Western Michigan University Undergraduate Catalog 1993-1995

Western Michigan University

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Western Michigan University

Undergraduate Catalog
Kalamazoo, Michigan
1993 • 1995

Western Michigan University is located in Kalamazoo, midway between Chicago and Detroit. Three major highways, Amtrak, commercial airlines, and numerous bus routes connect the city with other midwestern cities. The population of Kalamazoo is 89,277. Kalamazoo County has a population of 223,400.

The provisions of this catalog are not an irrevocable contract between the student and the University. The University reserves the right to change any provision or requirement at any time within the student's attendance. The University further reserves the right to ask the student to withdraw for cause at any time.

Western Michigan University requires that all students demonstrate appropriate skills in reading, writing, mathematics, and computer literacy before the awarding of any degree. These requirements 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 which was improperly obtained. Before taking any such formal action, however, the University will provide appropriate due process rights to the degree holder.

It is the policy and commitment of Western Michigan University not to discriminate on the basis of race, sex, age, color, national origin, height, weight, marital status, sexual orientation, religion, handicap, or Veteran status in its educational programs, student programs, admissions, or employment policies. Western Michigan University complies with all requirements of Title VII of the Civil Rights Act of 1964, Title IX of the 1972 Amendments, Executive Order 11246 as ammended, and Section 504 of the Rehabilitation Act of 1973, and all other pertinent state and federal regulations.

Copies of the complete Western Michigan University Undergraduate Catalog are available for examination at most high schools, libraries, other state universities, community colleges, and state government offices. Each entering student, freshman or transfer, is entitled to one copy without charge. Additional copies are available during business hours at the WMU Bookstore in the Bernhard Center. The cost is $2.00 each.

Changes in administration and instruction may be made after the publication date.

HOW TO READ THIS CATALOG

Welcome to the world of Western Michigan University. We want you to feel at home in your new world, so we've kept your needs in mind while putting together this catalog. We've tried to make it as easy as possible for you to locate essential information. The catalog begins with general information about Western and being a student here. This material is organized based on the following themes:

- Admission Policies and Procedures
- Student Fees
- Financial Assistance and Scholarships
- Academic Policies and Procedures
- Registration, Records, and Regulations
- Services for Students
- University Services
- Student Rights and Responsibilities
- Degrees and Curricula

The remaining information covers academic programs and courses; it is organized by academic colleges and departments. The table of contents in the front of the catalog, the glossary that follows, and the index at the end will help you locate and understand specific information.

Above all, when you have questions regarding this catalog or some other aspect of life at Western Michigan University, be sure to ask for a clarification from your academic advisor or from the department involved.
<table>
<thead>
<tr>
<th>Course Reference</th>
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<tr>
<td>Accountancy (ACTY)</td>
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<td>Aeronautical Engineering (AAE)</td>
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<td>Social Science (SSCI)</td>
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<td>Vocational Education (VE)</td>
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<td>Women's Studies (WMS)</td>
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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.

**Credit load**
The number of credit hours carried by a student each semester or session. A first semester freshman may not enroll for more than eighteen hours of work except by special permission, which is seldom granted unless the curriculum demands it. This regulation applies to total credit for work taken by extension or in some other institution, in addition to credit earned in residence at Western. The normal maximum load for the spring or summer session is nine hours.

**Class standing**
A classification based on the number of credit hours earned which indicates the level of a student.  
- **Freshman**  A student credited with 0-25 hours inclusive.  
- **Sophomore**  A student credited with 26-55 hours inclusive.  
- **Junior**  A student credited with 56-87 hours inclusive.  
- **Senior**  A student credited with 88 or more hours.

**Cognate**
A course related to the courses in a major program or to a degree requirement.

**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, or remedial, writing course may be required as a prerequisite.

**Computer usage requirement**
A requirement that all students demonstrate computer literacy by course, test, or program.

**Continuing education unit**
Recognition for participation in a non-credit program or workshop.

**Corequisite**
A course that must be taken at the same time as another course.

**Course numbering system**
The course numbering system is limited to three digits. The first digit includes the level of work. The second digit indicates an area of study within the series or level. The third indicates the specific course number in each area and each series. Undergraduate courses are numbered from 100 through 499. Graduate courses are numbered 500 through 799. Courses numbered 500 through 599 are for graduate and advanced undergraduate students.

**Course**
Numbers Levels  
0-89 Non-credit courses  
90-99 Terminal course credit that may not be applied toward degree programs  
100-199 Courses primarily for first-year students  
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.

**Credit/no credit**
A method used to evaluate performance in courses which is separate from the grade point system. Course grade does not affect GPA.

**Credit hour**
A unit of academic credit measured in semester hours or quarter hours. One credit hour usually represents one hour of class time per week. See also "semester hour."

**Credit load**
The total number of credits for which a student registers during a semester or session.

**Curriculum**
A complete program of studies, as defined by a college, leading to a baccalaureate (undergraduate) degree.

**Deadline**
The date by which certain information must be received by any given office or unit.

**Dean's list**
A public announcement at the end of fall and winter semesters listing students who have achieved a specified grade point average (GPA) or level of achievement established by the University.

**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 course requirement. Each undergraduate candidate must complete a specified number of courses within the divisions of humanities/arts, mathematics/science, social/behavioral science, and the non-western world.

**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.

**Full-time student**
An undergraduate student who enrolls for twelve credit hours during Fall or Winter or for six credit hours during Spring or Summer. The University does allow full-time status to some co-op and intern classes, when it is the only class allowed a student during a semester or session.

**Good standing**
Eligible for housing contracts. Students should contact the University Housing Office for this information. The above definitions are Western Michigan University definitions and may or may not be accepted by other agencies.

**Grade point**
The numerical value given to letter grades. For example an "A" is equivalent to 4 points per semester hour, a "B" to 3.5 points, a "C" to 3 points and so on. No points are earned for an "E" grade. Also referred to as "honor points."

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<table>
<thead>
<tr>
<th><strong>Grade point average (GPA)</strong></th>
<th>A student’s scholastic average computed by dividing total grade or honor points by total credit hours attempted.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grant</strong></td>
<td>Financial assistance awarded to a student which does not have to be repaid, usually based on need.</td>
</tr>
<tr>
<td><strong>Guest student</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Hold</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Honors</strong></td>
<td>Designation indicated on the college degree and transcript to reflect outstanding scholarship.</td>
</tr>
<tr>
<td><strong>Honors College (Lee Honors College)</strong></td>
<td>An academic administrative unit of the University whose mission is to design and foster curricular and co-curricular programs for the academically-talented student.</td>
</tr>
<tr>
<td><strong>Honors courses</strong></td>
<td>Special courses offered by Western’s Lee Honors College designed to pose intellectual challenge and give personal attention to particularly-able students.</td>
</tr>
<tr>
<td><strong>Incomplete</strong></td>
<td>A course grade (“I”) granted only if a student is temporarily unable to complete course requirements because of unusual circumstances. Student must be passing the course to be eligible for an “I.”</td>
</tr>
<tr>
<td><strong>Independent study</strong></td>
<td>A course of study undertaken outside the classroom by a student under the supervision of one or more faculty members.</td>
</tr>
<tr>
<td><strong>Intellectual skills requirements</strong></td>
<td>The requirement that all students demonstrate entry-level competency in reading, writing, and mathematics by test or course.</td>
</tr>
<tr>
<td><strong>Interdisciplinary</strong></td>
<td>Designating a combination of subject matter from two or more disciplines within a course or program.</td>
</tr>
<tr>
<td><strong>Internship</strong></td>
<td>Work in a firm or agency related to a student’s major program and career plans. Usually involves earning college credit and may involve receiving payment.</td>
</tr>
<tr>
<td><strong>Loan</strong></td>
<td>Financial assistance to students which must be repaid. Low interest loans are available and financial need may or may not be a factor.</td>
</tr>
<tr>
<td><strong>Lower division</strong></td>
<td>Courses at the 100-200 level; freshman or sophomore standing.</td>
</tr>
<tr>
<td><strong>Major</strong></td>
<td>A concentration of related courses generally consisting of thirty to fifty semester hours of credit.</td>
</tr>
<tr>
<td><strong>Michigan residence requirements</strong></td>
<td>The requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.</td>
</tr>
<tr>
<td><strong>Minor</strong></td>
<td>A concentration of courses generally consisting of a minimum of twenty semester hours of credit.</td>
</tr>
<tr>
<td><strong>Non-degree student</strong></td>
<td>A student who has been admitted to a non-degree category and is not currently seeking a bachelor’s degree.</td>
</tr>
<tr>
<td><strong>Part-time student</strong></td>
<td>An undergraduate student who takes fewer than twelve hours during a semester or fewer than six hours during a session.</td>
</tr>
<tr>
<td><strong>Phase I</strong></td>
<td>The first part of a two-part registration sequence. Dates are announced each semester or session in the Directory of Classes.</td>
</tr>
<tr>
<td><strong>Phase II</strong></td>
<td>The second part of a two-part registration sequence. Dates are announced each semester or session in the Directory of Classes.</td>
</tr>
<tr>
<td><strong>Portfolio</strong></td>
<td>A collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.</td>
</tr>
<tr>
<td><strong>Prerequisite</strong></td>
<td>A requirement, usually the completion of another course, which must be met before a student may register for a course.</td>
</tr>
<tr>
<td><strong>Readmission</strong></td>
<td>An appeal procedure for a student who has been dismissed or suspended. Consult the Office of Admissions to begin the procedure. Readmission must be sought in the area of intended study.</td>
</tr>
<tr>
<td><strong>Re-entry</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Registration</strong></td>
<td>The process of enrolling in and paying tuition and fees for courses each semester or session.</td>
</tr>
<tr>
<td><strong>Residence requirement</strong></td>
<td>The requirement that a minimum of 30 semester hour of course work for the bachelor’s degree be completed at Western Michigan University.</td>
</tr>
<tr>
<td><strong>Scholarship</strong></td>
<td>Financial assistance to students awarded on the basis of academic achievement. Financial need may or may not be a factor.</td>
</tr>
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<td><strong>Self-instructional course</strong></td>
<td>A credit-bearing course designed for the student unable to attend an on-campus class.</td>
</tr>
<tr>
<td><strong>Semester</strong></td>
<td>A unit of time, 15 weeks long, in the academic calendar.</td>
</tr>
<tr>
<td><strong>Semester hour</strong></td>
<td>A unit of academic credit usually meaning the pursuit of a subject for one period a week for one semester. See also “credit hour.”</td>
</tr>
<tr>
<td><strong>Senior institution</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Session</strong></td>
<td>A unit of time, 7½ weeks long, in the academic calendar.</td>
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<tr>
<td><strong>Student employment</strong></td>
<td>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.</td>
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<td><strong>Teachable major/minor</strong></td>
<td>A state-approved major/minor program for teacher certification at the secondary and/or elementary level.</td>
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<tr>
<td><strong>Transcript</strong></td>
<td>A copy of a student’s permanent academic record at a particular institution.</td>
</tr>
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<td><strong>Transfer credit</strong></td>
<td>Credit earned at another accredited institution and accepted toward a Western Michigan University degree. Grades earned at another institution do not transfer and hence do not affect the WMU GPA.</td>
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<tr>
<td><strong>Transfer credit evaluation</strong></td>
<td>An official statement which indicates the number and type of transfer credits awarded.</td>
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<tr>
<td><strong>Tuition</strong></td>
<td>The amount of money which must be paid for courses based on the number of credits for which the student registers.</td>
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<td><strong>Unit of credit</strong></td>
<td>The unit of credit is the semester hour; the number of semester hours credit given for a course generally indicates the number of periods a class meets each week.</td>
</tr>
<tr>
<td><strong>Upper division</strong></td>
<td>Classification of students with 56 or more semester hours of credit earned towards a bachelor’s degree, courses at the 300, 400, and 500 levels.</td>
</tr>
<tr>
<td><strong>Withdrawl</strong></td>
<td>An official procedure for withdrawing from a course or from the University. Deadlines for the last day to withdraw from a course without academic penalty (grade of “W” is on the transcript) is noted each semester or session in the Directory of Classes. Students who do not follow the official procedure when withdrawing from a class will earn the grade of “X” for that course; the “X” grade carries no honor points and affects the GPA in the same manner as an “E” or failing grade.</td>
</tr>
</tbody>
</table>
1993-94 Calendar

Fall Semester, 1993
August 30, Monday
  Advising Day
August 31, Tuesday
  Classes Begin
September 6, Monday
  Labor Day Recess
October 8, Friday
  Classes Dismissed, 2 p.m., Friday only
    (Laboratories excepted)
October 9, Saturday
  Homecoming
October 22, Friday
  Last Day to Drop Classes
November 24, Wednesday
  Thanksgiving Recess (Noon)
November 28, Monday
  Classes Resume
December 13-17
  Final Examination Week
December 18, Saturday
  Semester Ends—Commencement

Winter Semester, 1994
January 4, Tuesday
  Classes Begin
February 25, Friday
  Last Day to Drop Classes
February 28, Monday
  Semester Recess
March 7, Monday
  Classes Resume
April 1, Friday
  Recess All Day
April 18-22
  Final Examination Week
April 23, Saturday
  Semester Ends—Commencement

Spring Session, 1994
May 2, Monday
  Classes Begin
May 27, Friday
  Last Day to Drop Classes
May 30, Monday
  Memorial Day Recess
June 22, Wednesday
  Session Ends
June 25, Saturday
  Commencement

Summer Session, 1994
June 29, Wednesday
  Classes Begin
July 4, Monday
  Independence Day Recess
July 22, Friday
  Last Day to Drop Classes
August 19, Friday
  Session Ends

1994-95 Calendar

Fall Semester, 1994
August 29, Monday
  Advising Day
August 30, Tuesday
  Classes Begin
September 5, Monday
  Labor Day Recess
October 21, Friday
  Classes Dismissed, 2 p.m., Friday only
    (Laboratories excepted)
October 22, Saturday
  Homecoming
October 21, Friday
  Last Day to Drop Classes
November 23, Wednesday
  Thanksgiving Recess (Noon)
November 28, Monday
  Classes Resume
December 12-16
  Final Examination Week
December 17, Saturday
  Semester Ends—Commencement

Winter Semester, 1995
January 3, Tuesday
  Classes Begin
February 24, Friday
  Last Day to Drop Classes
February 27, Monday
  Semester Recess
March 6, Monday
  Classes Resume
April 14, Friday
  Recess All Day
April 17-21
  Final Examination Week
April 22, Saturday
  Semester Ends—Commencement
### Spring Session, 1995
- May 1, Monday
- Classes Begin
- May 26, Friday
- Last Day to Drop Classes
- May 29, Monday
- Memorial Day Recess
- June 21, Wednesday
- Session Ends
- June 24, Saturday
- Commencement

### Summer Session, 1995
- June 28, Wednesday
- Classes Begin
- July 4, Tuesday
- Independence Day Recess
- July 21, Friday
- Last Day to Drop Classes
- August 18, Friday
- Session Ends
About Western Michigan University

Founded 1903
President Diether H. Haenicke, Ph.D.
State Assisted, Co-educational
College of Arts and Sciences
School of Public Affairs and Administration
Haworth College of Business
College of Education
College of Engineering and Applied Sciences
College of Fine Arts
School of Music
The Graduate College
College of Health and Human Services
School of Community Health Services
School of Social Work

Mission of the University

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

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

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

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

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

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

Founded in 1903 as a normal school for preparing elementary and secondary school teachers and designated in 1967 as the state's fourth public university, Western Michigan University has earned recognition by the Michigan Legislature as a graduate-intensive university and by the Carnegie Foundation for the Advancement of Teaching as a Doctoral I University. The University shares with other higher education institutions the mission to discover, disseminate, extend, and preserve knowledge and culture. In fulfilling this responsibility, University instructional programs strive to increase students' capacity for intellectual growth and achievement, instill a commitment to learning and service to society, and meet the needs of an increasingly diverse student population.

The University's research mission requires the faculty and students to create new knowledge and to address social needs and concerns. The University serves the region as a major information and technology resource and plays a critical role in cultural, social, and economic development and enrichment. The University strives for excellence in its endeavors and continually evaluates its efforts to assure that objective.

Western Michigan University offers a full array of undergraduate programs in the fine arts, humanities, social and natural sciences, and the professions; master's programs through its departments and schools; and doctoral programs in selected fields. The colleges share the University's traditional commitment to the preparation of teachers. Education programs provide students the opportunity to gain academic knowledge and develop the ability to apply that knowledge based on considered ethical choices, and seek to produce graduates who will think critically, communicate effectively, and participate meaningfully in a rapidly changing world. The general education program emphasizes a diverse cultural and ethnic heritage and the importance of a global perspective. Academic major programs assist students to master a field of inquiry, discipline, or profession sufficient to an understanding of its methods, subject matter, and future in service to society.

Western Michigan University has distinctive strengths in its graduate and professional programs based on strong foundations in liberal and general education. The University has attracted and retains an outstanding faculty, and several of its departments have achieved national and international recognition. Faculty and program quality together provide a basis for responding positively to the challenges and opportunities of the future.

The University's commitment to the discovery and dissemination of new knowledge and insight facilitates and rewards faculty and student research, scholarship, and creative activity. The University extends its resources to the community through fine arts programming, on-site delivery of educational programs, student service and internship assistance, health-related clinical services, technology transfer, technical support, and applied research programs. The University deliberately seeks student, staff, and faculty populations characterized by a diversity that reflects society at large and meets student needs through cultural, academic, and financial support and enrichment programs designed to promote student persistence, independence, and success.

The University provides to students a balanced educational experience, including co-curricular activities that contribute to personal growth and help to develop leadership skills. Student organizations, campus residence hall life, artistic events, multicultural programs, intercollegiate athletics, and intramural activities together with formal academic endeavor constitute the University environment. Western Michigan University fosters and develops ethical behavior among administrators, faculty, staff, and students. Faculty and student governance structures rest upon the principles of academic freedom and professional ethics consistent with the responsibilities of an academic community. (Approved by Board of Trustees February 20, 1970; amended June 13, 1980; June 25, 1982, and April 27, 1990.)
In 1915 Western Michigan University was placed on the approved list of the North Central Association of Colleges and Secondary Schools. The following year it was approved by the organization which, in time, evolved into the present National Council for Accreditation of Teacher Education. 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, health, physical education and recreation.
- master's and doctorate programs in counselor education, science education, special education.
- master's, educational specialist, and doctorate programs in educational leadership.
- Programs in the Department of Art are accredited by the National Association of Schools of Art and Design.
- Programs in the 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, Inc.
- The baccalaureate programs in computer systems engineering, electrical engineering, industrial engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The baccalaureate program in manufacturing engineering technology is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.
- The dietetics program in the Department of Consumer Resources and Technology is approved by the American Dietetics Association.
- School counseling, student affairs, and community agency counseling programs in the Department of Counselor Education and Counseling Psychology are accredited by the Council for Accreditation of Counseling and Related Educational Programs.
- Programs in the Department of Dance are accredited by the National Association of Schools of Dance.
- Programs in the Department of Health, Physical Education and Recreation are accredited by the American Alliance for Health, Physical Education, Recreation and Dance and the National Athletic Training Association.

