps, documents, and materials in microform. Over 6,900 periodical and newspaper titles are currently received through the use of various approval and gathering plans—a part of the acquisitions program—the library emphasizes building a strong collection of current and important items in all the fields of study at the University.

The University Libraries is a depository for United States and Michigan government documents including selected books. United Nations documents and official records are also available. A collection of about 1,750,000 microforms contains such items as the Human Reference Library, 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 Abbey of St. Gallt's 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 subject areas to support University programs:

1. The Ann Keker 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 Asia represent another area of special strength. Together with the Keker African collection, they help support the University's commitment to international and area studies.
3. Another area of collection strength is the history, religion, philosophy and culture of the Medieval period, holdings which help support the program of the University's Medieval Institute. The collection also includes rare books, manuscripts, and incunabula, most of which are on indefinite loan to Western Michigan's University of Gethschechan. Over 900 of the some 9,000 volumes in this collection are rare items of special interest to medieval scholars from all over the world.
4. The Randall Frazier Memorial Collection, honoring a notable alumnus, has a wealth of material on the history and culture of Black America.
5. The C. C. Adams Ecological Collection consists of the personal collection of books and papers of the pioneer American ecologist, Charles Christopher Adams.
6. The Leslie H. Wood Memorial Collection is a specialized collection of books in the fields of geography and geology. Doctor Wood, who was one of the original group of faculty hired at Western, taught on campus from 1904–1933.
8. A strong business collection includes special microform collections, annual reports from businesses and industries, and many periodical and serial titles in the field of business and finance.
9. The Carol Ann Haeinkle American Women's Poetry housed in the Rare Book Room, Waldo Library, consists of around 6,400 volumes of first and early editions of poetry by American women poets.

The Music and Dance Library is located in the Dorothy U. Davis Center in addition to a collection of some 36,000 books and scores and extensive holdings in music periodicals and serials, this branch contains a collection of 19,965 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 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, papers, publications, and photographs documenting Western's history. Its staff also collects, preserves, and manages the Regional History Collections of books, manuscripts, ephemera, oral history tapes, photographs, local public records, and other information resources that document the history of southwestern Michigan. In addition, there are local public records from southwestern Michigan communities which are on deposit from the Archives of the State of Michigan.

The Visual Resources Library contains over 100,000 slides of well known works of art such as paintings, sculpture, architecture, drawings, photographs, photographs, illuminated manuscripts. The images represent artifacts of the Western World, Oceania, Asia, Africa, and the Americas.

The University Libraries have a large number of computer based resources 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 OCLC FirstSearch system with additional resources available through the IAC reference Center Gold, and individually accessed subject databases. The Libraries' online catalog (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 in the Documents Department at the 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 projects.

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 interlibrary loan 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 Research 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 photocopiers are located throughout the library system.
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 and may borrow 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 locality 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 Ombuds
The University Ombuds is an intervention agent and impartial person who helps students, faculty and staff resolve academic and non-academic concerns. The Ombuds listens to you and discusses your question or concern, providing 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 Ombuds are independence, impartiality, and confidentiality. The Ombuds is authorized to make thorough investigations and has access to University offices and records, reports and other documents in the University. No person shall suffer any penalty for seeking assistance from the Ombuds. The office is located in 218 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 faculty members. The facility includes an 8,000 square foot fitness/weight room with over 100 pieces of state-of-the-art equipment, a recreational pool with attached swim pool and saunas, a 45' climbing wall, indoor jogging track, basketball courts, volleyball/badminton courts, indoor tennis courts, racquetball courts, aerobic room, multipurpose gym, fitness testing laboratory, and much more.

The Student Recreation Center is equipped with a state-of-the-art electronic security system to help protect our student-funded facility from vandalism and to ensure that all users are properly authorized. Only ID cards belong to individuals who have paid the facility fee may gain access and take advantage of programs and services.

INFORMAL RECREATION
Informal recreation permits individual choice of activity. Various facilities are available on a drop-in or reservation basis including basketball courts, volleyball courts, racquetball courts, tennis courts, squash court, indoor and outdoor tracks, fitness/weight room, and swimming pool.

Other open recreation opportunities include badminton, table tennis, climbing wall, and waltzball. Equipment for various activities may be checked out with a valid ID 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 to develop team building and leadership skills.

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.

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. Students and most University Specialist are available to instruct on proper use of the equipment and to provide exercise training guidelines to meet personal goals.

PHYSTYLES
PhyStylist is a fitness testing program designed exclusively for Western Michigan University students. The program offers free-of-charge fitness assessments and individual exercise program development for students who wish to develop and maintain healthy levels of physical fitness. The testing package includes health screening, blood pressure analysis, and physical assessments for flexibility, 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 URFF Climbing Clinic. Through the clinic participants learn how to harness in for safety and belaying techniques. Come feel the excitement of scaling a 45 foot wall.

SPECIAL EVENTS
URFF regularly conducts one or two special events each semester, such as National Girls and Women 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 V.A. under any applicable program.

Veterans who wish to receive V.A. benefits must annually file a “V.A. Certification Information Card” for each term. 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.

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 be reached in the Office of the Registrar at (269) 387-4115.

Writing Center
The Writing Center is part of the Center for Academic Support Programs. It provides writing assistance for undergraduate, graduate 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, 2003

Department of Public Safety

Non-Emergency number, 387-5555

Emergency number, 911

Western Michigan University is concerned about the safety and welfare of all 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 developed 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 numerous steps to enhance security in our buildings and on our grounds. Additionally, we wish to provide 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 spring 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 spring 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 non-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 patrol 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.

3. Special Alerts: If circumstances warrant it, special printed crime alerts can be prepared and distributed either selectively or throughout the campus.

4. Federal and State Crime Reports: The University Police, since its inception in July 1973, have submitted crime data to the Michigan State Police which is also forwarded to the Federal Bureau of Investigation. Summaries of this crime data is released annually in the Crime in Michigan, Uniform Crime Report and Crime in the United States, Uniform Crime Reports.

CRIME STATISTICS

The following on-campus crimes were reported to the University Police:

<table>
<thead>
<tr>
<th>Offense</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murder</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Manslaughter</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Forcible Rape</td>
<td>2</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Offenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Non-Forcible Rape</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Offenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robbery</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Aggravated Assault</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Burglary</td>
<td>28</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Motor Vehicle Theft</td>
<td>9</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Arson</td>
<td>6</td>
<td>9</td>
<td>1</td>
</tr>
</tbody>
</table>

The following on-campus arrests were made by the University Police:

<table>
<thead>
<tr>
<th>Offense</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquor Law Violations</td>
<td>472</td>
<td>575</td>
<td>732</td>
</tr>
<tr>
<td>Drug Law Violations</td>
<td>68</td>
<td>103</td>
<td>146</td>
</tr>
<tr>
<td>Weapons Law Violations</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

There have been no reported crimes or referrals for the years 2000, 2001, and 2002 on any WMU Branch Campus or WMU regional site based on the requirements of the Campus Security Act of 1990.

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 programs and projects exist:

1. Printed Crime Prevention Material: Printed crime prevention brochures, posters, and handouts related to theft and personal safety 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 call box 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 programs to such campus groups as freshman orientation, resident and off-campus students, international students, specific campus departments, academic classes, and student organizations. Specific programs included:
   - **Acquaintance Rape Prevention**: Michigan's criminal sexual conduct law is discussed along with statistics and safety tips. See appendix B for the WMU Sexual Assault—Statement of Guidelines, Programs and Procedures.
   - **sexual Assault Awareness, Education and Prevention**: Criminal sexual conduct law is discussed along with behaviors and situations that may be connected with acquaintance rape. Awareness program for both men and women.
   - **Domestic Assault Prevention**: A discussion of alcohol related laws and a controlled drinking exercise.
   - **Personal Safety**: Safety tips are provided for on and off campus students. Call boxes, emergency phones and student watch programs are explained.
   - **Workplace Violence Prevention**: A discussion of potentially violent behavior and the profile of a typical workplace violent offender. Program is aimed at the faculty and staff at WMU.
   - **Freshman, Transfer, and Parent Orientation**: A brief overview of the Department of Public Safety is presented, along with tips on security and parking.
   - **International Student Orientation**: A brief overview of the Department of Public Safety, along with a discussion of safety tips, state laws, and local ordinances.