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

Programs in the Department of Occupational Therapy are accredited by the American Medical Association and the American Occupational Therapy Association.

The Physician Assistant Program is accredited by the American Medical Association Committee for Allied Health Education Accreditation.

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 Educational Standards Board of the Council on Professional Standards of the American Speech-Language-Hearing Association.

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

Western Michigan University is a member of the American Association of Colleges for Teacher Education, American Association of State Colleges and Universities, and the Council of Graduate Schools in the United States.

Copies of accreditation documents are available for review upon request in the Office of the Provost and Vice President for Academic Affairs.
Office of Student Employment Referral Service
Including Student Work-study Placement, Off- and On-Campus Part-time Employment, Summer Jobs, Internships, Externships, and other career related employment opportunities.

Director of Student Life
Including Campus Programming, Greek Affairs, Leadership Development Student Activities and Organizations, Western Student Association (WSA), WIDR-FM

Manager of Residence Hall Facilities
Manager of WMU Apartments
ATHLETIC FACILITIES

Bowling Alley—Twenty bowling lanes available in the Bernhard Center (59) for physical education classes and recreation.

Ebert Softball Field (103)—A collegiate softball field immediately adjacent to Hyames Field.

Gabel Natatorium (53)—Facilities include a swimming pool 120 feet by 50 feet, seating capacity of 400, movable bulkhead, two one-meter and one three-meter diving boards, classrooms, locker facilities, staff offices.

Goldsworth Valley Soccer Field (104)—Regulation soccer field with natural turf and spectator seating.

Hyames Field (16)—A collegiate baseball field with seating for 2,500. Immediately adjacent to Hyames Field is a Ebert Softball Field.

Intramural Fields (104)—Two multipurpose recreation fields are located in Goldsworth Valley adjacent to Goldsworth Apartments. Three additional fields, located at the west end of Goldsworth Valley, are used by physical education classes and the intramural-recreational sports program.

Kanley Field (50)—A running track with all-weather surface. Includes a regular field hockey and field events course on the infield.

Lawson Ice Arena (53)—Facilities include a regular hockey rink, 85 feet by 200 feet, seating capacity of 4,300, four one-wall handball courts, weight room, and dressing rooms for women and men.

Oakland Gymnasium (06)—Located on the East Campus, this building houses the Departments of Health, Physical Education and Recreation, and Military Science (ROTC).

Read Fieldhouse (62)—Provides indoor facilities for intercollegiate athletic programs in basketball, gymnastics, volleyball, and track. It has a seating capacity of 6,600.

Sorensen Tennis Courts (102)—Twenty asphalt courts in the Ellsworth Hall-Goldsworth Valley area accommodate physical education classes, intramural and recreational sports, and the intercollegiate tennis program. Davis courts are located on Davis Street below East Hall.

University Recreation Building (49)—Eight basketball courts, eight badminton courts, two tennis courts, seven volleyball courts, one climbing wall, jogging track, swimming pool with "swirl" pool, two floor hockey courts, two indoor soccer areas, weight and fitness rooms, golf driving range area, baseball and softball infield areas, two batting cages, an archery range, three aerobics rooms, ten racquetball courts. Offices for the Department of Health, Physical Education, and Recreation; and University Recreation Programs and Facilities.

Waldo Stadium (15)—An intercollegiate football stadium with seating for 30,000. It is used for recreation, intramural activities, and instruction, in addition to competitive athletics.
ADMISSION POLICIES AND PROCEDURES

Admission Policies

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

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.

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

The University recognizes the need for educational opportunities for people of widely varying ages and backgrounds. Therefore, special admission programs are available for potentially successful students from disadvantaged, culturally deprived, or economically impoverished segments of society. In addition, the University provides access to adults who are returning to school after a considerable absence.

Admission to Western Michigan University is non-discriminatory.

ADVANCED PLACEMENT PROGRAM (APP)

The Advanced Placement Program (APP) of the College Board provides the opportunity for students to earn college credit while still in high school. Complete information on APP awards at Western is found in the Registration, Records, and Regulations section of this catalog.

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

CLEP provides the opportunity for students to earn college credit by examination for learning gained through personal reading, job experience, or other types of noncredit study. Complete information on Western’s participation in CLEP is found in the Registration, Records, and Regulations section of this catalog.

Admission Procedures

Regular Degree Bound Students

FRESHMEN

To be considered for freshman admission, with no previous college work, students should:

1. Submit an application (available from high school counselors or the WMU Office of Admissions and Orientation) with a nonrefundable $25 application fee.

2. Have their high school send an official copy of their transcript directly to the Office of Admissions and Orientation (transcripts brought or sent by students cannot be accepted).

3. 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 admission after completion of the junior year. Application by January 1 ensures full consideration for scholarships, financial aid, Honors College admission, housing, and orientation. Qualified applicants for fall semester cannot be guaranteed admission after June 1. Applicants for other terms should submit all materials no later than December 1 for winter semester, April 1 for spring session, and June 1 for summer session.

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

The University recommends that every student make a campus visit to help with college decision making. The Office of Admissions and Orientation offers three visit options: on selected dates throughout the academic year, Western Fridays, each with a general session, meetings with college advisors, a campus tour, and lunch in a residence hall. Saturday Views on selected dates during the academic year with a general session, tour of campus, and lunch in a residence hall; and daily campus tours.

Students are encouraged to make an appointment with an admissions counselor and/or an advisor during any of these visit options. Students should arrange campus visits with the Campus Visit Coordinator at least ten days in advance.

Notification of status

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

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

Orientation

All first-time freshmen are required to attend a University Orientation session. Two and one half day programs include 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.

TRANSFERS

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

1. Submit an application (available from community college counseling offices or the WMU Office of Admissions and Orientation) with a $25 nonrefundable application fee.

2. Request that each college attended send an official transcript directly to the Office of Admissions and Orientation at WMU (transcripts brought or sent by the student cannot be accepted as official). Failure to report all colleges attended may result in cancellation of admission or dismissal. Applicants currently enrolled at another institution should have a partial transcript sent to 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. Details see International Students in this section.

When to apply
Transfer students applying for fall semester should apply before March 1 for fullest advising/registration and financial aid semester cannot be guaranteed admission when all materials are submitted no later than December 1 for winter semester, April 1 for spring semester, and June 1 for summer session.

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
Transfer students are encouraged to take advantage of the visit opportunities noted in the freshmen section above. Specific visit days are scheduled. Students should check with the campus visit center for details.

Notification of status
The University notifies transfers of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, students receive notification. The decision may be to admit, to hold a place on a waiting list, or to suggest a student take more work, showing courses transferred with WMU grade point average at the transfer institution is normally transfer to WMU.

Notification of status or cause withdrawal of the admission offer.

Credit Evaluation
Students accepted for transfer to WMU will receive an evaluation of their previous college work, showing courses transferred with WMU equivalencies. Course equivalencies for fall semester cannot be guaranteed admission after June 1. Applicants for other terms should submit all materials no later than December 1 for winter semester, April 1 for spring semester, and June 1 for summer session.

Advising/registration
Advising and course selection are included.

Advising/registration
All admitted transfer students should make arrangements for an advising session with the WMU major and select courses for registration. Registration may be completed after the advising session. Admitted transfer students will receive information on these sessions from their WMU advisor, or they may call their college advising office directly. Transfer students may be advised and register during the registration periods available to current WMU students.

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

Advising/registration
All admitted transfer students should make arrangements for an advising session with the WMU advisor as soon as they have their admissions materials and credit evaluation. At this session students will learn how transferred courses will apply to the WMU major and select courses for registration. Registration may be completed after the advising session. Admitted transfer students will receive information on these sessions from their WMU advisor, or they may call their college advising office directly. Transfer students may be advised and register during the registration periods available to current WMU students. They should not wait until just before the beginning of classes.

Orientation
Transfer students are encouraged to participate in programs just prior to the start of each semester or session that provide an orientation to facilities, general requirements, and services. These programs have 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 advising.

Students transferring fewer than 26 credit hours are required to attend a freshman orientation program. Advising and course selection are included.

INTERNATIONAL STUDENTS
To qualify for admission, international students must show that they are academically, financially, and linguistically capable of succeeding in full-time study. Before an international student can be admitted and the Certificate of Eligibility for a visa (Form I-20 or IAP-66) issued, the student must:
1. Obtain an application form and instructions from the Office of International Student Services.
2. Submit educational records documenting all previous secondary and postsecondary schooling.
3. Submit a financial statement that has been signed and returned from a sponsor showing that adequate funds will be available to cover the student’s educational and living expenses for the duration of the anticipated enrollment.
4. If from a non-English speaking country, submit the results (scores) of a recognized English language proficiency examination prior to initial registration.

The University requires either the Test of English as a Foreign Language (TOEFL) or
Originally designed to encourage "marginal" minority students to pursue a college education, the program provided scholarships and remedial help through a Kellogg Foundation grant. In its present form it is a year-round program, beginning in the freshman year, which seeks to:

1. Encourage students who would not otherwise pursue a higher education to do so;
2. Provide supportive services—such as academic advising, vocational and personal counseling, tutoring, and testing—to meet each individual's needs; and
3. Support students through completion of thirty-six credit hours at the University.

Interested students should apply through the regular University admission process for freshman students (a counselor, caseworker, minister, or other person familiar with the family's circumstances may request an application fee waiver). The Office of Admissions and Orientation will notify students eligible for consideration and the program will arrange a personal, on campus testing/screening session to help in making admission decisions.

Students selected for admission, and their parents/guardians, must
1. Sign and return a contract accepting terms of the program, and
2. Complete and mail all financial aid forms.

Program students begin during a three week summer academy in the WMU summer session. Summer session enrollment allows students to make better adjustments to college and improves the transition from high school. Each student is assigned a peer counselor, a graduate or upperclass student who functions as friend, student evaluator, liaison, and resource person. The counselors and the full time administrative staff work in conjunction with other University departments to provide personal attention and supportive services.

The MLK Program does not offer any direct financial assistance to its participants. All WMU students interested in financial assistance must apply through the Office of Student Financial Aid and Scholarships. Awards are made on the basis of need as determined through the applications.

Nontraditional Admission Programs

PERMISSION TO TAKE CLASSES

Students whose education has been interrupted by a period of five years may wish to apply for nondegree Permission to Take Classes (PTC) status. Students applying for this status
1. Should complete a regular application for admission and indicate PTC for program choice;
2. Will be admitted to nondegree 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 nondegree status, providing they meet University probation and dismissal standards (see Academic Standards in the Registration, Records, and Regulations section of this catalog).

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

Students who have attended another school or college within the past five years may apply for the 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 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 PTC students. Acceptance to 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 GUESTS

Students who wish to take courses at the University while still in high school should submit a regular application and a High School Guest Request 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. Younger students with an outstanding record 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 University classes on a seats available basis without charge, under these guidelines:
1. Students should apply as a Senior Citizen under the regular admission process on the day before classes begin (the application fee will be waived). No student is required to declare himself or herself a Senior Citizen student unless seeking enrollment without charge.
2. As soon as the application is processed, students may complete regular registration, without charge.
3. Students must register their vehicles and pay for a student parking sticker or use metered parking;
4. Students will be eligible to use University libraries and other academic facilities necessary for their academic program; but non academic facilities, such as the Sindecuse Health Center, will not be available.

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

Readmission

Students who make an initial enrollment at Western but do not return the following semesterterm will have one year's valid admission status in which to reenroll, 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 reapply for their admission status by completing a readmission 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 readmitted for at least one fifteen week semester. The University will require evidence that the causes of past academic problems have been removed before approving readmission.

Forgiveness policy

WMU students who apply for readmission as undergraduates after at least ten years out of higher education will be readmitted through the Office of Admissions and Orientation. They may also apply, through the Office of the Registrar, to have previous Western work still applicable to their program counted toward graduation requirements without grades. The WMU grade point average will be determined from work attempted after the reentry date. All other University regulations apply.
STUDENT FEES

Fees

ADMISSION VALIDATION DEPOSIT
(Entrying Students) A $50 deposit is required of all new beginning students, transfer students, and former students who have been reactivated for admission on campus for the fall semester. The deposit will be applied toward the student fees in each case and must be paid according to certain prescribed dates, which are provided by the Office of Admissions and Orientation at the time of admission. Refunds of this deposit are also made in accordance with detailed instructions received with the Certificate of Admission.

APPLICATION FEE
A non-refundable payment of $25 must accompany each new application for admission as an undergraduate student or for admission to The Graduate College.

AUDIT FEES
Auditors (students who register for classes but do not desire credit) must pay admission fees and fees for each class taken. Auditors are subject to the same regulations as students desiring credit.

ENROLLMENT FEE
For all students registered in on-campus courses, the enrollment fee incorporates all required fees with the exception of the student organization support fee into a single per capita assessment. The enrollment fee for students registered in on-campus classes is as follows:

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>$194.00</td>
</tr>
<tr>
<td>Spring and Summer</td>
<td>$97.00</td>
</tr>
<tr>
<td>Part-Time</td>
<td>$72.50</td>
</tr>
<tr>
<td>Spring and Summer</td>
<td>$36.25</td>
</tr>
</tbody>
</table>

Full-time students are defined as those enrolled for 7 or more credit hours per semester or 4 or more credit hours per session.

FLIGHT INSTRUCTION
Based on the courses taken, fees range from $800 to $2,800 per course. For specific course fee information, consult the School of Aviation Sciences.

GRADUATION FEE
A graduation fee of $30 is due and payable at the time a student applies for graduation with the Records Office.

LATE REGISTRATION FEE
A late registration fee of $50.00 is assessed to each new registrant starting at 12:01 a.m. the first day of classes. This fee does not apply to those students completing drop-add procedures, only to students who did not register prior to the first day of classes. This fee is a charge for the special handling required. It is not refundable.

GRADUATE students, if not otherwise enrolled, are assessed for use of University facilities and staff services while completing a master's thesis, specialist's project, or a doctoral dissertation, at the rate of $25 a semester or $12.50 a session.

ROOM AND BOARD
Cost of room and board in 1992-93 is $1,895* for fall semester and $1,932* for winter semester, per student. The rate for room only in those residence halls that do not provide board is $781* for both fall semester and winter semester, per student. A first payment of $175 to be applied toward room and board payment will be required with the signed contract before a housing assignment is made. Note: *includes $25 deferred maintenance fee and $6 program development fee.

All prices quoted are on the basis of two or more students per room. Due to the unsettled condition of prices for food, labor, and utilities, the University reserves the right to increase the charge during the year 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 Director of Accounting Services.

STUDENT ASSESSMENT
This fee is a charge for the special handling required. It is not refundable.

Tuition and Fees
Student fees are assessed on a credit hour basis. See Fee Revisions. Fees per credit hour for 1992-93 are listed below.

Resident Undergraduate—Lower Division, $77.50
Resident Undergraduate—Upper Division, $87.25
Resident Graduate, $111.50
Non-Resident Undergraduate—Lower Division, $300.50
Non-Resident Undergraduate—Upper Division, $225.75
Non-Resident Graduate, $276.00

Those undergraduate students who have not completed fifty-six credit hours by the start of each semester/session will be classified as Lower Division. Those undergraduate students who have completed fifty-six credit hours will be classified as Upper Division.

Refund Schedule

FOR COMPLETE WITHDRAWAL OF ALL COURSES
100 percent of the student fees will be refunded through the end of the final day for adding a course. 50 percent will be refunded from the end of the final day for adding a course through the fifth week of classes in a semester or second week in a session. Refunds to students who made an admission deposit will be reduced by the $50 deposit.

Note: The refund date will normally be determined by the date that the Registrar receives a Change of Enrollment Request form or an Appeal to Withdraw form.

Flight Instruction Fees
Refund of flight instruction fees will be made in accordance with the policy established by the Department of Engineering Technology.

Refunds

STUDENT FEES
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 fee assessment.

Fee Revisions

Fees and costs pertain to the 1992-93 academic year, except as noted, and are subject to change by action of the Board of Trustees. Questions concerning current fee schedules should be directed to the Office of the Director of Accounting Services.
Residency
The following policy adopted by the Board of Trustees of Western Michigan University applies to all students:

1. Since normally a student comes to Western Michigan University for the primary or sole purpose of attending the University rather than to establish a domicile in Michigan, one who enrolls in the University as a non-resident shall continue to be so classified throughout his or her attendance as a student, unless and until he or she demonstrates that his or her previous domicile has been abandoned and a Michigan domicile established.

2. The residence of a student who is a minor follows that of his/her parents or legal guardians, except that a minor student who comes to the institution from another state or country cannot be registered as a resident of this state on the basis of having a resident of this state as a guardian, except on permission of the Board of Trustees.

3. No student 18 years of age or older shall be eligible for classification as a resident unless the student shall be domiciled in Michigan and has resided in Michigan continuously for not less than one year immediately preceding the first day of classes of the term for which classification is sought.

4. A student shall not be considered domiciled in Michigan unless the student is in continuous physical residence in this state for one year 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.

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

6. An alien lawfully admitted for permanent residence in the United States, who has obtained a permanent visa, and the spouse and minor children, who have met the other requirements herein for residence, may register as residents of this state.

Please note that the deadline for applying for a change in resident classification is 20 days after the first day of classes for each semester or 10 days after the first day of classes for each session. Any questions concerning residency classification should be directed to the Office of the Assistant Vice President for Business, 3082 Seibert Administration Building. Telephone: 387-2366.

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

<table>
<thead>
<tr>
<th>Semester</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall/Winter</td>
<td>12 hours</td>
<td>9 hours</td>
<td>6 hours</td>
</tr>
<tr>
<td>Spring/Summer</td>
<td>6 hours</td>
<td>5 hours</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

The University does allow full-time status to some of co-op and intern classes, when it is the only class allowed a student during a semester or session.

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

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

Western’s Student Financial Aid Office administers a variety of student financial assistance programs designed to aid students who are in need of additional financial support. Five types of financial assistance programs are: 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 assistance.

The information in this section describes both need- and non-need based financial assistance programs based upon the 1993-94 award year criteria at the time of this editing. Should federal, state, or university regulations and procedures change for the 1993-94 and subsequent award years, the University will be responsible for administering these programs according to updated descriptions and criteria.

Federal, State of Michigan, and Western Grant, Employment, and Loan Opportunities Based on Need

Need-Based Financial Assistance
To determine eligibility for need-based assistance, students must file a Free Application for Federal Student Aid (FAFSA). The FAFSA will gather information regarding the parents’ and students’ adjusted gross income. Social Security benefits, Aid to Dependent Children benefits, Veterans Administration benefits, social services benefits, the number of family members, the number of family members in college, and, for some, family assets. The FAFSA is available at high schools and colleges.

The amount of need-based assistance a student can receive is determined by subtracting the expected family contribution (EFC) from the cost of attendance. The cost of attendance is based on estimation of tuition, fees, books, supplies, campus housing and food, transportation, and personal expenses.

Based upon the amount of the student’s financial need, the Student Financial Aid Office awards a package of scholarships and grants, employment, and loans.

Federal Assistance Programs

Eligible applicants for federal assistance are:
1. U.S. citizens or permanent residents of the United States.
2. Students enrolled at least half time, carrying a minimum of six undergraduate or four graduate credit hours each academic semester.
3. Undergraduate students (for the Federal Pell Grant and the Federal Supplemental Educational Opportunity Grant).
4. Students who are not in default on student loan payments and who do not owe student grant refunds.
5. Students enrolled in a degree-granting curriculum at Western (not under the Permission to Take Classes-PTC/PTG- or guest student designation).
6. Students who are making satisfactory academic progress towards their degree.

State of Michigan Assistance Programs

Eligible applicants for State of Michigan assistance are:
1. U.S. citizens or permanent residents who are Michigan residents.
2. Students enrolled at least half time, carrying a minimum of six undergraduate or four graduate credit hours each academic semester.
3. Undergraduate students.
4. Students who are enrolled in a degree-granting curriculum at Western (not under the Permission to Take Classes-PTC/PTG- or guest student designation).
5. Students who are making satisfactory academic progress towards their degree.
6. Students who are making satisfactory academic progress towards their degree. Contact Student Financial Aid Office for more details.

Western Michigan University Assistance Programs
Educational Opportunity Program and Job Opportunity Bank

Eligible applicants for University assistance are:
1. U.S. citizens or permanent residents.
2. Students enrolled for six undergraduate or four graduate credit hours each academic semester.
3. Students who are enrolled in a degree-granting curriculum at Western (not under Permission to Take Classes-PTC/PTG- or as a guest student).
4. For the Educational Opportunity Program— minority students.
5. Students who are making satisfactory academic progress towards their degree. Contact the Student Financial Aid Office for more details.

Financial Assistance Procedures
To apply for a:
Federal Pell Grant
Federal Supplemental Educational Opportunity Grant
Federal Stafford Loan (subsidized and unsubsidized)
Federal Perkins Loan
Federal College Work Study Program
Michigan Educational Opportunity Grant
Michigan Competitive Scholarship
Michigan Adult Part-time Grant
Michigan College Work Study Program or Educational Opportunity Program Grant

Students must submit the Free Application for Federal Student Aid (FAFSA) as soon as possible after January 1 of the year preceding the award year.

Financial aid files as soon as possible after January 1 of the year preceding the award year. Students who submit the FAFSA as soon as possible will receive priority consideration for campus-based funds.

Western’s Student Financial Aid Office, or from any other higher education institution.

Students who submit the FAFSA as soon as possible after January 1 of the year preceding the award year will receive priority consideration for campus-based funds; returning students must also complete their financial aid files as soon as possible after January 1. Campus-based funds include: Federal Supplemental Educational Opportunity Grant (SEOG), Michigan Educational Opportunity Grant (MEOG), Educational Opportunity Program Grant (EOP), federal and state work-study programs, and the Federal Perkins Loan.

Federal Pell Grant— Students who authorize their FAFSA to be forwarded to Western will receive, within three to four weeks, the Student Aid Report. Students need to submit their Student Aid Report to the Student Financial Aid Office as soon as possible.
Federal Stafford Loan (subsidized and unsubsidized), Federal Supplemental Loan for Students (SLS)—Student Financial Aid will notify students who file the FAFSA to be forwarded to the Michigan Competitive Scholarship program and who meet the other eligibility criteria will be notified of their scholarship award by the Michigan Competitive Scholarship program.

To complete their Western financial aid file, applicants must submit (at minimum)

1. Application form for the grant, loan, employment, or scholarship program listed above.
2. Student Aid Report

Students transferring to Western also submit a Financial Aid Report form from all schools attended after high school. These schools list the aid a student has received or state that the student has not received aid. Financial Aid Transcript forms are available from the Student Financial Aid Office.

Students selected for verification by the federal government may be asked to provide additional information including but not limited to the following:

- Dependent Students
  1. Signed copies of the parents’ and the student’s federal 1040s (all pages and schedules) and W-2 forms for the year immediately preceding the award year.
  2. Self-Supporting Students
    1. A signed copy of the student’s (or student and spouse’s) federal 1040 (all pages and schedules) and W-2 forms for the year immediately preceding the award year.
  3. Dependent and Self-Supporting Students
    1. Records of untaxed income, such as Aid to Families with Dependent Children benefits, Social Security benefits, Veterans Administration benefits, social services benefits, unemployment compensation, and child support payments.

The student’s name and social security number must be written on the upper right corner of all parental information documents so that accurate filing is possible.

Western’s Student Financial Aid Office ordinarily will award Federal Pell Grant first, then other grants, employment, and loan programs, provided students have sufficient financial need and meet other program eligibility requirements.

Financial Assistance Programs

Federal Pell Grant

This program entitles eligible undergraduate students to grants of $400 to $2,300 for each academic year. The student’s Expected Family Contribution (EFC), the cost of education, and the number of hours for which the student registers (half time, three-quarter time, or full time) determine the amount of the student’s Federal Pell Grant.

Students whose financial situation has recently changed for the worse because of illness, death, divorce, separation, or loss of income should file an appeal with Western’s Student Financial Aid Appeals Committee. The student should write a detailed account of the situation and should attach documentation such as pertinent tax returns, death certificates, verification of unemployment benefits or loss of taxable benefits.

Federal Supplemental Educational Opportunity Grant

This program, designed for exceptionally needy undergraduate students, provides grants of $200 to $1,000 for each academic year.

Michigan Educational Opportunity Grant

This program, designed to assist exceptionally needy undergraduate students who are residents of the state of Michigan, provides grants of $200 to $1,000 for each academic year.

Michigan Competitive Scholarship Program

This program provides up to $1,200 for the fall and winter semesters. Eligibility is based on the ACT score and financial need. Recipients must be undergraduates and must use the ten semesters of scholarship eligibility within ten years after graduation from high school.

Michigan Adult Part-time Grant

This state program, designed to assist exceptionally needy undergraduate students who are Michigan residents, provides grants of up to $600 for each academic year, with a limit of two years or ten semesters. Recipients must be self-supporting, non-traditional students who are attending college on a part-time basis.

Educational Opportunity Program

This federal program funds employment opportunities for needy undergraduate and graduate students.

Western’s Student Employment Referral Service places students awarded Federal College Work Study in campus jobs across the University. When possible, students select jobs related to their degree programs or interests. Students work from eight to twenty hours a week while attending school and may earn up to $2,300 for the academic year.

Michigan College Work Study

This state program funds employment opportunities for needy undergraduate and graduate students who are residents of the state of Michigan.

The Student Employment Referral Service places students awarded Michigan College Work Study in jobs across the University. When possible, students select jobs related to their degree programs or interests. Students work from eight to twenty hours a week while attending school and may earn up to $2,300 for the academic year.

Refund Policy

If the University has granted student a refund for withdrawing from classes or moving off campus, and if financial assistance has been applied against the student’s University charges:

1. The amount of the refund will first be applied against any outstanding balance the student owes to the University.
2. Should any funds remain, the Student Financial Aid Office will determine whether the funds must be used to repay financial assistance already applied to the student’s University account or refunded to the student. The office will also determine whether the student will owe additional repayment of the financial assistance programs.
3. If funds still remain, the student will receive a refund.

Exception: Students who are first-time enrollees at Western will be assessed their refund following the prorated refund formula if they completely withdraw during the first nine weeks of a semester or the first four weeks of a session.
Western Michigan University.

2. Students who are not in default on student loan payments and who do not owe student grant refunds.

3. For the Federal Parent Loan (PLUS) and the Federal Supplemental Loan for Students (SLS), students must also be enrolled at least half time, carrying a minimum of six undergraduate or four graduate credit hours a semester (fall/winter), and three undergraduate or two graduate credit hours a session (spring/summer).

4. For the Paul Douglas Teacher Scholarship program, students must be enrolled full time and must have graduated in the top 20 percent of their high school class. (Students who have earned a GED may also apply.) Applicants must be U.S. citizens or permanent residents who are Michigan residents.

Western opportunities include: Student Employment, Reference Service, Professional Practice Services, the Academic Management Services Plan, Manufacturers Hanover Educational Finance Programs, and the Short-Term Loan Program.

Eligible applicants are:
1. Western students who are enrolled for one or more undergraduate or graduate credit hours during a semester or session.
2. For the University Short-Term Loan Program, Western students who have no financial obligations outstanding to the University.

Non-Need Based Opportunities

Loans

Federal Supplemental Loan for Students

Self-supporting graduate and undergraduate students who are not eligible or only partially eligible for a Federal Stafford Loan (subsidized or unsubsidized) may apply for a Federal Supplemental Loan for Students. Also, dependent students whose parents are unable to secure a Federal Parent Loan may see their lender to discuss the possibility of applying for a Federal Supplemental Loan for Students. Because repayment arrangements vary widely from lender to lender, students should contact their lender for repayment details.

Federal Supplemental Loan for Students application forms are available from the student's hometown bank, savings and loan association, or credit union.

Students must also submit a Free Application for Federal Student Aid (FAFSA) and complete their financial aid file at Western Michigan University.

Federal Parent Loan

Parents of dependent undergraduate and graduate students who do not qualify for the Federal Stafford Loan (subsidized or unsubsidized) may apply for a Federal Parent Loan. To be eligible, students must be registered at least half time, carrying six undergraduate credit hours. Parents must have no adverse credit history and may apply for loans equal to the cost of attendance minus any financial assistance. Loan checks are copayable to the parent and Western and are mailed to the school. The interest rate is variable and capped at 10 percent.

Federal Parent Loan application forms are available from a hometown bank, savings and loan association, or credit union.

Mi-Loan

The Michigan Alternative Loan Program (Mi-Loan) provides credit-worthy students and their families an alternative source of funds. Financing is arranged through processing agents for the Michigan Higher Education Loan Authority. Eligible students may borrow up to 50 percent of most short-term interest rate varies. Students must also file a Free Application for Federal Student Aid (FAFSA). Call 1-800-877-5659 for more information.

Payment Plan

The Academic Management Services Plan allows parents and students to pay tuition, fees, and on-campus housing costs on a monthly basis. The plan involves no interest payments and may be renewed annually for $45. Contact AMS toll free at 1-800-556-6684 or write: Academic Management Services, Incorporate, 1110 Central Avenue, P.O. Box 1000, Pawtucket, Rhode Island 02862-1000.

Manufacturers Hanover Educational Finance Programs offers two plans which provide funds that parents must repay on a monthly basis. The annual percentage rate is 15.99. There are no other charges.

For information on the Tuition Plan call 1-800-258-3540. For information on the Educational Line of Credit, call 1-800-MHT-GRAD. Write Manufacturers Hanover, 100 Duffy Avenue, Hixsville, New York 11501.

Western Short-Term Loan Program

Western’s Student Financial Aid Office provides emergency short-term loans to Western students who are enrolled for one or more credit hours. Both graduate and undergraduate students who have no financial obligations outstanding to the University may apply.

The maximum amount of the loan depends on the student's classification and the purpose of the loan. In most cases, the maximum for a personal loan is $100, and the maximum for a tuition loan is $500.

A modest simple interest rate of 5 to 7 percent is charged for short-term loans, and the duration of the loan generally does not exceed sixty days.

The loan funds listed below have been established by University alumni, faculty, staff, and friends. Some funds specify curriculum, academic rank, or geographic location. Application must be made in person to Western’s Student Financial Aid Office.

A A U W Graduate Social Work Fund
A A U W Nursery Education Loan Fund
Academic Affairs Special Loan
Alpha Beta Epsilon, Xi Chapter, Loan Fund
Alpha Phi Alpha Fraternity
Alumni Short-Term Loan Fund
American Business Club
A. Robert Anderson Memorial Loan Fund
Associated Women Students Loan Fund
AUSCO Loan Fund
Fannie Ballou Memorial Fund

Robert H. Barr Loan Fund
John L. Bendix Memorial Loan Fund
Alfred H. Behnke
Amelia Biscomb Memorial Loan Fund
William R. and Emma Wales Brown Student Loan Fund
Ernest Burghardt Rural Loan Fund
Chapman Student Loan Fund
Class of 1936 Loan Fund
College of Applied Sciences Loan Fund
Communications Arts and Sciences Loan Fund
Dorothy Dalton Loan Fund
Delta Kappa Gamma Alpha Psi Loan Fund
Delta Sigma Theta Loan Fund
Vida and Irene Dimac Loan Fund
The Gordon and Ferne Eldefrin Loan Fund
Michael Finley Memorial Loan Fund
Foreign Student Aid Loan Fund
James Gardner Memorial Loan Fund
Marie Hank Loan Fund
Harris-Brigham Loan Fund
Leroy H. Harvey Memorial Loan Fund
Eunice E. Herald Home Economics Loan Fund
Dalee M. Hammel Debate Loan Fund
Hilbert’s Buyers Guide Loan Fund
Alfred Ho Loan Fund
John C. Hoekje Loan Fund
Honor's College Loan Fund
Home Economics Memorial Loan Fund
Donald Huizenga Memorial Loan Fund
Inter-Fraternity Council Loan Fund
Frank Faltzinger Memorial Loan Fund
Freburg W. James Loan Fund
Rev. B. Moses James Memorial Loan Fund
John Jenkins Memorial Loan Fund
Walter Larry Jenkins Memorial Fund
Gordon O. Johnson Loan Fund
Kalamazoo Area Chapter MAEDC Loan Fund
Kalamazoo Ladies’ Library Association Loan Fund
Kalamazoo Motor Freight Loan Fund
Alice J. Kaufman Loan Fund
Jerome E. Keane Loan Fund
Fred and Martin Kelley
Kiwanis Educational Aid Fund
The Dr. Radford Kuykendall Memorial Loan Fund
Alice Louise Lefevre Memorial Fund
Elizabeth E. Lichy Loan Fund
Marvel F. Liddy Student Loan Fund
David E. Ling Memorial Loan Fund
Larry G. Lochner Memorial Fund
M. Deizena Loutzenhiser Short Term Loan Fund
Rayth W. Lower Memorial Loan Fund
Charles H. Maher Loan Fund
R. C. Mahon Foundation Loan Fund
Mildred Maloney Memorial Loan Fund
Jean G. Malmstrom Loan Fund
Mathematics Faculty Memorial Loan Fund
William McCracken Memorial Loan Fund
in Chemistry
Mecan-American Loan Fund
Migrant Student Loan Fund
Frederick W. Miholich Memorial Fund
Frederick W. Miholich Memorial Fund for Special Education
Muskegon County Retired Teachers Association Loan Fund
Charles S. Nichols Memorial Loan Fund
Occupational Therapy Fund
Omnibus Loan Fund
Dr. Gerald Osborn Memorial Loan Fund
Panhel lenic (Grand Rapids) Loan Fund
Panhel lenic (Detroit) Loan Fund
Panhel lenic WMU Council Loan Fund
Truman A. Pascoe Memorial Fund
Ray C. Pellet Memorial Loan Fund
PIMA (Michigan Division) Loan Fund
Archie S. Potter Memorial Fund
Douglas V. Ratcliffe Memorial Loan Fund
Sophia Reed Loan Fund
Nellie N. Reid Memorial Loan Fund
Raleigh A. and Vivianne C. Robinson Memorial Loan Fund
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Evelyn Underwood Rogers Loan Fund
School of Public Affairs/Administration Loan Fund
Dr. Mike L. Sebaty Short Term Loan Fund
Rotary Student Loan Fund
Mariam I. Segai Memorial Loan Fund
Marion J. Sherwood Memorial Fund
Katherine Knock Loan Fund
Sigma Phi Omega Bob Hayes Memorial Fund
Sigma Tau Gamma Memorial Loan Fund
James N. Sleep Memorial Loan Fund
Dorothea Sage Snyder Loan Fund
J. Towner Smith Loan Fund
R. Franklin Smith Memorial Loan Fund
Southwestern State Employees' Credit Union
Dorothea Sage Snyder Loan Fund
Katherine Shuver Loan Fund
Marion R. Spear Occupational Therapy Fund
George Spraul Loan Fund
Kenneth H. Squires Memorial Loan Fund
Mr. and Mrs. J. Fred Staley Loan Fund State D.A.R. Scholarship Loan Fund
Helen Staller Fund
Elaine Louise Stevenson Student Loan Fund
Stone D.A.R. Student Loan Fund
Ron Strasser Memorial Loan Fund
Student Loan Fund
Student Servicemen's Emergency Loan Fund
Marion Tamin Memorial French Loan Fund
TAPPI (Kalama zoo Valley Section) Loan Fund
Cora Teal Loan Fund
Adrian Trompe Distributive Education Loan Fund
C.N. Van Deventer Loan Fund
University Dames of WMU Loan Fund
Dr. Charles Van Riper Speech Pathology and Audiology Loan Fund
Walco-Feather-Frazier Loan Fund
Dwight B. Waldo Memorial Fund
Walter Wegerly Scholarship Loan Fund
James A. Welch Foundation Loan Fund
Mary Howe Watt Student Loan Fund
Helen and Bernard Westberg Loan Fund
WMU Language Department Loan Fund
WMU Paper Technology Alumni Association Loan Fund
WMU Parents Association Loan Fund
WMU Southern California Alumni Loan Fund
Howard Wolpe Loan Fund
W. Dean Worden Loan Fund
Crystal Werner Memorial Fund
WSA-QSAC Loan Fund
Paul Douglas Teacher Scholarship Program
This federally funded program provides college scholarships to outstanding high school graduates to enable and encourage them to pursue teaching careers at the pre-school, elementary, or secondary school level. The maximum award is $5,000 a year, not to exceed the cost of attendance. The college budgets established for determining eligibility in the Michigan Competitive Scholarship Program will be used to determine the maximum award. Preference for awards will be given to students who demonstrate need, but the amount of the award will not be restricted to need. Awards are limited to four years of undergraduate eligible MediGrants.
Application forms are available in late February from high schools, college financial aid offices, and education offices at colleges and universities. Students may also obtain applications from the Michigan Department of Education. In addition to submitting the appropriate forms, students must have a financial statement on file with the Michigan Higher Education Assistance Authority office. As an alternative, the student may submit a copy of page one of the parents' Federal Income Tax Return, Form 1040 or 1040A, for the year preceding the award year. Self-supporting students should attach a copy of page one of their own Federal Income Tax Return form for the year preceding the award year.