**RESIDENCE HALL SECURITY**

All interior residence hall doors to the living areas are locked 24 hours a day. Non-residents must be escorted through these doors by a resident host. Additionally, in most halls all exterior doors except the front lobby doors are locked 24 hours a day, and students are expected to enter only through the front door. The building 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 exterior doors cannot 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 wooden rods 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 shared 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 building grounds with a concern for safety and security. It inspects campus facilities regularly, promptly makes repairs affecting safety and security, and responds immediately to reports of potential safety and security hazards, such as broken windows and locks.

**Public safety staff** (including student watch and escort service employees) residence hall staff, 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 needs are identified or when buildings and parking lots are renovated. University landscape service staff members are very much aware of the potential hazard that dense shrubbery can present and that shrubbery that are near sidewalks or against buildings are pruned so that they could not conceal a person. Low growing low density plantings that would not 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, use, or possession 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 enforces drug and alcohol offenses and discipline for students—ranging from reprimand to expulsion from the University.

The Substance Abuse Services are located in the Sincere 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, firecrackers, explosives, toxic or dangerous chemicals, or other dangerous substances or compounds, and other lethal weapons is prohibited on University property or in University housing. Authorized use is confined to such specific situations as Reserve Officer Training Corps (ROTC) weapons training and police official.

**THE INDIVIDUAL’S RESPONSIBILITY**

The cooperation and involvement of students and employees themselves in a campus safety program is absolutely necessary. Individuals must assume responsibility for their own personal safety and the security of their personal belongings by taking simple, common sense precautions. For example, although the campus is well lighted, an individual—male or female—should 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 televisions 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 lock. Individuals with cars must park them in their assigned area around the campus, and vehicles locked at all times. Valuables 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 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. If we fail to achieve any part of the above guarantee, the Director of Public Safety, Robert J. Brown, will be available to personally 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**

The 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.

For purposes of this statement, the term “sexual assault” includes rape, attempted rape, acquaintance rape and other sex offenses, both forcible and non-forcible.

PREVENTION EFFORTS

The University in a variety of ways addresses the issue of sexual assault with students. The subject is discussed with first-year students during orientation, with transfer students during their orientation, and in longer educational programs offered during Bronco Days, Western’s first-year student transition program. All students who participate in these orientation programs are given a brochure that describes University and community resources for sexual assault victims. This information is also available on Western’s web site.

The WMU Department of Public Safety presents numerous crime prevention programs annually that include discussion of personal safety issues. Printed crime prevention materials are distributed among these presentations and at various locations on campus. Any student group or organization may request an educational program by a police officer on any crime or safety issue by calling 387-5555.

Educational programs that address the subject of sexual assault are also presented by the Office of Health Promotion and Education, Sincereus Health Center. To request a program for your group or to obtain information about upcoming scheduled programs, call 387-3263. This office also maintains a library of books, brochures, and other educational materials about sexual assault. A variety of programs and activities are typically offered by HPE during April, which is nationally designated as Sexual Assault Awareness Month.

RESPONDING TO SEXUAL ASSAULT

The University recognizes the right of a sexual assault victim to decide, without pressure or coercion, what action she 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 conduct process. If the accused is a student, the University encourages victims of sexual assault to take the following steps following an assault:

1. If you are in danger or need immediate medical attention, call 911.
2. Preserve physical evidence. Physical evidence may be critical to successfully prosecuting a case. Immediately after an assault, the victim may not know whether she wants to file a police report and attempt to prosecute. Because sometimes a victim changes her mind, it is prudent to preserve all document physical evidence before it is destroyed. Do not clean or straighten up the area where the assault occurred. Do not wash, brush teeth, comb hair, use the toilet or douche. Put the clothing you were wearing in a paper (not plastic) bag, turn this over to police.
3. Seek medical attention immediately to assess and treat physical trauma, to receive treatment to prevent STIs and pregnancy, to collect and officially document evidence that may later aid in criminal prosecution, and call YWCA Sexual Assault Program crisis line, 345-3036.

Depending on your needs and preferences, you will be directed to either the Sexual Assault Nurse Examiner (SANEX) service at the YWCA or to a hospital emergency department. If you use any of these providers, a YWCA Sexual Assault Program trained victim advocate will be called and will provide you with information and emotional support during your visit. If you do not seek care from any of these providers, you should consider seeking treatment (preferably within 72 hours) to present certain STIs from developing and, if you choose, to prevent a possible pregnancy.