Employment

Student Employment Referral Service
The Student Employment Referral Service actively recruits both on- and off-campus employment opportunities. Students may review the jobs listed with the service in room A-100, Ellsworth Hall.

Openings include food service and clerical positions of all levels, retail sales positions, and technical positions requiring computer science skills.

Regular University Employment
Students may be hired for the current academic year to participate in the University's part-time employment program. The student may then become a member of the Reserve/National Guard and while attending college receive $140 a month in addition to reservist/ guard pay. The G.I. Bill and National Guardsmen provides $5,040 over thirty-six months.

The Unit Enlistment Reserve Bonus pays up to $2,000 to those who will take certain critical skills jobs upon enlistment.

The Student Loan Repayment Program repays the student's Federal Stafford Loans.

The Tuition Assistance Program repays 75 percent for individual classes.

For further details about these programs contact your local armed forces recruiter.

Scholarship Assistance
Most scholarships are based on merit, which includes such criteria as grade point average, major, nationality, race, handicap, gender, hobbies, work experience, religion, residence, veteran status, and athletic ability. Students may research resources through their high school counselors, college advising and financial aid offices, the library, employers, civic and social organizations, service clubs, foundations, churches, and computerized scholarship files. This catalog lists departmental scholarships administered by Western Michigan University.

Western offers a variety of merit-based scholarship opportunities for incoming freshman and for transfer, currently enrolled, nontraditional, and graduate students.

Western Michigan University Scholarships for Beginning Freshmen

Medallion Scholarship Competition Program
Through the Medallion Scholarship Competition, the Scholarship Committee selects recipients of the Medallion Scholarship, the Board of Trustees Scholarship, the Scholars Scholarship, the Excellence Scholarship, and the Academic Scholarship. Western invites high school seniors who have earned a grade point average of 3.70 as computed by Western to participate in the competition. High school seniors who have a grade point average of 3.5 as computed by Western and an ACT score of 29 or above may also be selected to participate. The Scholarship Committee also considers extracurricular activities, employment history, and volunteer work.

Competition participants must be accepted for admission to Western Michigan University by January 10 of their senior year of high school.

Each competition participant receives either the Medallion Scholarship, the Board of Trustees Scholarship, the Scholars Scholarship, or the Academic Scholarship.

Medallion Scholarship
The Medallion Scholarship, the University's most prestigious scholarship program for new freshmen, exemplifies Western's commitment to recognize and encourage superior academic achievement.

Medallion scholarships receive $25,000, awarded $6,250 each year of a four-year degree program at Western Michigan University. For 1993-1994, Western awarded seventeen Medallion Scholarships. Some Medallions 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.

WMU Board of Trustees Scholarship
Western Michigan University awards twenty Board of Trustees Scholarships each year to beginning freshmen who have not previously enrolled in a post-secondary institution. This scholarship has a current value of $16,000; $4,000 is awarded each academic year.

WMU Scholars Scholarship
This scholarship has a current value of $12,000; $3,000 is awarded each academic year.
WMU Excellence Scholarship
This scholarship has a current value of $6,000; $3,000 is awarded each academic year.

WMU Academic Scholarship
Recipients of this $4,800 scholarship receive $1,200 for each academic year.

Additional Scholarships for Entering Freshmen

Western Michigan University’s Award for National Merit Scholarship Winners
Western Michigan University is an institutional member of the National Merit Scholarship Corporation and sponsors scholarships to National Merit Scholarship Finalists. Recipients are selected on the basis of national merit test scores, scholastic achievement, and high school recommendations.

Western awards $3,000 ($750 for the academic year) in addition to National Merit Scholarship and Medallion Scholarship Competition funds awarded to the student. To be eligible, students must designate Western as their first school choice with the National Merit Scholarship Corporation no later than April 1 of the year preceding the award year. This does not apply if the recipient is receiving the maximum amount as a National Merit Scholar or is receiving the $25,000 WMU Medallion Scholarship.

Higher Education Incentive Scholarship
Western Michigan University awards ten Higher Education Incentive Scholarships each year to beginning freshmen who have not previously enrolled in a post-secondary institution. This special scholarship for minority students has a current value of $16,000; $4,000 is awarded each academic year.

To be eligible, students must have A high school grade point average of 3.5 or above. The HEIS Scholarship Committee also considers the student’s extracurricular activities, employment history, and volunteer work.

Eligible students are invited to take part in the HEIS competition on Western’s campus. Students who participate in the competition will be offered either a Higher Education Incentive Scholarship of $16,000 ($4,000 a year) or a WMU Academic Scholarship of $4,000 ($1,000/academic year).

Application forms are available from the Office of Minority Affairs.

Sponsored Scholarship for Beginning Freshmen
Edwin and Adelaide Steffen Scholarship funds are provided from an endowment which the Steffens established to recognize students who have graduated from St. Ignace, Arthur Hill, Decatur, and L’Anse high schools. Entering freshmen may apply for this $500 one-year award shortly after being admitted to Western. The scholarship is based on financial need and a minimum high school grade point average of 3.00.

WMU Scholarships for Michigan Community College Transfer Students
A transfer student may receive only one of the following awards. For consideration, students must have completed at least 26 semester hours of transferable course work at the time of application.

WMU Distinguished Community College Scholars Award
A minimum of ten WMU Distinguished Community College Scholars Awards is given annually to Michigan residents transferring to Western with an associate’s degree from a Michigan community college. Recipients of this $6,000 scholarship receive $3,000 each academic year.

To be eligible, students must have a grade point average of 3.75 or above in transferable courses and all materials necessary for admission must be received in Western’s Office of Admissions and Orientation by March 1. Recipients are selected by the Western Michigan University Scholarship Committee.

WMU Community College President’s Scholarship
Michigan community college presidents select the recipients of this $3,000 scholarship, which provides $1,500 each academic year.

To be eligible, students must have a grade point average of 3.5 or above in transferable courses and all materials necessary for admission must be received in March 1. The University makes these awards as long as funds are available.

Phi Theta Kappa Scholarship
Transfer students who are Phi Theta Kappa members in good standing are eligible for this $2,000 ($1,000/academic year) award. A 3.5 or higher in transferable courses is required along with a recommendation by the chapter advisor. Students who are eligible and willing to be nominated to receive funds are required to submit all materials necessary for admission to Western’s Office of Admissions and Orientation by March 1. Recipients are selected by the Western Michigan University Scholarship Committee. The completion of an Associate’s Degree is recommended.

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

An essential feature of the Undergraduate Research and Creative Activities Award Program is the apprentice/mentor relationship established between a student and faculty mentor. 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 student who 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 $1,000 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.

David and Priscilla Morris Scholarship
This scholarship pays tuition and fees for extremely needy undergraduates. For application details, students may write the scholarship area of the Student Financial Aid Office or may make an appointment to see a Student Financial Aid advisor.

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

Application forms are available at Western’s Student Financial Aid Office from January 1 through March 1. Students must submit their application by March 1 for the following fall/winter semester academic year.

Clifford and Ella Chapman Distinguished Senior Scholarship
This 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 are eligible to apply for this $500 scholarship. The student must have a grade point average of 3.5 or above while enrolled at Western. Students whose extracurricular activities have been limited because of employment attending Western should also include their work history.

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

Application forms are available from November 1 through December 20 at the Student Financial Aid Office.

WMU College and Departmental Scholarships

Military Science
Military Science R.O.T.C. Scholarships—Three- and two-year scholarships are available to qualified male and female students. Each scholarship provides full tuition, student and lab fees, a flat rate for books ($450), and a subsistence allowance of $100 a month (up to $1,000 per year) while school is in session. Additionally, WMU provides ROTC scholarship recipients with a $1,000 annual incentive award. It is a requirement to be enrolled in ROTC to apply for a scholarship.

General qualifications are as follows: The student must be a U.S. citizen, be enrolled as a full time student in any major course of study leading to a baccalaurate degree, meet...
Applicants must be Spanish majors currently enrolled at WMU. Recipients are selected by the Spanish faculty. Demonstrated academic achievement in Spanish and overall academic achievement are considered in the selection.

Hermann E. Rothfluss Award in German—An annual cash award for an outstanding student in German. This scholarship was established in memory of Dr. Hermann E. Rothfluss, professor emeritus of German. The recipient will be selected by the faculty of the German Section of the Department of Languages and Linguistics. Academic performance and contributions to German-American understanding will be considered in the selection of the recipient to receive the award.

Mathilde Steckelberg Scholarships—This endowment fund, established through the generosity of the late Mathilde Steckelberg, enables the Department of Languages and Linguistics to recognize outstanding scholarship performance by students majoring in French, German, Spanish, and classical languages. Academic performance and potential in the particular language area will be stressed in the selection of recipients for the four annual, nonrenewable awards.

Travel/Study Abroad Awards—To encourage more foreign language students to travel and study abroad, a four or more awards of at least $600 each will be granted annually by the Department of Languages and Linguistics. Recipients must have an academic record of 3.5 or better in a declared major or minor in the department.

Mathematics and Statistics—

The A. Bruce Clark Senior Award—This award is presented to the outstanding senior mathematics or statistics major in recognition of their contributions in the field of study and of their potential for accomplishments in the future.

The James H. Powell Award in Statistics—This award is presented to senior statistics majors in recognition of high academic achievement in statistics.

The John P. and Nora Everett Award—This award is presented annually to a junior mathematics or statistics major, outstanding in methods courses and student performance in the future.

The Erik A. Schreiner Memorial Scholarship Award—This award is presented to an outstanding senior mathematics or statistics major with a demonstrated interest in graduate study and of their potential for academic achievement.

The Charles J. Wilcox Memorial Award—This award is presented annually to an outstanding senior mathematics or statistics major in recognition of excellence in their field of study and of their potential for academic achievement.

The Colonel Charles E. Bayliss Scholarship—This award is about $1,400 per year for tuition and textbooks. It is offered to full time undergraduate physics majors and the award is based solely on academic merit. Application forms can be obtained from the Department of Mathematics and Statistics Office.

Physics—
The Paul Rood Scholarships—The scholarships of $1,000 for four years are available for physics majors. These scholarships are based on the student’s academic achievement and interest in physics irrespective of financial need. Recipients of these scholarships are also eligible for other forms of financial aid including other WMU scholarships. Application forms may be obtained from the Department of Physics.

The Colonel Charles E. Bayliss Scholarship—This award is about $1,400 per year for tuition and textbooks. It is offered to full time undergraduate physics majors and the award is based solely on academic merit. Application forms can be obtained from the Physics Department office.

Political Science—

Ardem J. Elssasser Memorial Award—This scholarship has been established by the League of Women Voters of the Kalamazoo area in memory of Arden J. Elssasser, who gave faithful service to this organization and contributed to the Kalamazoo community. The award, which is made annually, will normally be about $400. Application is open to both undergraduate and graduate students in political science at Western Michigan University. Applicants must have a minimum grade point average of 3.0 in political science and overall and must have second semester junior standing by the end of the term in which the award is granted with preference given to those with demonstrable community service and/or political activity. Contact the chair of the political science department for application and additional information.

D. C. Shilling Junior and Senior Awards—

These annual awards are presented to outstanding political science majors for excellence in scholarship and academic performance. The scholarship is divided into two awards: one for the outstanding junior, and the other for the distinguished graduating senior. The fund that supports the scholarship was established by Mrs. Zoa D. Shilling in memory of her husband, Dr. D. C. Shilling, the first chair of the political science department.

Zoa D. Shilling and D. C. Shilling Junior and Senior Awards—These annual awards are presented to outstanding political science majors for excellence in scholarship and academic performance. The scholarship is divided into two awards: one for the outstanding junior, and the other for the distinguished graduating senior. The fund that supports the scholarship was established by Mrs. Zoa D. Shilling because of her interest in encouraging political science students and encouraging scholarly achievement. The fund is also a memorial to her husband, who was the first chair of the political science department.

Mark Denenfeld Memorial Endowed Scholarship—An annual award to a beginning senior majoring in political science who has met the basic requirements of, and demonstrated superior academic performance, at WMU, and compiled a
record of community service and service to others. The fund that supports the scholarship award was established in memory of Mark Denenfeld, a graduate of the Department of Political Science, who died in 1993.

Howard Wolpe Assistantship or Scholarship—An annual award available to seniors majoring in political science who are U.S. citizens, preferably, residents of the State of Michigan. Students must have demonstrated overall academic excellence at Western Michigan University and, in particular, potential to graduate. The award was established by Congressman Howard Wolpe, who endowed The Howard Wolpe Fund for the Study of Politics, which supports the award.

Psychology

Departmental apprenticeships and assistantships—The Department of Psychology offers undergraduate teaching apprenticeships and undergraduate practicum assistantships to advanced undergraduate students demonstrating academic excellence and leadership ability within the department's program. Further information may be obtained from the psychology department. The deadline for all scholarship applications is the first week of November of each academic year.

Maurice J. Memorial Scholarship—A scholarship awarded annually to an outstanding minority undergraduate major in psychology.

Psychology Alumni Award—A scholarship awarded annually to a psychology major of at least junior standing who has demonstrated academic achievement and professional responsibility in psychology.

Frederick P. Gault, Sr. Memorial Award—A scholarship award annually to a Native American student in the pre-psychology or psychology major.

Sociology

Leonard C. Kercher Award—Through the generosity of Dr. Kercher, founder and long-time head (1940-72) of the Department of Sociology, and friends, assistantships of at least $400 a semester are available for outstanding sociology and criminal justice students each year.

Undergraduate assistantships—The department awards up to ten assistantships during the spring and winter semesters each year to sociology and criminal justice students who wish to become more involved in the department’s activities and projects. These students receive a stipend, and are assigned to work for a faculty member or on a department project.

Haworth College of Business

General scholarships open to all students in the Haworth College of Business

Old Kent Bank Scholarship—This annual award in memory of Robert M. Rogge is given to a student enrolled in any major in the Haworth College of Business. The award is based upon scholastic ability and financial need. Apply directly to the Haworth College of Business.

General Motors Minority Scholarship—This scholarship was established by the General Motors Corporation to provide assistance to worthy minority students in the Haworth College of Business. Apply directly to the Haworth College of Business.

Haworth College of Business Achievement Awards—These awards are given to outstanding students enrolled in a Haworth College of Business major. The awards are

financed by general gifts from alumni, and by specific gifts from the Haworth College of Business. Apply directly to the Haworth College of Business.

Al Pugno Scholarships—An endowment given in memory of Al Pugno supports three scholarships. One or more annual awards are given to students enrolled in any Haworth College of Business major. The recipients must exhibit all of the following: Apply directly to the Haworth College of Business.

First of America Minority Scholarship—This scholarship is awarded to beginning freshman male and female students who have some interest in considering some phase of banking as a potential career. The scholarship is for the four-year undergraduate education and includes taking part in the FOA management development program during each summer. Apply directly to the Haworth College of Business.

Robert A. Welborn Endowed Scholarship—This annual award is given to a student with the highest grade point average of any pledge.

Leonard C. Kercher Award—This annual award is given to a psychology major of at least junior standing who has demonstrated academic achievement and professional responsibility in psychology.

Arnold E. Schneider Scholarship Award—The Gamma Tau Chapter of Alpha Kappa Psi awards twice annually a pledge scholarship to the individual who during the pledge semester attains the highest grade point average of any pledge.

The chapter also awards twice annually an Active Member Scholarship. This scholarship is awarded to the individual who has accumulated the highest grade point average for the last two years of work at Western Michigan University. The awards are open to juniors and seniors who are active members of Beta Alpha Psi. Academic achievement is a basic criterion for selection. Contact the Department of Accountancy, Haworth College of Business.

Robert A. Welborn Endowed Scholarship in Business and Paper Science and Engineering—This annual award will be presented every other year to a business major who meets the academic requirements of the College, shows financial need, and resides in the 13th District of Michigan as defined prior to 1990.

Dean Arnold E. and Roseanne Schneider Award—Apply to the Haworth College of Business Scholarship Committee.

Zona Scholarship—Apply to Department of Business Information Systems.

Bermadine Branchaw Award—This annual award is given to a student in the Haworth College of Business, based upon academic achievement. Preference will be given to majors in Business Communications. Original funding donated by Mrs. Bermondine Branchaw of the BIS Department. Apply directly to the Haworth College of Business.

C. William Hurley Award—This award will be presented in the spring semester each year to students in the Haworth College of Business based upon academic achievement. Funding of this award comes from C. William Hurley of Portage MI. Apply directly to the Haworth College of Business.

Chubb Group Insurances Award—This award will be presented to an individual entering his/her senior year based upon academic achievement and an essay submission. Apply directly to the Haworth College of Business.

Art and Peg Sanders Award—Three awards will be presented yearly to Haworth College of Business students based upon academic achievement. The award, originated by Dr. M. M. Sanders, is in honor of her late husband. Apply directly to the Haworth College of Business.

Farmer’s Insurance Award—The award is presented to a student in the Haworth College of Business based upon academic achievement. The funds for his award are donated by Farmers Insurance Company in honor of past WMU graduates now employed with Farmer’s. Apply directly to the Haworth College of Business.

Accountancy

Plante and Moran Scholarship—An annual award by Plante and Moran, Certified Public Accountants, is presented to a student majoring in an accounting for the recipient’s senior year in honor of retired Professor Frederick Everett. Contact the Department of Accountancy, Haworth College of Business.

Cowie, Chilson & Connor Scholarship—Two annual awards are given to accounting majors for their junior year at Western Michigan University. Contact the Department of Accountancy, Haworth College of Business.

Ernst and Young Award—This award is given annually on the basis of scholastic achievement to a student who has majored in accounting. The student’s grades in accounting and overall are the factors considered in making the selection.

Ernst and Young Scholarship—This is an annual award by Ernst and Young to a senior majoring in accounting. Academic achievement is the first consideration in making this award. Contact the Department of Accountancy, Haworth College of Business.

William J. Maze, Jr., Beta Alpha Psi Accountancy Scholarship—This award is open to juniors and seniors who are active members of Beta Alpha Psi. High academic achievement is a basic criterion for selection. Contact the Department of Accountancy, Haworth College of Business.

Ye and Yeo Certified Public Accountants Scholarship—This award is given to a senior majoring in accounting major at Western Michigan University. High academic achievement is a requirement. Contact the Department of Accountancy, Haworth College of Business.

BDO Seidman Accounting Scholarship—To be awarded to a junior or senior majoring in accounting. Academic excellence is the major criterion for this award. Contact the Department of Accountancy, Haworth College of Business.

Deloitte and Touche Accounting Scholarship—This annual award is given to a senior majoring in accounting. Scholaristic achievement is the primary consideration in selection of recipients. Contact the Department of Accountancy, Haworth College of Business.

Arthur Andersen and Co. Scholarship—This is an annual award presented to a senior majoring in accounting. Applicant must be a student with the highest G.P.A. in the junior and senior class. The selection is based upon academic achievement and commitment to the accounting profession are major criteria for this award. Contact the Department of Accountancy, Haworth College of Business.

Business Information Systems

Data Processing Management Association Scholarship—The Southwest Michigan Chapter of DPMA offers this award in the winter semesters for a computer information systems major who is active in WMU’s student chapter of DPMF. Applications are available in October. Contact the Department of Business Information Systems, Haworth College of Business.

Management

The Jeff Robideau Award for Meritorious Scholarship—This award, established by an alumnus of the management program, is given for academic achievement in the Department of Management each fall and winter semester to the male and female student with the highest G.P.A. in the junior and senior class. Each award currently includes a $625 stipend.

The Dr. Kimon Bourzouis Award for Excellence and Commitment to the Study and Practice of Management—This award, established by an alumnus of the management program to honor Professor Bourzouis, is given each fall and winter semester to the student who best exemplifies...
a blend of leadership, integrity, scholarship and service in Management 301 and 302.

The Redwood and Ross Management Achievement Award—This award, established by Kalamazoo based Redwood and Ross, is given annually to those students who have distinguished themselves in scholarship, service to the department, or other worthy endeavors. Preference will be given to management majors, but others who have excelled in management as a minor or through contributions to student clubs may also be considered. Students must be nominated by a faculty member to become eligible to receive this award.

The Distinguished Service Award for the Department of Management—This award, funded by an alumnus of the department, is given once annually to a management major of at least 90 semester hours and is renewable.

Marketing

Louis Chemical Marketing Scholarship—Four scholarships of $500 each are awarded during the winter semester for the following school year to declared marketing majors who have completed fifty-five to ninety-five hours, who are carrying a minimum of twelve semester hours, and whose cumulative grade point averages are at least 3.0. Also considered should be work experience, participation in University and community activities, and faculty recommendations. Application forms can be obtained from the Department of Management by February 1.

Robert B. Trader Marketing Scholarship—One scholarship of at least $300 per year. Criteria: Majors in Marketing, Industrial Marketing, or Retailing; completion of 55 to 95 semester hours; minimum course load of 12 semester hours; cumulative GPA of 3.0; participation in University and community activities, related work experience.

Four Advertising scholarships are awarded annually during the winter semester for the following academic school year to a declared advertising major who has completed fifty-five to ninety-five credit hours, who is carrying a minimum of twelve credit hours, and whose cumulative grade point average is a minimum of 2.5. Consideration is also given to a demonstrated career interest in advertising/marketing, work experience, participation in University and community activities, and faculty recommendations. Application forms can be obtained from, and should be returned to, the marketing department by February 1.

1. The Biggs Gilmore Advertising Scholarship—This scholarship provides $500 and a two-semester paid advertising internship opportunity with Biggs Gilmore Communications.
3. Jack A. Stapeshkin Memorial Scholarship—This scholarship of $500 is sponsored by The Advertising Club of Southwest Michigan.
4. Zora Ellsworth Memorial Scholarship—One scholarship of at least $300 will be awarded each year. Sponsored by memorial gifts in honor of the late Professor Zora Ellsworth.

Food Marketing Scholarships—Each year Western offers several types of scholarships to qualified students majoring in Food Marketing. Amounts are variable. Application forms can be obtained from the Department of Marketing and must be submitted no later than February 1.

Scholarship of the NFBA Foundation Inc.—This scholarship is offered to an undergraduate student majoring in management who is interested in making a career in food distribution. The amount of the scholarship is $1,000. It is offered for one year only.

Julie Kranzler Memorial Scholarship This $1,500 award is granted each year to a student, preferably from the Cleveland, Ohio, area, with a major in food marketing. Applicants must have a minimum grade point average of 3.0 and be full-time WMU students. This award is renewable.

S. C. Johnston Scholarship—This award is offered to a junior or senior food marketing major with the highest G.P.A. in the department. The award is $6,500 for one year and is non-renewable. This award is made available by the Johnson Wax Company.

William O. Haynes Scholarship—This $1,000 award is based on scholarship and need. The scholarship is for $1,500 and is not renewable. The award is made available by the Johnson Wax Company.

Mr. and Mrs. C. J. Christoff Scholarship—This $1,500 award is offered to either a freshman or a senior student each year, and is not renewable. Preference will be given to employees of the sponsoring firm's customers and their relations.

Progressive Grocer Ed Walter Scholarship—This $500 award is based on scholarship and need.

Sid Brooks Memorial Scholarship—This $1,500 scholarship is based on scholarship and is renewable.

Pat Michell CFBA Award—This $2,000 award is sponsored by the Chicago Food Brokers Association in honor of Pat Michell, a past president of CFBA. Additional CFBA scholarships are available to food marketing majors from the Chicago area.

Nabisco Foods Group Scholarships—Two $2,000 scholarships are sponsored by the Nabisco Foods Group. The scholarships are offered to Food Marketing majors on the basis of scholarship and are renewable.

In addition, 25-30 individual departmental scholarships, awarded on a basis of scholarship and need, are made available through annual contributions from various manufacturers, brokers, wholesalers and retailers in the food industry. Applicants must have a minimum G.P.A. of 2.5.

College of Education

The College of Education awards several scholarships to students who might not be recognized through other programs. These awards, ranging in value from $250 to $1,500, are divided equally between fall and winter semesters. Following is a list of the scholarships available and the amount of each.

Zora Ellsworth Memorial Scholarship—Two (2) awards of $1,000 each.

Lofton and Georgianni Burge Scholarships for Undergraduates in Elementary Education—Four (4) awards of $1,000 each.

Bivian Aviation/McKee Scholarship for Undergraduates in Early Childhood Education—One (1) award of $1,500.

Merze Tate Undergraduate Scholarship—Four (4) awards of $250 each.

Dorothy H. and Coral Hurst Charles Scholarship—Two (2) awards of $2,500 each.

College of Education Undergraduate Scholarships—Six (6) awards of $250 - $1,000 each.

Lofton Burge Educational Scholarships—Four (4) awards of $1,000 each.

Katherine Pratt Burrell Education Scholarships—Two (2) awards of $500 each.

Robert B. Trader Marketing Scholarship—One (1) award of $250.

Lucille Haines Scholarship—Four (4) awards of $500 each.

Jane Blackburn Memorial Scholarship for Graduates in Early Childhood Education—One (1) award of $500.

Homer Carter Scholarship in Reading—One (1) award of $500.

Fund for the Advancement of Minorities in Education (FAME)—Five (5) awards of full tuition each.

Chrystal Grady Home Economics Scholarship—One (1) award of $100.

Marion I. Hall Undergraduate Scholarship—Two (2) awards of $500 each.

Florence and Vernon M. Franzen Scholarship—Four (4) awards of $1,000 each.

Information regarding these scholarships is available in the Dean's Office, College of Education, 2306 Sangren Hall, or by telephoning 387-2966.

Home Economics

Chrystal I. Grady Scholarships—An endowment from the estate of Chrystal I. Grady has made possible a scholarship to students majoring in curriculum within home economics. Information is available from the Department of Consumer Resources and Technology.

College of Engineering and Applied Sciences

College of Engineering and Applied Sciences Scholarship—A limited number of scholarships is awarded each year by the College of Engineering and Applied Sciences to outstanding students enrolled in four-year curricula within the college. Funds for this program are made available through donations of alumni and friends of the University. Apply to the College of Engineering and Applied Sciences.

The George E. Kohrman Scholarship—The George E. Kohrman Scholarship is designed to recognize a full-time student who is majoring in one of the curricula in the College of Engineering and Applied Sciences and who is completing the final year of his or her bachelor's degree. Eligible candidates must have at least a 3.25 grade point average in all course work approved to reach senior status. Other factors which will be considered are special aptitudes in one of the technological areas of the College, financial need of the candidate, demonstrated leadership ability and participation in school or community activities. One-half of the $1,000 scholarship shall be awarded at the beginning of the fall semester and the balance at the beginning of the winter semester. Application for this scholarship award should be made to the College Scholarship Committee.

Aviation Sciences

Aviation Scholarships from Outside WMU
FINANCIAL ASSISTANCE AND SCHOLARSHIPS

Applicants must be enrolled in an aviation program. Criteria details and applications available through the School to Aviation Sciences.

Aviation Distributors and Manufacturers Association—Junior/senior status, $1,000, apply by May 31.

American Association of Airport Executives—Junior/senior status, 3.25 GPA, $5,000, application due by March 31.

AOPA Air Safety Foundation—Two scholarships available:
- MoAllister Memorial Scholarship—Awarded to a student at WMU who has participated in aviation-related activities, $500, apply by March 31.
- Donald Burnside Memorial Scholarship—Awarded to a student in the School of Aviation, $1,000, apply by March 31.

National Business Aircraft Association—Junior/senior status, enrolled in professional pilot program, $1,000, apply by November 1.

West Michigan Business Aircraft Association—Enrolled in professional pilot program, $1,000, applicants selected by aviation faculty during winter semester.

Scholarships within the School of Aviation Sciences:
- Duke Harrah Memorial Scholarship—Awarded to a junior or senior status, aviation maintenance student, 3.0 GPA, apply by April 1, award varies from $250 to $500.
- Herman Lindner Award—Enrolled in or completed aircraft servicing classes, recipient selected by aviation faculty, awarded in April, award varies from $250 to $500.

Engineering Technology:
- American Foundrymen’s Society Chapter Scholarship—Open to all graduating seniors in Michigan high schools who have had at least one course in industrial education. The scholarship is open to all graduating seniors in the Grand Rapids Public Schools who have demonstrated ability in the field of industrial arts. The award is $500, divided equally between fall and winter semesters, and may be renewed, based on the student’s achievement and the recommendation of the scholarship committee.
- Kalamazoo Builders Exchange Scholarship—Open to all graduating seniors in the Grand Rapids Public Schools who have demonstrated ability in the field of industrial arts. The award is $500, divided equally between fall and winter semesters, and may be renewed, based on the student’s achievement and the recommendation of the scholarship committee.
- Laine Memorial Scholarship—Awarded to a full-time junior or senior who has demonstrated interest in a career in the cast metals industry. Awards range from $300 to $2,000. Apply to the Department of Engineering Technology.
- Donald H. McCracken Hall, phone 387-2778.

Paper and Printing Science and Engineering:

Paper Science and Engineering Mentor Scholarships—These scholarships are available for American and Canadian citizens majoring in paper science and paper engineering. Students are expected to cover tuition costs within the paper programs.

Beginning students interested in physical science, process engineering, or environmental engineering may write the department directly to request additional scholarship and curriculum information and to obtain individual scholarships. Undergraduate students already in the department or majoring in science or engineering and transferring to the department are also eligible to apply.

These scholarships are awarded on a semester-to-semester basis, on the basis of superior academic achievement or promise. Conditions for renewal of the scholarships include the maintenance of at least a 2.7 cumulative grade point average and continued enrollment in one of the paper curricula or the Department of Paper and Printing Science and Engineering.

The scholarship program is supported through the Paper Technology Foundation, incorporated non-profit corporation, which includes 80 corporate members. Details are available in the Paper Technology Foundation office, Room 2670 McCracken Hall, phone 387-2778.

Paper Technology Foundation Scholarship Funds:
- Albany International Corp. Scholarship
- David and Doris Bossen Scholarship
- Burgess Cellulose Foundation Scholarship
- Mae Munter Callighan Scholarship
- Dill W. Callighan Scholarship
- Carlton H. Cameron Scholarship
- Cargill Incorporated Scholarship
- Celanese Polymer and Specialties Company Scholarship
- Champion International Packaging Scholarship
- Champion Papers Scholarship
- Champion/STP Regis Scholarship
- Class of 1990 Scholarship
- Bert Cooper Scholarship
- Corr Products, unit of CPC Scholarship
- Doe-Teugh Scholarship
- Theodore W. and George C. Dunn Memorial Scholarship
- E. I. du Pont de Nemours and Company, Inc. Scholarship
- E. I. du Pont Ti-Pure Titanium Dioxide Scholarship
- Federal Paper Board Company, Inc. Scholarship
- John M. Fisher/Tsai Lunn Scholarship
- Fletter Paper Company Scholarship
- James A. Foxgrover Memorial Scholarship
- Foxgrover/Calden Foundation Scholarship
- General Endowment Scholarship
- Georgia-Pacific Alumni Scholarship
- Gilman-Helfer Scholarship
- Philip H. Glifteller Scholarship
- Grain Processing Corporation Scholarship
- Gerald A. Hale Scholarship
- Hammond Paper Company Scholarship
- Albert S. Harman Scholarship
- Hercules Inc. Scholarship
- J. M. Huber Scholarship
- International Paper Company Scholarship
- John F. King Family Scholarship
- J. M. Huber Scholarship
- John F. King Family Scholarship
- Joeniding Memorial Scholarship
- Lawrence C. Knoke Scholarship
- K. A. Uno Lowgren Scholarship
- L. C. Knoke Scholarship
- Raymond L. Janes/Beloit Corp. Scholarship
- Perry H. Koplik Scholarship
- Dr. and Mrs. Stephan I. Kuoikich Scholarship
- K. A. Uno Lowgren Scholarship
- E. D. Marvin Scholarship
- John and Diane Maryanski Scholarship
- Mead Corporation Foundation Scholarship
- Michigan Carton Company Scholarship
- Mtso Chemical Company Scholarship
- Joseph A. Pacillos/Citra-Gege Scholarship

Mechanical Engineering:
- The Durametallc Corporation—Offers several scholarships each year to students in the mechanical engineering curriculum. Awards are based on merit.
Financial Assistance and Scholarships

Sandoz Scholarship
Texo-Louis Lerner Scholarship

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PIMA-Michigan Division Scholarship
Recknagel Scholarship
Sandoz Scholarship
Simpson Paper Company Scholarship
St. Regis Paper Company Scholarship
Towu-Louis Lerner Scholarship
Union Camp Corporation Scholarship

Other paper science and engineering scholarships:

CMM Education Foundation Competitive Research Award
Robert Caine Outstanding Student Award
Robert A. Weiborn Paper Science and Business Scholarship (alternate years)

Undergraduate Research and Creative Activities Award ($1,200 or $900)

National scholarships available to Western Michigan University students enrolled in the paper program:

TAPPI Fabry Divisioning Scholarship—One $2,500 scholarship to a junior and one $2,500 scholarship to a senior.
TAPPI Polymers, Coating, and Laminations Division—One $5,000 scholarship.
TAPPI Coating and Graphic Arts Division—One $1,000 scholarship.
TAPPI Corrugated Containers Division—Two $1,000 scholarships.
TAPPI Paper and Board Division—One $1,000 scholarship.
TAPPI Packaging Division—One $1,000 scholarship.
TAPPI Environmental Divisions—One $2,500 scholarship.
TAPPI Finishing and Converting Division—One $1,000 scholarship.
TAPPI Pulp manufacture Division—Four $1,000 scholarships and one $500 scholarship.

PIMA divisions all have scholarships available to students who apply. Details are available in the paper programs office in McCracken Hall, Room 2610.

Printing Management/Marketing Scholarships and Awards are available through the printing management/marketing students.

CMM Education Scholarship—One $1,000 award for a student to conduct research on graphic arts and flexible packaging materials usage.

Batson Printing, Inc. Scholarship—One $1,000 available to juniors and seniors. It is continuing and is awarded on the basis of need.

The Lawrence J. Bink Scholarship—This scholarship amount is variable and is available to seniors through seniors. It is awarded on the basis of need and academic achievement and is not renewable.

The Nelson/Davis Scholarship—One $250 awarded on the basis of departmental service. It is not renewable.

E.J. Kelly Endowment Award—One $500 scholarship available to sophomores and juniors. It is awarded on the basis of need and is renewable.

Gravure Education Foundation Scholarship—One $2,500 award for a graduating senior in the gravure area who demonstrates academic promise.

Jane L. Ulmer Memorial Scholarship—A $1,000 award to sophomores through seniors. Awarded on basis of need, academic activities, and departmental involvement. One year only.

Kalamazoo Valley Printing House Craftsmen Club—Three scholarships each of $800 per year. Available to entering freshmen based on need and academic achievement. They are renewable.

Pendell Family Scholarship—A $1,000 award plus a summer internship opportunity that is available to juniors. Awarded on the basis of academic achievement and need, it is renewable.

Robert Caine Outstanding Student Award—A $250 award to students with senior standing; one year only.

Schawk Inc. Minority Scholarship—$1,000 award to a junior/senior. Awarded on the basis of academic achievement and extracurricular activities. It is renewable.

Tag and Label Manufacturers Institute—$1,000 to $3,000 award to sophomore through senior, awarded on the basis of academic achievement. One year only.

National scholarships available to WMU students enrolled in the printing program:

Ann Arbor Graphic Arts Memorial Foundation—Six to ten scholarships of $100 to $1,000 are available to entering freshmen. They are awarded on basis of need and academic achievement and are renewable.

Plexographic Technical Association—Eleven national scholarships ranging from $500 to $1,500 each are available to freshmen through seniors. They are awarded on academic achievement and are renewable.

Graphic Arts Technical Foundation—There are 100 national scholarships ranging from $500 to $1,000 each. They are available to entering freshmen through seniors and are awarded on academic achievement and are renewable.

Specific details are available in the Printing Programs Office, in Welborn Hall.

College of Fine Arts

The Cornelius Loew Young Artist Scholarship—One $600 scholarship is awarded annually to an outstanding young artist in art, dance, music, or theatre. This scholarship is awarded on a semester basis, to remain eligible for the scholarship, a student must maintain a grade point average of 3.0 or above.

Applicants must major or minor in a College of Fine Arts curriculum, attend Western as a full-time undergraduate student, and be in financial need. A completed application form, one-page typed, single-spaced statement of the student’s creative and educational intentions, and a portfolio of artwork is due in the Art Advising Office, 1406 Sangren Hall, on or before February 1. The awardees are notified prior to the Annual Art awards ceremony. These are annual awards granted to outstanding art students. Applicants must be currently enrolled, full-time art majors, with a minimum overall GPA of 3.3 or above. Previous recipients may reapply in subsequent years.

James Kerr and Rose Netzorg Kerr Awards—These are annual awards granted to outstanding art students. Applicants must be major art majors enrolled full-time. Recipients are selected on the basis of portfolio review. A completed application form and a portfolio of art work are due in the Art Advising Office, 1406 Sangren Hall, on or before February 1. The awards are made at the annual winter awards ceremony. Previous recipients may reapply in subsequent years.