4. Report the assault to the police. If you seek care from a hospital or the YWCA SANE program, they are required to notify the police, and an officer will come to take a report from you. You have the right to refuse to file an official report at this time. You also have the right to file a report at a later date. A police report is made with the police department that has jurisdiction in the location where the crime happened. Filing a police report is not the same as deciding to prosecute the assailant. There are a number of steps between these decisions, and the final decision whether to prosecute is based on a number of factors and is made by both the victim and the prosecuting attorney’s office. Making a police report maintains the victim’s future option of criminal prosecution, and may help support a University conduct action or a civil action suit against the assailant. Except as otherwise required by law or court order, the Department of Public Safety will not release the victim’s or suspect’s name or any identifying information to the media or the general public.

5. If the accused is a WMU student, report the assault to the University’s Office of Student Conduct. The WMU Student Code expressly prohibits “sexual misconduct” (see Article IV, Section B. Item 15). Anyone who is assaulted by a WMU student—whether or not the victim is a WMU student, and whether or not the alleged assault took place on WMU property—may request that the University take conduct action against the accused student. It is not necessary for the victim to file a police report in order to pursue sanctions through the University conduct system; however, it is strongly recommended. Because the Office of Student Conduct has limited resources to investigate a violation such as sexual assault, it is generally not necessary for the victim to file a police report. Pursuing sanctions through the University does not preclude the victim from also pursuing criminal prosecution and/or a civil lawsuit. The University conduct process is initiated by making complaint with the Office of Student Conduct. A description of the process is included in the Student Code. Students are also welcome to discuss the process with the director of that office.

Sexual assault victims are assured the following rights within the University conduct process:

1. The right to be present during the entire proceeding, except when the hearing panel is deliberating a decision. The right to have one counselor, victim advocate, other support person, or legal counsel present throughout the process to advise and provide support.
2. The right to have one’s sexual history not discussed during the proceedings, except as it relates to the specific incident in question.
3. The right to relate their account of the incident.
4. The right to be informed of the results of the student conduct proceeding.
5. The right to have their name and any identifying information kept confidential, except as otherwise required by law, court order, or University policies or needs.
6. The right to a hearing within a reasonable time period.

A student charged with committing sexual misconduct is assured of the same rights. A student found responsible by the Office of Student Conduct for committing sexual misconduct will be given a sanction appropriate to the offense. Possible sanctions range from a warning to expulsion from the University.

RESOURCES FOR SUPPORT AND ASSISTANCE IN KALAMAZOO

MEDICAL CARE

Bronson Methodist Hospital, 601 John St.
Kalamazoo, MI 269-341-6366
24-hour emergency care; forensic rape evidence; other necessary treatment. Fee for service.

Borgess Medical Center, 1521 Gull Road
Kalamazoo, MI 269-226-4915
24-hour emergency care; forensic rape evidence; other necessary treatment. Fee for service.

YWCA Sexual Assault Nurse Examiner Program
353 E. Michigan Ave.
Kalamazoo, MI 269-345-3036
Must telephone before to access; service available 24/7. Forensic rape evidence exam; other necessary treatment, emotional support. Not appropriate for physical injury. Fee.

Planned Parenthood of South Central Michigan, 4201 West Michigan
Kalamazoo, MI 269-372-1200
Testing and treatment for pregnancy and STDs; emotional support and referral for other assistance; no emergency or trauma care; no rape evidence exam.

Sincereus Health Center, WMU
269-387-3290
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

University Counseling and Testing Center, 2513 Faunce Student Services, 387-1850
Free private and confidential counseling to students.

Coordinator of Gender Education, Office of Health Promotion and Education, Sincereus Health Center
269-387-2995
Associate Dean of Students
269-387-2150
Office of Student Conduct
3718 Faunce Student Services Building
269-387-2160
YWCA Sexual Assault Program,
353 East Michigan 345-9412 (office),
269-345-9412  345-3036
Free, short-term counseling for victim, friends,
and family; individual and group sessions;
services on campus one day/week.

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 requirements of the Crime Awareness and
Security Act of 1990, as part of the Student
Right-to-Know and Campus Security Act.

APPENDIX C

DRUG-FREE SCHOOLS AND
COMMUNITIES ACT NOTICE

Standards of Conduct
WMU prohibits the manufacture, distribution,
possession, or use of any illegal drug (or legal
drugs used without a physician's order) in the
campus workplace, on campus generally, and
as part of any University-sponsored activity.
Employees shall not consume alcohol while on
duty (except at authorized functions) or report
for duty under the influence of alcohol or
drugs. Students shall not use, possess, or
distribute alcohol except as permitted by law
and other University regulations.