Hag and Janette Tashjian Art Teaching Scholarship—The family of Hag and Janette Tashjian have established this scholarship to be awarded to outstanding art teaching major in financial need. The recipient is selected on the recommendation of the Art Department.

Lydia Siedschlag Scholarship—Special scholarships have been established for art students living in Siedschlag Hall, an on-campus residence hall for women. All art majors, enrolled full-time, with a minimum GPA of 3.3, and living in Siedschlag Hall will automatically be considered. Recipients are notified prior to the Annual Art Awards Ceremony in late winter.

Art Star Awards—The Department of Art offers yearly grants-in-aid to junior and senior art majors. Based on faculty recommendations, grants are awarded to majors for drawing, painting, sculpture, graphic design, photography, printmaking, ceramics, jewelry/metal smithing, art history and art education. Recipients are notified prior to the Annual Art Awards Ceremony in late winter.

Mary Coutant Memorial Prize—The family of Mary Coutant established this annual prize to recognize an outstanding student within the Art Department. All sophomore art majors, enrolled as full-time students with a minimum overall GPA of 3.3 or above will automatically be considered. The recipient is notified prior to the Annual Art Awards Ceremony in late winter.

Hearron/Sommerfield Music Theatre Scholarship—The family of Walter F. Enz established this annual grant to honor the outstanding student in the art department. The recipient is selected each year by a committee of art faculty, including Professor Donald E. King, and one member of the Enz family.

Scholaristic Art Award—The Department of Art annually offers two $1,000 scholarships to entering freshmen who have been nominated for scholarships by the Scholaristic Art Awards Competition, a nationally recognized art contest. For information on competition or an application write to Scholaristic Inc., 730 Broadway, New York, NY 10003, or ask your high school guidance counselor.

Angue Gayman Carmer Art Scholarship—The Department of Art annually offers several $1,400 scholarships to outstanding art students. Applicants must be currently enrolled, full-time art majors, with a minimum GPA in art of 3.5 for undergraduates or 3.6 for graduate students and be in financial need. A completed application form, one-page typed, single-spaced statement of the student’s creative and educational intentions, and a portfolio of artwork is due in the Advising Office, 1406 Sangren Hall, on or before February 1. The awards are made at the annual winter awards ceremony and are effective for the duration of the next academic year. Previous recipients may reapply in subsequent years.

Art WMU Department of Art Scholarship for Freshmen—The Department of Art annually offers a $500 scholarship to an incoming freshman whose portfolio demonstrates exceptional promise. Portfolios and applications for the fall/winter academic year are due by April 1 of the preceding year. Awards are announced by April 15.

Application forms and portfolio guidelines are available through high school guidance counselor, the Art Advising Office, 1406 Sangren Hall, Western Michigan University, Kalamazoo, MI 49008 or call (616) 387-2440.
Teaching faculty and must be a currently enrolled junior or senior art teaching major, with a minimum overall GPA of 3.5. This scholarship is awarded biennially in February and is effective for the upcoming fall semester.

Mary Smutz Award—This annual award was established to honor an outstanding Art Teaching Major. The recipient, selected by a committee of the art faculty, is notified prior to the Annual Art Awards Ceremony in late winter. The amount of the award varies each year.

Daly Music Scholarship—Scholarships in the amounts of $2,000 to $3,000 are awarded annually to full-time art students, enrolled in ceramics or sculpture, to study in Japan. Project proposals are due by February 1. Students are selected on the basis of their artistic achievements, merits of their submitted proposal and evidence of commitment to their project and/or discipline.

Dance
Dorothy Upjohn Dalton Young Artist Scholarships—These scholarships are awarded to dance majors in three categories. New dance major scholarships are given to incoming dance majors based on artistic and intellectual promise. Exceptional dance major scholarships are awarded to junior or senior dance majors who have achieved excellence in their performance in the School of Dance at Western Michigan University. Dancers with musicians are scholarship recipients who have exhibited exceptional choreographic ability and musicality for proposed collaborative projects with musicians. Recipients are selected by application to the dance faculty. Awards range from $200 to $500 per semester and may be renewed provided artistic and academic excellence are maintained.

Robert Christianson Scholarships for Male Dance Majors and Ethnic Minority Dance Major Scholarships—These scholarships are awarded to new and/or current male or ethnic minority dance majors who demonstrate artistic and intellectual promise. Recipients are selected by application to the dance faculty. Awards range from $100 to $500 per semester and may be renewed provided artistic and academic excellence are maintained.

Music
Music Scholarships—Western Michigan University’s School of Music makes annual awards of $500 to $2,000 a year for undergraduate and $500 to $5,000 a year for graduate students who demonstrate outstanding musical and academic potential as music majors. These awards are made in recognition of the variety of talents that are necessary for success in the various professional fields of music. Students will qualify to hold an award until graduation (four-year maximum for undergraduates and two-year maximum for graduates) provided musical and academic excellence are maintained.

Undergraduate students may receive consideration for a scholarship award at the same time they audition for admission to the curriculum. Requests for an audition must be made by February 15 to the music student advisor, who will provide the student with an Audition Confirmation Form on which the student may indicate a desire for scholarship consideration. Final decisions on music scholarships are made in mid-March. Certain conditions for holding a music scholarship must be stipulated at the time of award. These conditions might include such requirements as maintaining a certain grade point average, being a full-time music major, performing in School of Music ensembles, library assistance, and accompanying or performing in other professional services. All special conditions relating to a scholarship are stated in writing prior to the student’s accepting the award.

Several music scholarships are awarded in the name of special persons or designated funds:

Dalton Music Scholarships are awarded to incoming music majors in memory of Dorothy U. Dalton, 1880-1981, a charter member of the WMU Board of Trustees and a long-time Kalamazoo patron of the arts and humanities. Mae Arnold Thacker Scholarships come from an endowment established by Neile M. Thacker (class of 1920) to honor the memory of her mother, Mae Arnold Thacker. Harper Maybee Scholarships are awarded to seniors in honor of the first head of WMU’s School of Music. Funds are contributed by music alumni and friends.

Julius Stulberg Scholarships are funded by donations of music alumni and friends in memory of Julius Stulberg, a member of Western’s music faculty, 1945-1959. Herbert G. Butler Scholarships recognize cellists who demonstrate high achievement in musical studies. Funds come from an endowment fund established in the name of Herbert Butler, professor of music (1960-1983), and conductor of the University Symphony Orchestra (1966-1983).

Michael Listak Scholarships are awarded to music majors from southwestern Michigan who plan to pursue a teaching career. Funds for these scholarships are made available to WMU on a matching basis by the community of South Haven in honor of Michael Listak, who taught music in their schools from 1929 to 1969.

The Beulah and Harold McKee Scholarship recognizes a senior music major who demonstrates outstanding accomplishment in his or her chosen field of music concentration. This award is made possible through the generosity of Beulah and Harold McKee.

Nancy Ellis Memorial Scholarships are awarded to music therapy majors in memory of Nancy Ellis who was a WMU music therapy student.

The Gene Whifield Scholarship recognizes a music student who demonstrates outstanding accomplishment as a jazz major. Funds are made available through donations to the scholarship program in memory of Gene Whifield, a prominent and respected Kalamazoo jazz artist.

The H. Glenn Henderson Scholarship recognizes a keyboard music major who demonstrates major evidence of accomplishment in his or her chosen field of music concentration. Funds are made available through donations to the scholarship program in memory of H. Glenn Henderson, professor of music from 1914 to 1950.

Sigma Alpha Iota and Phi Mu Alpha Sinfonia are professional music fraternities which frequently receive special contributions or awards. These funds provide scholarships for which all music students are eligible.

Irving Gilmore Piano Scholarships recognize outstanding pianists. The scholarships Fund come from an endowment established by Kalamazoo philanthropist Irving Gilmore to enrich the piano program at Western Michigan University.

The Theodore Presser Foundation Scholarship is a prestigious award presented to a senior who is majoring in music at WMU. The recipient is selected from a list of students who are recommended by School of Music faculty members. In addition to showing outstanding promise, the recipient must carry an overall grade point average of 3.0.

The College of Fine Arts Scholarship is made possible by the College of Fine Arts for each of its four academic units every other year. The recipient must demonstrate outstanding ability in the particular field of fine arts study and be nominated to receive a senior award by the music faculty. A minimum grade point average of 3.0 is necessary.

The Leonard Meretta Band Scholarship recognizes an outstanding woodwind, brass, or percussion student. It is awarded in honor of Leonard Meretta who directed the Bands at WMU from 1945-72. The winner is selected by the current director of Bands. Funds come from an endowment established by donations from family, alumni and friends.

Russell Brown Honors Brass Scholarships are awarded in honor of the lifetime teaching career of trombonist Russell Brown, a member of Western’s faculty from 1951-86. Funds come from an endowment established by an anonymous patron. Awards are available to trumpet, tuba, trombone, and horn students who perform in an Honors Brass Quintet.

The Russell Bateman Voice Scholarship is awarded to an outstanding vocal student in memory of Russell Bateman, a former WMU music student. Funds have been contributed by family and friends.

The Sam Adams Memorial Vocal Endowed Scholarship is awarded to an outstanding vocal music major who is selected by the vocal music faculty. A minimum grade point average of 3.0 is necessary. Funds come from an endowment honoring Sam Adams, a member of the voice faculty from 1946 to 1977.

Questions may be directed to: Music Student Advisor, School of Music, Western Michigan University, Kalamazoo, Michigan 49008-3831.

Theatre
The David Wayne Scholarship—This annual award is given in recognition of student(s) with an overall cumulative grade point average of 3.0, who have a genuine interest in theatre demonstrated by their achievement and participation in the University theatre program.

The Laura V. Shaw Scholarship—This annual award is given in recognition of someone who demonstrates outstanding promise in the theatre major who has been an active and consistent participant in the theatre production program and has demonstrated a professional attitude. A 3.0 grade point average and a minimum course load of twelve semester hours at the time of award are required.

The Mary and RE. Jackson Scholarship—This annual award is given to a theatre major who has been an active and consistent participant in the theatre production program and has demonstrated a professional attitude. A 3.0 grade point average and a minimum course load of twelve semester hours at the time of award are required.

The Mary and R.E. Jackson Scholarship—This award is given to an outstanding theatre major, possessing a 3.0 grade point average and a professional attitude toward his/her work.

Minority Theatre Scholarship—This award is given to an outstanding minority theatre major, possessing a 3.0 grade point average and a professional attitude toward his/her work.

FINANCIAL ASSISTANCE AND SCHOLARSHIPS 29
College of Health and Human Services

College of Health and Human Services Scholarship Program—Several awards in varying amounts are made annually to outstanding students who are enrolled in the college’s curricula. Funds for this program are made available through donations by alumni and friends of the University. Recipients are selected each summer semester to receive awards the following academic year. Apply directly to the department, program office in the major field of study.

Jeffrey and Barbara Votman Scholarship Award—This scholarship is awarded annually in the amount of $500; preference is given to an undergraduate or graduate student with a demonstrated commitment to pursuing a career in the health and human services fields. Nominations are submitted by departments and programs to the College Scholarship Committee. The committee also considers academic excellence, financial need, and a record of community service.

Hazel and Theodore Peng Scholarship Award—These scholarships are awarded annually to students who are enrolled simultaneously in Western Michigan University and the Bronson School of Nursing and who are graduates of high schools in southwest Michigan. Awards, based on financial need and academic merit, are determined by a special scholarship committee comprised of representatives of both the School and the University.

Gerontology

The Leonard and Frances Gerrard Scholarship—This scholarship is established by the family to honor its late father. Applicants are selected by the Student Services Committee based on academic achievement and demonstrated leadership potential.

Michigan Occupational Therapy Association Scholarship—An award has been established by the Michigan Occupational Therapy Association for the purpose of aiding worthy students in occupational therapy. Applicants must exhibit scholarship, show definite need, hold Michigan residency, and be juniors or seniors in occupational therapy. Apply directly to the Department of Occupational Therapy.

Southwest Michigan Occupational Therapy Association—This award recognizes worthy local students in occupational therapy. Applicants must demonstrate need and be willing to participate in the activities of the Association. Scholarship will also be considered. Apply to the Department of Occupational Therapy.

Mabel A. Val Dez Award—The Mabel A. Val Dez Award was established in memory of a former faculty member of the occupational therapy department. It is awarded by the Occupational Therapy Department to support student attendance at national and international occupational therapy conferences and conventions.

Physician Assistant

John Josten Scholarships—These scholarships for physician assistant students were established by the former president of the college and are awarded annually to students who are graduates of high schools in southwest Michigan. Awards are made to outstanding students who have demonstrated academic excellence (minimum 3.2 grade point average) and who show a definite need. Apply directly to the college and the Physician Assistant Program.

School of Social Work

Whitney Young Scholar’s Program—This competitive program is open to minority seniors and first-year minority graduate students. Applicants must demonstrate excellence in the areas of “scholarship” and “community service.” Applicants are selected by a panel of judges. There are usually two finalists for each scholarship. Each scholarship is worth $200. Apply to the School of Social Work.

The Bob Bloxwahn Alumni Scholarship Award—In recognition of Professor Emeritus Robert Barstow’s outstanding contribution to the School of Social Work and the Social Work Profession, the Alumni established this scholarship award. The annual award is available to one full-time graduate student who has demonstrated academic merit and interest in the area of child welfare. Potential recipients are identified by School of Social Work personnel.

Nathaniel McCaslin Minority Scholarship—This scholarship was established through the University in recognition of Professor Emeritus Nathaniel McCaslin. Mr. McCaslin has made outstanding life-long contributions to improving the quality of life in the community and the quality of education. The annual award grants are made to one Master of Social Work student who is a minority undergraduate social work student. Selectors include academic achievement, leadership, and a commitment to working with adolescents and/or are a first generation college student. Other desired criteria include single parent status and a commitment to improving the quality of life in the community and the quality of education. The annual award is granted to one Master of Social Work student who is a minority undergraduate social work student. Selection is made by a panel of judges. There are usually two finalists for each scholarship. Each scholarship is worth $200. Apply to the Social Work Program.

Speech Pathology and Audiology

Clinician of the Year Award—This award is presented annually to a junior- or senior-level student who, in the judgment of the speech pathology and audiology faculty, has demonstrated outstanding competence in practice activities.

Intercollegiate Athletics

Athletic Grants-In-Aid—Western Michigan University makes certain grants-in-aid available to students excelling in athletics and participating in varsity sports. A student must be recommended by the Division of Intercollegiate Athletics.

Office of International Affairs

The Office of International Affairs administers international exchange scholarships awarded in a competitive process annually to qualified students for study in foreign universities in Asia and Europe. The Office also administers the K-S International Endowment Fund, which assists international students in their graduate studies at Western Michigan University.

Free University of Berlin Exchange Scholarships—These scholarships enable two WMU students to study at the Free University in the city of Berlin, Germany, for an academic year beginning in October. Tuition, housing, and stipend are included.

University of Tubingen Exchange Scholarships—These scholarships enable two WMU students to study in Tubingen, Germany, for an academic year beginning in October. Tuition and housing are included.

Keio University Exchange Scholarships—This scholarship enables one WMU student to study Japanese language and culture at Keio University in Tokyo, Japan, for eleven months beginning in September. Tuition, housing and stipend are included.

Ryojo Koe Art Scholarships—These scholarships enable two WMU students to study in Japan under the noted ceramist Professor Ryojo Koe. Travel and most living expenses are included.

University of Padborn Exchange Scholarships—These scholarships enable two or more WMU students to study at the University of Padborn in the city of Padborn, Germany, for an academic year beginning in October. Tuition and fees are included.

University of Passau Exchange Scholarship—This scholarship enables one WMU student to study at the University of Passau in the city of Passau, Bavaria, Germany, for an academic year beginning in October. Tuition and housing are included.

President’s Award for Study Abroad—The President of WMU has established an annual award of up to $1,500 to be given to a major in the Department of Languages and Linguistics who wishes to study abroad for the purpose of improving his/her foreign language skills. The award is to be used for an approved program of foreign language study at a foreign university or in a study-abroad program sponsored by an American university. Preference will be given to students who intend to study in a full-year program.

Ryu-Rikkyo University International Student Assistance Scholarship—This scholarship will cover tuition for one WMU student to study at for an academic year at Rikkyo University, Tokyo, Japan.

Japan Center for Michigan Universities Scholarships—The Japan Center for Michigan Universities was established in Shiga, Japan, in 1988 by Shiga Prefecture and the state of Michigan to mark twenty years of formal sister-state relationship. Educational programs at the center include credit courses of Michigan universities in Japanese language and culture. Contingent upon Michigan-Japan Foundation funding, a limited number of partial scholarships, worth a maximum of $5,000 each for two semesters of study at the center, are available to students recommended by WMU.

International Affairs Partial Scholarships—Jointly funded by the provost and the Office of International Affairs, a limited number of $500 to $1,000 scholarships are available to assist students to participate in WMU-sponsored study abroad programs.
Degree Requirements
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.

University Requirements
1. Courses must be selected so that the requirements in at least one of the curricula are fulfilled before graduation.
2. The student must complete a major with a minimum of twenty-four hours and, if required by the curriculum, a minor with a minimum of fifteen hours. A thirty hour subject major or thirty-six hour group major is required of students in Elementary and Secondary Education, with a minor or minors of at least twenty semester hours. For further details see Curriculum 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 thirty-five hours of work in approved General Education courses. 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 2.00 must be attained in any major or minor(s) presented for graduation.
5. A student must have an overall grade point average of 2.00 or higher to be graduated in any curriculum. If a student goes on academic probation or is dismissed as a result of the work taken in his/her final semester, he/she will be required to remove the low scholarship status before being granted a degree or certificate.
6. Each student will fulfill all the 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. Each student must complete two semester hours of general physical education activity classes. First-year students are urged to arrange their schedules so that they complete their two-hour physical education requirement no later than their sophomore year. Persons thirty years of age or older at the time of graduation are not bound by this requirement. Such a waiver applies only to general physical education and not to specific curricular requirements nor to total hours required for graduation. Veterans of military service (minimum of one year continuous active duty) shall, upon request, be granted two hours of general physical education credit. A student limited in physical activity may receive counseling for courses suited to his/her limitation through the Medical Recommendation Procedure. (See “General Physical Education,” Exceptions, #5) A maximum of eight hours of general education credit may be counted toward graduation.
9. Minimum residence requirements. All candidates must present a minimum of thirty hours through Western Michigan University. Ten of the last thirty 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.
10. A maximum of fifteen semester hours of credit in correspondence (self-instructional) courses may be applied to a degree. Students in the General Education Studies curriculum should refer to the Division of Continuing Education section of this catalog for further information. Students in the College of Arts and Sciences should refer to the Arts and Sciences section of this catalog for further information.
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 (exclusive of the general physical education requirement).
12. Students may graduate under the WMU catalog in effect at the time of their initial registration or any succeeding catalog providing the catalog is not more than ten years old upon the completion of the requirements for graduation. Students who have been gone from the University for ten years or more must enter the University under the catalog in effect at the time of re-entry. (For exception see Special Policy under “Graduate Requirements for a Bachelor of Science in Engineering” listed in the College of Engineering and Applied Sciences section.)
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.
14. As a requirement for graduation, all seniors must participate in the assessment program.