University Sanctions
WMU will impose sanctions on all students or
employees who violate the above standards of
conduct. Student penalties range from
warnings to expulsion, and may include
rehabilitation or education. Employee
penalties range from written warnings to
discharge from employment (consistent with
applicable collective bargaining agreements),
though rehabilitation may also be considered.

Legal Sanctions
State and Federal law regulate the use,
possession, and distribution of drugs and
alcohol, and penalties are associated with
illegal actions involving drugs and alcohol.
Such penalties, which include probation, fines,
and/or imprisonment, may be imposed by
judicial authorities on individuals who violate
these laws, notwithstanding any penalty
imposed by WMU.

Health Risks
There are many health risks directly
attributable to the use of drugs and alcohol.
They include impaired judgment and memory;
wide ranges of mood alteration; dependence;
brain, liver, or kidney damage; respiratory
failure; cardiac arrest; and, with respect to
pregnant women, fetal alcohol syndrome;
physical abnormalities; and mental retardation.

On-campus Programs
Students may seek on-campus help for
substance abuse concerns through the
University Substance Abuse Services (USAS)
office. An Alcohol Education Program and a
Substance Abuse Program are available
through the Office of Student Conduct. Other
awareness programs are available through the
Sindecuse Health Center and Residence Life.
Employees with substance abuse concerns
are encouraged to take advantage of WMU's
Employee Assistance Program and USAS, as
well as resources available through the
Sindecuse Health Center's Office of Health
Promotion and Education.
GLOSSARY OF TERMS

Academic advisor
A faculty or professional staff member trained to help students select courses and plan programs.

Academic dismissal
Dismissal from a college or program for not maintaining the required grade point average (GPA). Dismissal indicates that a student is no longer a member of the University community.

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 Summer I or Summer II session is nine hours.

Class standing
A classification based on the number of credit hours earned which indicates the level of a student:

Freshman A student credited with 0–25 hours inclusive.
Sophomore A student credited with 26–55 hours inclusive.
Junior A student credited with 56–87 hours inclusive.
Senior A student credited with 88 or more hours.

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 600 through 799 are for graduate students only. Graduate seminars, theses, independent research, etc.

Credit/No Credit
A method used to evaluate performance in courses which is separate from the grade point system. Course grades do not affect GPA. "Credit" is earned for grades of "C" or better; grades of "D" or below earn "No Credit."

Critics 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 spring 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.

Drop
An official procedure for withdrawing from individual classes without removing registration from all classes. The deadline for the last day to drop a course without academic penalty (grade of “W” is on the transcript) is noted each semester or session in the

200-299 Courses primarily for Sophomores
300-399 Courses primarily for Juniors and Seniors
400-499 Courses primarily for Seniors
500-599 Courses for graduate students and advanced undergraduate students
600-699 Courses for graduate students only
700-799 Graduate seminars, theses, independent research, etc.

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
200-299 Courses primarily for Sophomores
300-399 Courses primarily for Juniors and Seniors
400-499 Courses primarily for Seniors
500-599 Courses for graduate students and advanced undergraduate students
600-699 Courses for graduate students only
700-799 Graduate seminars, theses, independent research, etc.

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
200-299 Courses primarily for Sophomores
300-399 Courses primarily for Juniors and Seniors
400-499 Courses primarily for Seniors
500-599 Courses for graduate students and advanced undergraduate students
600-699 Courses for graduate students only
700-799 Graduate seminars, theses, independent research, etc.
Schedule of Course Offerings. Students who do not follow the official procedure when dropping a class will earn the grade of "X" for that course; the "X" grade carries no honor points and affects the GPA in the same manner as an "E" or failing grade. See also "late drop."

Elective
A course which will count as credit toward a degree but is not a specific program requirement.

Emphasis
A designated group of courses within a major program.