Intellectual Skills Requirements
The Baccalaureate degree at Western Michigan University includes proficiency in the intellectual skills of reading, writing, and quantification. In order to insure development of students’ abilities in these skills, the University maintains an Intellectual Skills Development Program. All students entering WMU under the 1983-84 and subsequent catalogs will participate in the program.

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

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

Remedial writing course options are:

- ENGL 100
- BIS 100 (Business students)

The college-level writing course options are:

- ENGL 105
- BIS 142 (Business students)
- IE 102 (Engineering and Applied Sciences students)

HIST 106
PHIL 100

In addition to the college-level writing requirement, each student must also demonstrate writing proficiency by successfully meeting a baccalaureate-level writing requirement as designated by the student’s major department or program. It is recommended that students complete this requirement after attaining junior standing. Existing guidelines regarding repeating a course will apply. Credit for course work from four-year institutions only will fulfill this requirement. Implementation begins for students entering under the 1985 Undergraduate Catalog Supplement except for students gaining a second baccalaureate degree.

Reading
On the basis of test scores, certain students are required to pass ED 104, Effective College Reading. This course is designed to improve comprehension, vocabulary, and study skills, and thus prepare students for further college work.
Guidelines

Courses must earn a C or better in MATH 109. Students who carry academic credit and grades earned are included in calculating a student’s grade point average. The credits for these courses, however, constitute an additional graduation requirement beyond the total number of credit hours required for a student’s curriculum. Students who are placed into, or exempted from, MATH 109 during the student’s first enrollment period at WMU. This course must be passed before a student registers for the thirty-third credit hour at Western. Students who fail to demonstrate competency by test or by course by the time of enrollment in the thirty-third credit will be permitted to enroll only in the above-named skill-building course(s).

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

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

Intelectual Skills Development Program for International Students

Writing

Beginning undergraduate international students are placed into, or exempted from, Linguistics 111 based on the results of either the MTELP (Michigan Test of English Language Proficiency) or the TOEFL (Test of English as a Foreign Language). Scores of 75-84 on the MTELP or 500-549 on the TOEFL warrant placement into Linguistics 111.

The Office of International Students Services requires completion of Linguistics 111 during the student’s first enrollment period at WMU. This course must be passed before a student may proceed to fulfill the college-level writing requirement.

International students who are not required to take Linguistics 111 will proceed to fulfill all Intellectual Skills requirements in writing, beginning with the college-level writing course and proceeding through the baccalaureate-level requirement.

Quantification

International students will fulfill all Intellectual Skills requirements in quantification.

Reading

Beginning international students are placed into a course in reading skill development (ED 106) based on the results of either the MTELP or the TOEFL. Scores of 75-84 on the MTELP or 500-549 on the TOEFL warrant placement into ED 106. This course must be passed before a student registers for the thirty-third credit.

International Transfer Students

International transfer students will abide by the Intellectual Skills Development Program requirements for transfer students.

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

Intelectual Skills Development Program for Transfer Students

Transfer students entering under the 1983-84 and subsequent catalogs will participate in the program.

Writing

Students who transfer a college-level writing course of 2.7 or more semester hours credit (or a sequence of courses that satisfies the college-level writing requirement at the transfer institution), will be exempted from the writing assessment upon entry. These students will be considered to have met the Intellectual Skills Program college-level writing course requirement. All other transfer students will be placed into a remedial or college-level writing course according to assessment results. Students who transfer under the 1988 catalog supplement or subsequent catalogs will also meet the baccalaureate-level writing requirement as designated by their major department or program.

Reading

Students who transfer thirty 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 achieved entry-level computation skills and need not take the computational skills assessment test upon entry. Further coursework in mathematics is at the student’s discretion. Required remediation skills may be completed in the Intellectual Skills Development Program requirements. All other transfer students will place into or be exempted from MATH 109 according to assessment results.

Computer Usage Requirement

Every undergraduate must demonstrate minimal proficiency in computer usage through one of the following options:

2. Satisfactory completion of an approved computer usage course.
3. Meeting proficiency standards set by the college of the student’s major.

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

University Assessment Requirement

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

Students participate in the assessment program throughout their college careers on a sampling basis. When a student participates in procedures which are nationally normed, individual results are provided to each student during the term after testing. Individual results of assessment are not used for placement in classes or curricula, withholding earned academic credentials, granting academic credit, or released to anyone other than the student.

Policy making groups within the University use only aggregate information to assess the quality of programs and services.

As a requirement for graduation, all seniors must participate in assessment. Seniors typically participate in the University Level Assessment as soon as they become eligible with 68 total hours and in the Majors Assessment during their last term on campus. Schedules of test administration and reservations for the University Level Assessment are available from the Office of University Assessment, while departments coordinate the administration of Majors Assessment.

Foreign Language Requirement

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

General Education Requirements

Western Michigan University requires a minimum of thirty-five semester hours of General Education courses in order for a student to graduate. These requirements are applied to all students in the University and are substantially the same for all curricula. The General Education program is designed to ensure academic breadth for every student at the University by requiring coursework in each of the following areas: (1) Humanities and Fine Arts, (2) Social and Behavioral Sciences, (3) Natural Sciences and Mathematics, and (4) The Non-Western World.

The General Education requirement is met by completing the Distribution Program. Honors College students may satisfy their General Education requirements through the Honors College General Education program. Additional information may be obtained from your curriculum advisor.

Distribution Program

This program includes courses offered for General Education by departments throughout the University. These courses offer a variety of approaches to introduce the student to the Humanities and Fine Arts, the Social Sciences, the Sciences, and the Non-Western World. There are introductory courses for students wishing to explore new areas of knowledge and there are more advanced courses for students wishing to develop in specialized areas. Many special topic courses (for example, courses on the environment) are offered. In addition, interdisciplinary courses are offered that use skills and techniques of study from several fields. The essential goal of the Distribution Program is to extend the undergraduate experience beyond the student’s area of concentration and provide students with the information necessary for synthesizing their experience into an understanding of themselves and their world.

Within the guidelines below, students may take classes in a number of departments. Courses may count toward a student’s major or minor as well as for General Education.
credit. Curriculum advisors will assist students in selecting and planning their Distribution Program.

All courses listed in italics in this catalog have been approved for General Education credit.

REQUIREMENTS FOR THE DISTRIBUTION PROGRAM

There are five stipulations:

1. Coursework must total a minimum of thirty-five semester hours.
2. At least six hours of appropriate course work in each of the three Areas (I, II, III), and at least one approved course in Area IV, must be taken.
3. Only one course from any one department can be applied toward an Area requirement, with the exception of courses from the College of General Studies.
4. At least two courses (minimum of six hours) must be taken from 300-400 level approved General Education course work.
5. No more than two courses from any one department (except General Studies courses) count toward the total of thirty-five hours.

General Education Distribution Program

AREA I

Humanities and Fine Arts

ANTH 370
ART 120, 130, 140, 148, 220, 221
COMM 170
DANC 148
ENGL 107, 110, 111, 112, 150, 210, 223,
252, 282, 307, 311, 312, 315
HIST 145, 300, 301, 302, 312
LANG 375, 450
FREN 100, 101
GER 100, 101
GRED 100, 101
JPNS 100, 101
LAT 100, 101
RUS 100, 101, 310
SPAN 100, 101
LING 100, 101, 105
MEDV 145
MUS 145, 150, 151, 350, 450
PHL 200, 201, 290, 301, 303, 307, 310, 311,
312, 313, 314, 324, 332, 333, 334, 350, 434
REL 100, 200, 305, 306, 313
THEA 100, 148
WMS 100

AREA II

Social and Behavioral Sciences

ANTH 100, 110, 210, 240
BAS 200, 300, 301
ECN 100, 201, 202
GENL 325, 356
GEOG 102, 244, 301, 302, 312
HIST 100, 101, 102, 103, 110, 204, 210, 211,
306, 308, 314, 315, 316, 366
MGMT 404
PSY 100, 200, 250, 300, 340, 344, 350
PSY 100, 150
REL 235, 324, 332
SOD 100, 171, 190, 200
WMS 200, 300, 310

AREA III

Natural Sciences and Mathematics

ANTH 250
BIOL 101, 102, 105, 107, 112, 230, 234
CHEM 101, 102, 103, 107
CIT 131, 132, 133, 432, 433
GEOG 100, 105, 204, 306, 350
GEOL 100, 130, 300
MATH 116, 122, 200, 366
PHYS 104, 107, 113, 205, 207

AREA IV

Non-Western World

ANTH 120, 220, 332
ECON 487
ENGL 313, 314
GENL 304, 305
GEOG 381, 382, 386, 389
HIST 370, 376, 385, 398
MUS 352
PSCI 341, 342, 343, 346
POL 302, 303, 307, 308
SOC 334, 335, 336

AREA V

Optional Electives

A-S: 300
BIS 142
CRT 160
CS 105
ENGL 105, 305
GEOL 312
IE 102
MLSC 150
PEPR 100
SFRK 100
SPPA 200
THEA 105

General Education Requirement for Transfer Students

1. Students who have fulfilled the requirement of the MACRAO Articulation Agreement and are transferring from participating Michigan Community Colleges.

Colleges listed below have signed the MACRAO Articulation Agreement. Transfer students from these schools whose transcripts have been appropriately identified and certified as having fulfilled the requirements of the MACRAO agreement by their respective community/junior college will receive thirty hours of General Education credit.

Rationale: The distribution of this credit is as follows: eight hours in each of Area I, II, III and six hours in Area V. Such students need only satisfy Western’s requirement of six hours of 300-400 level General Education coursework, including one course from Area IV unless a substitute was transferred.

Students who transfer from these community colleges and who have not fulfilled the requirements of the MACRAO Articulation Agreement will have their General Education coursework evaluated according to the General Education Distribution requirements described in #5 below.

by completing the General Education Distribution requirements described in #5 below and in Western’s General Education Transfer Guides available at individual community colleges. In order to determine remaining General Education requirements, students should consult their curriculum advisor.

Michigan Community College MACRAO Agreement Signatories:

Alpena Community College
Bay De Noc Community College
Delta College
Glen Oaks Community College
Gogebic Community College
Grand Rapids Junior College
Henry Ford Community College
Highland Park Community College
Jackson Community College
Kellogg Community College
Kirtland Community College
Lake Michigan College
Lansing Community College
Macomb Community College
Mid-Michigan Community College
Monroe County Community College
Montcalm Community College
Mott Community College
Muskegon Community College
North Central Michigan College
Northwestern Michigan College
Oakland Community College
St. Clair County Community College
Schoolcraft College
Southwestern Michigan College
Washtenaw Community College
Wayne County Community College
West Shore Community College

2. Transfer Students from other Michigan Community Colleges.

Students from these colleges will satisfy the General Education requirement by completion of the Distribution Program. Transfer work will be evaluated according to the General Education Distribution requirements as described in #5 below and in Western’s General Education Transfer Guides available at individual community colleges. In order to determine remaining General Education requirements, students should consult their curriculum advisor.

3. Transfer Students from an out-of-state two-year college or from any four-year college.

Students from these colleges will satisfy the General Education requirement by completion of the Distribution Program. Transfer work will be evaluated according to the General Education Distribution requirements as described in #5 below. 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.

5. General Education Distribution Requirements for Transfer Students.

Students not covered by the MACRAO Articulation Agreement described in #1 above must meet the following Western Michigan University General Education Distribution requirements. A minimum of thirty-five semester hours is required: two courses must be at the 300-400 level.

A. Humanities and Fine Arts—A minimum of six semester credits from the following fields: Art (studio-general, appreciation or history), Communication (interpersonal), Film (appreciation or history), Foreign Language (first year only), General Humanities, Linguistics (nature of language), Literature (English or English translation), Music (appreciation or history), Philosophy (and logic), Religion (non-cofacial), Theatre (introduction or history).

B Social and Behavioral Sciences—A minimum of six semester credits from the following fields:

Anthropology (cultural general, archaeology), Economics (principles, problems, and consumer education), General Business (social issues or consumer education), General Social Science, Geography (regional, human), History, Minority Studies (general).
Political Science (introduction, principles, international relations, foreign and comparative political systems, general government)
Psychology (general)
Sociology (introduction, principles, social problems)
C. Natural Sciences and Mathematics—A minimum of six semester credits from the following fields: Anthropology (physical)
Biology (introduction, general, outdoor science)
Chemistry (general, college level)
Environmental Science (emphasis on chemistry, physics, biology, geology, or geography)
General Biological Science
General Earth Science
General Physical Science
Geography (excluding regional or human)
Geology (physical, historical, or ocean)
Mathematics (college-level not beginning or intermediate algebra, finite mathematics, analysis, or statistics, calculus, survey of mathematical ideas)
Physics (general, non-major course, physics, geology, or astronomy)
Philosophy or Methodology of Science
D. Non-Western World—In order to satisfy this requirement a student must have completed a minimum of three semester credits in a humanities or social science course emphasizing aspects of non-western regions and societies.
E. Optional Electives—credits from the following areas may be used as General Education elective credits towards the thirty-five hour credit minimum: Agriculture (introduction)
Composition (freshman rhetoric, expository writing, informational writing, technical communication, etc.)
Computer Science (computer literacy, introduction)
Environmental Studies (fundamentals)
Health (general)
History (introduction to the study of history, historiography)
Military Science (military aspects of national power)
Social Work (introduction)
Speech Pathology (introduction to communication disorders)
F. All students must meet the minimum requirements of thirty-five semester hours in general education, and this must include at least two courses at the 300-400 level.

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:
1. The student's major and minors will be the subject specialization, such as mathematics, accounting, biology, or chemistry.
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 to them.
4. In certain cases "group" majors totaling a minimum of thirty hours and "group" minors totaling a minimum of twenty hours are permitted.
5. Under certain conditions General Education courses may be counted toward major and minor requirements. (See departmental requirements.)
6. The following courses are not to be counted as satisfying major and minor requirements:
   a. Required professional courses in education.
   b. Required courses in general physical education.
7. A combination of foreign language courses, or of English or American Literature courses with a foreign language, is not permissible.
8. Mathematics courses may not be counted towards a science (physics, geography, chemistry, or biology) major or minor sequence, but may be required to satisfy curricular requirements.
9. Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor.
10. Only approved majors and minors listed in the catalog can be placed on a student record.

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

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

It should be emphasized that it is the student's responsibility to arrange to meet with curriculum and/or departmental advisors. A listing of curriculum advisors may be found in the Schedule of Classes, 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 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.

College Advising Offices
College of Arts and Sciences
2060 Friedmann Hall, 387-4366
Haworth College of Business
2130 Haworth College of Business Building, 387-5075
College of Education
2504 Sangren Hall, 387-3474
College of Engineering and Applied Sciences
2038 Kohrman Hall, 387-4033
College of Fine Arts
3001 Dalton Center, 387-5812
College of Health and Human Services
B-121 Henry Hall, 387-2660
General University Studies Curriculum
B-108 Ellsworth Hall, 387-4167
Lee Honors College
Main Office, Lee Honors College Building, 387-3230
University Curriculum
203 Moore Hall, 387-4410

Freshman Graduation Rates
Full-Time Degree-Seeking Beginning Freshman, Class of 1986
Number of Beginners: 2,486
5 years
Number of Graduates: 1,106 (44.5 percent)
6 years
Number of Graduates: 1,336 (53.7 percent)
**Registration**

**Advance Registration**
Western Michigan University offers advance registration for each enrollment period as described in the Schedule of Classes issued prior to each semester and each session. Students are encouraged to take advantage of advance registration, but they are cautioned that the tuition bill must be paid in full by the specified date, which is approximately one month prior to classes beginning or their entire schedule will be cancelled.

**Late Registration Fee**
See Student Fees.

**Changing Courses (Drop/Add)**
Students may enroll in (add) any courses through the first three days of classes. The final date for dropping courses is published in the Schedule of Classes. Only students who have a class that is not officially scheduled to meet during the three day drop/add period will be given an additional opportunity to drop/add. See the Schedule of Classes for details of this procedure.

Students who withdraw (drop) on the 4th and 5th day of classes will not receive a refund unless it is a complete withdrawal, nor will the class show on the student's official transcript.

Students may withdraw (drop) from courses without academic penalty through the first Friday past mid-semester at the Registrar's Office. After this date without academic penalty is the day drop/add period will be given an additional opportunity to drop/add. See the Schedule of Classes for details of this procedure.

Students who withdraw (drop) on the 4th and 5th day of classes will not receive a refund if the class is a complete withdrawal, nor will the class show on the student's official transcript.

Students may withdraw (drop) from courses without academic penalty through the first Friday past mid-semester. The final date for dropping courses is published in the Schedule of Classes.

**Withdrawal From Classes After the Official Date to Drop**
1. The final date to withdraw officially from classes without academic penalty is the first Friday past midsemester. The specific date is published in the Schedule of Classes each semester or session. Each student is encouraged to confer with the instructor before withdrawing from class.
2. Students who wish to withdraw from classes after the first Friday past midsemester because of genuine hardship (e.g., illness, death in the immediate family) must file a written appeal on forms which may be secured at the Registrar's Office.
3. An Appeals Committee to review late withdrawals will be appointed by the Provost and Vice President for Academic Affairs. Its membership will include the University Registrar as chairperson, five faculty members, and two students.
4. The Appeals Committee may request information from the instructors involved and from other appropriate sources.
5. The Appeals Committee will rule upon the basis of the student's written application and any additional information received. The action of the Appeals Committee is final.

**University Tuition Scholarship Waiver**
Undergraduate students interested in taking advantage of the University Tuition Scholarship Waiver must report to the Academic Records 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 present a class record, and have paid for fifteen hours of credit for the semester they are seeking the tuition waiver.
3. Must have an overall G.P.A. of 3.25 at Western Michigan University.
4. Must be an undergraduate student in a degree program.

Undergraduate students who meet the qualifications may select one course per semester outside their major, in underenrolled courses, as determined by the departments, 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 must then proceed to the department to see if the course they are interested in is available. If the course is available, the department will sign the authorization card and add the course via terminal. The student will present the signed authorization card to the Accounts Receivable Office, 1060 Seibert Administration Building as their payment.