Field experience, practicum, work experience, co-op
Field experience: Actual practice, often away from the college campus, in a practical or service situation. In a teacher education program, it is usually conducted in schools.
Practice: 1) A course of instruction aimed at closely relating the study of theory and practical experience, both usually carried on simultaneously, 2) an academic exercise consisting of study and practical work, and 3) supervised experience in counseling or a similar activity through such procedures as role-playing, recorded interviews, abstraction, analysis, and supervisory evaluation with interviewing techniques.
Work experience, co-op, or internship: A sponsored learning experience in an occupational area for persons preparing for full-time employment, conducted in connection with a course of study, where the students spend a part of their time on an actual job in a school, business, or industry.
Cooperative education: A program for persons enrolled in a school that provides for parallel or alternating study in school with a job in industry or business, the two experiences being so planned and supervised cooperatively by the school and the employer that each contributes definitely to the students' development in their chosen occupation.
Cooperative program: An organizational pattern of instruction which involves regularly scheduled employment and which gives students an opportunity to apply classroom learning.

Full-time student
An undergraduate student who enrolls for twelve credit hours during Fall or Spring or for six credit hours during Summer I or Summer II. The University does allow full-time status to some co-op and intern classes, when it is the only class offered a student during a semester or session. University Housing has its own regulations on the definition of hours needed to be eligible for housing contracts. Students should contact the University Housing Office for this information.
The above definitions are Western Michigan University regulations and may or may not be accepted by other agencies.

Gate course
A course in fundamentals in which a student must achieve a grade of "C" or "Credit" in order to qualify for enrollment in upper division courses of a curriculum.

Good standing
A designation that signifies that a student is eligible to continue, to return, or to transfer elsewhere. It implies good academic standing; that is, an overall GPA of 2.00 or better.

Grade point
The numerical value given to letter grades. For example an "A" is equivalent to 4 points per semester hour, a "BA" to 3.5 points, a "B" to 3 points and so on. No points are earned for an "E" grade. Also referred to as "honor points."

Grade point average (GPA)
A student's scholastic average computed by dividing total grade or honor points by total credit hours attempted.

Graduation audit
A formal, required evaluation of the student's academic record and program of study to determine the student's eligibility for graduation. The audit, initiated by a student's application for graduation, determines whether all University, degree, and program requirements have been met satisfactorily. Deadlines for all degree recipients to apply for graduation are August 1 for December graduation, December 1 for April graduation, February 1 for June graduation, and 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
Financial assistance awarded to a student which does not have to be repaid; usually based on need.

Guest student
A degree student from another college who is taking courses at Western Michigan University for one semester. The credits earned are usually transferred back to the student's home institution.

Hold
A barrier placed on a student's ability to register for classes as a result of an unfulfilled monetary obligation or other action by the University.

Honors
Designation indicated on the college degree and transcript to reflect outstanding scholarship.
Honors are conferred upon graduating students who have displayed a high level of performance during their university career.
Recipients of honors receive their degrees:
Cum laude— when their grade point average is 3.50 to 3.69, inclusive
Magna cum laude— when their grade point average is 3.70 to 3.89, inclusive
Summa cum laude— when their grade point average is 3.90 to 4.00, inclusive
To be eligible for honors, students must have earned at least fifty-six semester hours of credits at WMU, fifty of which, must be graded by a letter grade and computed into the final cumulative grade point average.

Honors College (Lee Honors College)
An academic administrative unit of the University whose mission is to design and foster curricular and co-curricular programs for the academically-talented student.

Honors courses
Special courses offered by Western's Lee Honors College designed to pose intellectual challenge and give personal attention to particularly able students.

Incomplete
A temporary course grade ("I") granted only if a student is temporarily unable to complete course requirements because of unusual circumstances beyond the control of the student.

Independent study or readings courses
Independent studies or readings courses are courses in which a contract is developed between a faculty member and a student to complete research in, or readings on, a specific topic. The student is responsible for proposing the topic and contacting the appropriate faculty member.

Independent study
A course of study undertaken outside the classroom by a student under the supervision of one or more faculty members.

Institute
An organizational unit similar in nature to a Center, as defined above, but which is degree-granting. Typically an Institute will be interdisciplinary. Course work for a degree offered through an Institute may include some offered by the Institute itself but will be primarily comprised of courses in various disciplines/departments already in existence.

Intelectual skills requirements
The requirement that all students demonstrate entry-level competency in reading, writing, and mathematics by test or course.

Interdisciplinary
Designating a combination of subject matter from two or more disciplines within a course or program.

Internship
Work in a firm or agency related to a student's major program and/or career plans. Usually involves earning college credit and may involve receiving payment.

Late drop
An official procedure for withdrawing from individual classes without removing registration from all classes that takes place after the last day to drop a course without academic penalty.

Loan
Financial assistance to students which must be repaid. Low interest loans are available and financial need may or may not be a factor.

Lower division
Courses at the 100-200 level; freshman or sophomore standing.

Major
A concentration of related courses generally consisting of thirty to fifty semester hours of credit.

Michigan residence requirements
The requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.

Minor
A concentration of courses generally consisting of a minimum of twenty semester hours of credit.

Multi-topics or "umbrella" course
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
A student who has been admitted to a non-degree category and is not currently seeking a bachelor's degree.

Part-time student
An undergraduate student who takes fewer than twelve hours during a semester or fewer than six hours during a session.
Permission to Take Classes (PTC)
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 not be available to PTC students. Acceptance for PTC status does not constitute degree admission to Western Michigan University.

Portfolio
A collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.

Prerequisite
A requirement, usually the completion of another course, which must be met before a student may register for a course.

Proficiency
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 hour of course work for the bachelor’s degree be completed at Western Michigan University. In addition, 10 of the last 30 credits must be completed at WMU.

Scholarship
Financial assistance to students awarded on the basis of academic achievement. Financial need may or may not be a factor.

School
A single-discipline 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, 7 1/2 weeks long, in the academic calendar.

Student employment
Part-time jobs made available to students with financial need through federally-funded programs (Work-Study) and to students without need through the Student Employment Office.

Teachable major/minor
A state-approved major/minor program for teacher certification at the secondary and/or elementary level.

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 be primarily comprised of courses in various disciplines/departments already in existence.

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 toward the bachelor’s degree, courses at the 300, 400, and 500 levels.

Withdrawal
An official procedure for withdrawing from the University for at least the remainder of the current semester or longer. The deadline for the last day to withdraw from all courses without academic penalty (grade of “W” is on the transcript) is noted each semester or session in the Schedule of Course Offerings. Students who do not follow the official procedure when withdrawing from the University will earn the grade of “X” for all courses; the “X” grade carries no honor points and affects the GPA in the same manner as an “E” or failing grade.
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Dr. William Wiener, The Graduate College
Dr. Janet Pisaneschi, College of Health and
Human Services
Dr. Larry tenHarmsel, Lee Honors College
Dr. Joseph Reish, University Libraries
Dr. Alan Walker, Vice Provost of Academic
Affairs for Extended University Programs
Niewiadomska-Bugaj, Magdalena, 2001, Assistant Professor of Statistics
M.S., Warsaw; Ph.D., Wroclaw University, Poland
Nisula, Culic, Dasha, 2016, Assistant Professor of History
B.A., M.A., Ph.D., California State University, Northridge
Nisula, Culic, Dasha, 1998, Assistant Professor of History
B.A., M.A., North Texas; Ph.D., Indiana
Norris, Patrick, 1986, Adjunct Professor of History
B.A., M.A., Ohio State; Ph.D., Southern California
Nowak, Gerard T., 1989, Associate Professor of History
B.S., M.A., Ed.D., Western Michigan
Northouse, Peter G., 1974, Professor of Communication
B.A., M.A., Michigan State; Ph.D., Denver
Nowak, Gerard T., 1999, Associate Professor of History
B.A., Ohio State; M.S., SUNY Binghamton; Ph.D., Minnesota
Nowak, Gerard T., 1974, Associate Professor of History
B.A., M.A., North Texas; Ph.D., Indiana
O'Keefe, Richard, 1984, Professor and Director, School of Music
B.S., Moorhead State; M.S., Ph.D., Wisconsin
O'Keefe, John, 1990 Adjunct Associate Professor of Economics
B.A., Massachusetts (Amherst); M.A., Ph.D., Arizona
Olsen, William, 1982, Professor of English
B.A., Drake; M.F.A., Arizona; Ph.D., Houston
Olson, Susan D., 2003, Assistant Professor of Psychology
B.A., Ottawa; M.H.S., Ph.D., Wichita State
O'Neal, Willie Mae, 1988, Assistant Professor of Social Work
B.S., Ohio; M.A., Connecticut; Ph.D., Ohio
Orchianian, David, 1998, Assistant Professor of Occupational Therapy
B.S., Western Michigan; M.P.A., Long Island
Orbaugh, Kenneth C., 1994, Associate Professor of Management
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