**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 covered by the departments. It is normally student-initiated, early interaction with faculty is essential in the development of a mutually acceptable project description. Since individual Independent Study projects are not normally reviewed through the usual departmental and University processes, it is essential that the academic adequacy of such projects be assured by some other means applied consistently throughout the University.

The following policy guidelines are intended to serve that function.

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

**APPROVAL PROCESS**
The faculty member must accept and approve the student and the project, and then submit the agreement upon proposal to the appropriate University form to the department chairperson for approval. If the chairperson approves, information copies of the form must be submitted to the dean and the Registrar. The Registrar will not accept registrations without this information and authorization.

**FACULTY RESPONSIBILITY**
Independent Study is basically a tutorial process, necessarily involving substantial faculty participation. In that respect, it should be distinguished from "credit by examination," a different option in which the role of the faculty member is primarily evaluative. A student is on his/her own in Independent Study in that it involves no class meetings or formal lectures, but the faculty...
Grading

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</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td>Very Good, High Pass</td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>Good, Adequate</td>
<td>3.0</td>
</tr>
<tr>
<td>CB</td>
<td>Satisfactory, Acceptable, Adequate, Satisfactory</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td>Satisfactory</td>
<td>2.0</td>
</tr>
<tr>
<td>DC</td>
<td>Poor</td>
<td>1.5</td>
</tr>
<tr>
<td>D</td>
<td>Failing</td>
<td>1.0</td>
</tr>
<tr>
<td>E</td>
<td>Failure (Unofficial Withdrawal)</td>
<td>0.0</td>
</tr>
<tr>
<td>X</td>
<td>Failure (Official Withdrawal)</td>
<td>0.0</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal</td>
<td>0.0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td>0.0</td>
</tr>
<tr>
<td>CR</td>
<td>Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>AUD</td>
<td>Audit (non-credit enrollment)</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Credit/No Credit System

The regulations of a system supplementing the A B C D E grading system 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 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. Directed Teaching, a required course, is taken on a credit/no credit basis.
4. 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.
5. A student may change only during the drop/add period from Credit/No Credit to a grade or from grade to Credit/No Credit.
6. Credit/No Credit courses, while counting toward a degree, will not be used to determine the overall grade point average (GPA) of the individual student.

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

“I” Incomplete

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

A grade of “I” must be removed by the instructor who gave it or, in exceptional circumstances, by the department chairperson. If the unfinished work is not completed and the “I” grade removed within one calendar year of the assignment of the “I,” the grade shall be converted to an “E” (failure). Students who receive an incomplete grade in a course must not reregister for the course in order to remove the “I.”

An instructor who assigns a grade of “I” will complete an official Report of Incomplete Work form indicating the remaining requirement for removal of the incomplete grade and indicating the time allowed, if less than one full year. The instructor will retain a copy for his/her own records and submit a copy to the departmental office. The remaining copies will be returned, along with the grade sheets, to the Academic Records Office, which will provide the student with a copy.

Dean’s List

To gain a place on the Dean’s List for a semester, a student must:
1. Have completed at least fourteen semester hours of work during the fall or winter semester for letter grade (Self-instructional classes excepted)
2. Have a grade point average of at least 3.50 for the semester.

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

Honors

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-in-course, 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. All students must have earned at least sixty semester hours of credits at Western Michigan University, of which fifty must be graded.

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 diploma and final transcript.

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 his/her 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 number of honor points per hour of credit corresponding to the letter grade received, as shown in the preceding table. For example, a grade of B in a 4-hour course gives 4 x 3, or 12 honor points.

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.
overall grade point average is 2.0 or above, the student will be warned.

3. Probation

The student will be placed on probation whenever his/her 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 0.1 or better, although still below 2.0, the student may be continued on Probation for one additional enrollment period.

6. Dismissal

The student who fails to increase his/her overall grade point average 0.1 or better at the end of an enrollment period of Probation or whose overall grade point average fails 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. Exceptions may be granted at the discretion of the College Admission Committees if the increase has been substantial but still falls fractionally short of the minimum 2.0 requirement. Students may apply for re-admission through their college advising office. College committees are concerned with the extent to which the dismissed student has resolved the causes of past academic difficulty. It is required, therefore, that the student include a written statement with the re-admission application.

Credit By Examination

Advanced Placement Program (APP)

Western Michigan University participates in the Advanced Placement Program (APP) of the College Board. Students with scores of at least 3 (4 in the case of Physics) on any APP exam will receive college credit in the evaluated, the Office of Admissions and examination scores are received and APP score requirements and equivalent credit students' transcripts. For more information on

5. The following guidelines shall apply in the earning of CLEP credit:

* If a student passes the humanities examination with a score of 540 or above, three hours of credit will be awarded in Area I (humanities and fine arts) of the General Education Distribution Program.

* If a student passes the social sciences-history examination with a score of 520 or above, four hours of credit will be awarded. Three hours will be applied, to Area II (social and behavioral sciences), and three hours to Area V (optional electives) of the General Education Distribution Program.

* If a student passes the English test (with the writing sample) with a score of 550 (660 for 1978 through April 1986 testing) or above, three hours of credit will be awarded in Area V (optional electives) of the General Education Distribution Program.

* If a student passes the natural sciences-examination with a score of 499 or above, three hours of credit will be awarded in Area III (natural sciences and mathematics) of the General Education Distribution Program.*

* If a student passes the mathematics examination with a score of 497 or above, three hours of credit will be awarded in Area III (natural sciences and mathematics) of the General Education Distribution Program.*

*If a person receives credit for both the general natural sciences and mathematics exams, three of those hours will apply toward general education Area III and three hours will apply to Area V.

Subject Examinations

CLEP Subject Examinations test specific knowledge areas, unlike the General Examinations, any Western student may take them and receive credit with appropriate scores. The University awards credit to students based on nineteen 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 or Testing Services for information on Western's score requirements and course credit.

Comprehensive Examinations

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

1. All credit will be posted as credit only, without grade or honor points. Students who do not achieve a sufficient score for credit will have no entry made.

2. Credit by comprehensive examination in courses numbered 300 or higher can be used to meet the requirement that one-half of all academic work must be completed at a four-year degree-granting institution.

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

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

5. All credit by comprehensive examination is normally considered undergraduate credit.

Examination fees are assessed on a credit hour basis and are the same for all students. The current fee schedule: less than four credit hours, $50.00 Four credit hours to eight credit hours, $100.00. By special arrangement, some course examinations may require higher fees.

Records

Graduation

Application for graduation must be made no later than seven weeks before the anticipated graduation date. In order to secure a graduation audit statement before registration for the final semester, a student must apply during his junior year. Application for graduation:

Summer Session
Apply by April 1; but not later than July 1.

Fall Semester
Apply by January 1, but not later than November 1.

Winter Semester
Apply by September 1, but not later than March 1.

Spring Session
Apply by January 1, but not later than May 1.

Completion of Work—Final Date

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 the standards will be removed from graduation lists automatically. Such students will be placed in the class of the succeeding semester or session only after reapplication for graduation, assuming other requirements can then be met. When a student fails to meet requirements for graduation resulting from failed courses, from incomplete work, or for any reason for which the student accepts responsibility or has control, responsibility rests with the student to reapply for the next regular graduating class following completion of his/her requirements. Under no circumstances will any student be graduated with a class if his/her academic record does not show complete fulfillment of all requirements within thirty days after the established commencement date.

Transcripts
A student desiring a transcript of his/her record in this University should write or go to the Office of the Registrar, giving dates of attendance and, if a graduate, the date of graduation. All names under which the student may have been enrolled and a social security number should be provided. All copies are $3.00 each. No transcript will be released except upon written authorization of the student. Official sealed transcripts are mailed only to third parties, i.e., employers, educational institutions, governmental units.

I.D. Validation Regulations
Each student on campus is required to have an identification card, which includes photo, name, social security number and student signature. Dates, time, and place of I.D. photography and validation are published in the Schedule of Classes prior to each semester or session. At other times, business may be conducted at the Registrar's Office. Each new student is eligible for an I.D. card free of charge. Students who fail to secure their I.D. card during their first semester of enrollment at Western Michigan University will be charged a $5 fee in subsequent semesters. This card should be validated each semester and used throughout the student's entire enrollment at Western. There will be a $5.00 charge for a lost or mutilated I.D. card.

Lending this card to anyone, or failure to present it when requested by University officials, is a violation of University regulations and subjects the holder to disciplinary action. Each student is personally liable for all obligations incurred by use of this card. Protect it.

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 may be required and the student will be required to sign a notarized affidavit swearing to the fact the name change is not requested for any fraudulent purposes.
The Academic Skills Center

The Academic Skills Center, located in room 1044 Moore Hall, is designed to offer students the opportunity to strengthen their learning skills and improve their academic performance.

Programs are offered within the following framework:
1. All undergraduates are eligible to register for services; graduate students may register for specific workshops on a space available basis.
2. Programs and workshops carry no academic credit.
3. There is no charge for services; graduate students may receive guided instruction and practice to earn academic credit.

WRITING LAB
The Writing Lab offers individual tutoring to undergraduate and graduate students in writing assignments. The lab is located in 1044 Moore Hall, and provides guidance on the writing process, including brainstorming, outlining, drafting, revising, editing, and publishing. The lab is open Monday through Friday, from 9:00 AM to 5:00 PM. Students can make appointments online or by calling 387-4442.

3. There is no charge for services.

The Writing Lab offers individual tutoring to students the opportunity to strengthen their learning skills and improve their academic performance.

CRITICAL THINKING WORKSHOP
The Critical Thinking Workshop introduces some of the strategies that are used in the critical thinking process and practices three basic steps to problem solving. Also, students will learn how to make predictions, recognize patterns, and monitor their own thought processes.

ADULT LEARNING SERVICES
The Office of Adult Learning Services provides pre-admissions and academic advising to part-time adult students attending the University on the campus or at off-campus regional centers. In addition, the office provides information regarding programs, courses, and services available to adults on the campus, and compiles and distributes the schedule of weekend classes.

The office is specifically responsible for the administration of Campus III/Weekend College and academic advising for General Studies. The office is also responsible for nontraditional students seeking to attend Western for the first time or on a re-entry basis. Telephone (616) 387-4167 or (616) 387-4127 for further information.

CAREER EDUCATION
All students are urged to make use of the career education facilities at the University for assistance in deciding upon a major and choosing an academic discipline. This is the time to actively plan for the first job you will hold after graduation.

1. Be clear as to why you are in college, what a college education means to you, and what you hope the return on your monetary and psychic investment will be. Muddled thinking in any of these areas tends to take a toll on your grade point average, interest in and motivation to attend classes, and willingness to take responsibility for your own academic progress.

2. Assess your interests, skills, and abilities. Knowing about yourself in these terms provides vital information needed to make decisions about your education and/or career direction. Since you will be spending a great deal of your time in the next few years becoming knowledgeable in an academic discipline, it follows that you need to be interested in it, have the ability to master the material, and acquire the skills necessary to develop an initial competence in the field. The same things are important to consider in deciding what you will do after you graduate.

3. Discover what your values about work are. Since you will eventually be spending 40 or more hours a week engaged in some activity for which you will be paid, you need to be clear about what settings you prefer—outdoors or indoors, working with people or alone, supervising or being supervised, routine duties or constant change, staying in one place or traveling. These are just a few of the factors that contribute to satisfaction with your work.

4. Explore various academic and career areas. Take classes that will introduce you to a discipline, talk with the faculty, research careers that might logically be associated with the discipline, talk to people currently employed in those careers that interest you.

5. Use your summer job and part-time employment during the school year to explore the world of work and to build a resume as a successful employee.

This kind of information does not come automatically as a result of physically being on campus or attending classes. It is each student's responsibility to seek it out. The choice of an educational direction or the reinforcement of a previous choice will be a natural result of these activities.

JUNIORS AND SENIORS
This is the time to actively plan for the first job you will hold after graduation.

1. Research various careers for which your educational background would be appropriate, or which interest you but do not require a specific educational background. Read about them, talk to people who are actually working in them, attend meetings and join professional organizations related to them, read publications written by and for these people, and volunteer to work in areas that interest you. Contact the Student Employment Referral Service for assistance in locating internships, summer jobs, or part-time positions related to your career choice. This gives you a chance to explore your profession and provide you with practical experience, which is increasingly more important when seeking full-time employment.

2. Get to know your major professors well. They can give you a lot of support, many valuable tips, and may recommend you to future employers.
Counseling Services.

40 SERVICES FOR STUDENTS

3. Get involved in campus activities and/or classes that will help you develop the skills you have identified as being necessary to excel in the field of interest you seek.

4. Start getting familiar with the office of Career Planning and Placement. Talk to the placement counselors, find out how they can help you navigate the job market. Check on the market projections in your field of interest, learn how to conduct your part of a job interview, learn to write resumes and letters of inquiry and application. Sign up for on-campus interviews. Talk to as many people in your field of interest as you can.

5. Be able to articulate your job objectives—what you want to do, why you feel that you can do it well, and for whom you wish to do it. This is vital information to be able to give potential employers.

6. Career related work experience will help broaden your insights into employment areas.

By utilizing the following services, which are explained in more detail on succeeding pages, you will be able to fully integrate your academic education with career education:

Testing and Evaluation Services

University Counseling Center

Career Services

Student Employment Referral Service

College Advising Offices

Departmental Advising Offices

Career Services

Assistance with career planning and total job search planning is offered free of charge by the Career Services to students of Western Michigan University. These services include career counseling, a career resource center, on-campus interviewing schedules, a weekly employment opportunities bulletin, job vacancy postings, computer referrals to employers, maintenance and distribution of credentials to job candidates, assistance with career search correspondence such as resumes and letters of interest and evaluation videotapes, career workshops and seminars, annual career fairs and referral to other campus agencies.

The office is centrally located on the first floor of Ellsworth Hall, adjacent to the Bernhard Center. Telephone 387-2745 for appointments and additional information.

Counseling 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 Center, located on the main floor of the Faunce Student Services Building, exists to help students deal effectively with such concerns.

The Center is staffed with professionally licensed counselors and psychologists and is accredited by the International Association of Counseling Services.

Among Counseling Center Services are 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 conflict, and aid them in developing more satisfying and fulfilling lifestyles.

Educational Counseling to help students deal with conflicts concerning vocational planning and educational goals. Academic advisement is provided in the Student Plannned Curricular.

Career Development Programs 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, 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.

Training and Internship Programs for graduating 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 demonstrations, case studies, and supervision.

The Counseling Center is thoroughly committed to the need for confidentiality in client/counselor communications. Therefore, confidentiality of client information is maintained in a manner consistent with professional standards of ethical practice and conduct and legislative requirements in the state of Michigan. Copies of the Counseling Center Policy booklet may be obtained at the Center’s reception desk.

Appointments may be requested by telephone (387-1850) or by stopping at the Counseling Center reception desk between 8 a.m. and 5 p.m. Monday through Friday. Students unable to utilize the Center’s services during regular hours may make arrangements for evening appointments. The Counseling Center attempts to service as many students as possible within staffing limitations.

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, except for cable TV, and in most cases, many extras not available off-campus. Opportunities to enhance leadership skills and interpersonal abilities are more available with an on-campus residence.

Your residence hall application will be sent upon admission to the University. An apartment application may 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 that a space will be available. Requests received after capacity are placed on a waiting list.

RESIDENCE HALLS

Twenty-two residence halls in locations close to every academic hall on campus attract over 6,000 students each academic year. These students represent a variety of different backgrounds, cultures, and academic interests.

Most halls offer a variety of services and opportunities for students: reception desk with mail and message services, formal lounges, all-purpose rooms for meetings or studying, extensive fitness/exercise rooms, aerobics, saunas, television viewing areas, refrigerator rental, paint-your-room program, free VCR rental, and academic computer terminals. All rooms are provided with beds, desks, and study chairs.

Any student enrolled at WMU for at least one credit hour may live in a hall. Newly admitted students are automatically sent information (fall during the month of February; winter-in November, spring and/or summer-in March) detailing the residence hall offerings available for the semester or session they expect to be enrolled.

Many distinct hall environments are available and students are encouraged to indicate their preferred hall and roommate(s). Students will often prefer a specific hall because of location or assignment pattern (coed). These preferences are honored as space is available. A few halls are reserved exclusively for upper-class and honor students. Other halls attract students interested in health and wellness, extended quiet hours, or international culture.

Depending on the hall, men and women may be separated by suite or floor. Two separate halls are also reserved exclusively for each sex. In locations where coed assignments exist, separate bath and toilet facilities are provided. While most assignments are per room, some single rooms and three-four person room assignments also exist.

Both undergraduate and graduate students are welcome in the halls. During the fall and winter semesters graduate and older students find Davis and Zimmerman Halls of special interest. Students must be at least twenty-one or junior status to live in these areas. French Hall is reserved for sophomores or students aged 21 and over. No hall is reserved exclusively for graduate students.

There is a room-only hall available to those who do not wish to participate in the WMU Dining Service options. This hall is also the only hall open throughout the entire year, including periods of University closure. All other residence halls close between semesters and sessions, and residents who must remain in the area make their own alternative housing arrangements during these periods. All residents are permitted to remain in their assigned rooms during the Thanksgiving and spring break recess periods.

The award winning WMU Dining Service has an excellent reputation with an extensive menu developed in consultation with residents and professional dietitians. All hall residents (except those who live in the room-only hall) must choose between two available plans. Most residents select the Continuous Dining Plus Plan which provides all meals except Sunday evening. For persons leaving campus every weekend, the
Continuous Dining Plan, providing meals Monday through Friday, is also available. The WMU Dining Service is especially unique because students may eat as often as they wish, in any dining hall on campus, 7:00 a.m. through 7:00 p.m., six days a week and from 8:00 a.m. until 2:00 p.m. on Sundays.

Each year hundreds of Western Michigan University students discover more about the world in which they live, their colleagues, and themselves through their experiences in a residential hall. We know that a well-rounded education takes place both in and out of the classroom and involves a variety of experiences. Making new friends, meeting new people from a variety of backgrounds, developing leadership skills, and becoming quickly adapted to the totally University environment are only a few of the advantages of living in a residence hall.

For further information and/or details if information is not received near the date noted above, contact the Residence Hall Facilities Office, Faunce Student Services Building, 616-387-4735 or 800-545-6006.

APARTMENT LIVING

Many students choose to live in one of three Western Michigan University Apartment complexes. Student families, single graduate and certain non traditional undergraduate students are eligible. The apartments are new and convenient to campus. Rental rates, which include all utilities and cable television, are about 25 percent less than area complexes. The apartments are close to academic buildings, recreation areas, libraries, and the student center.

Parking is free.

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.

Many play areas, picnic areas, programs and activities for children are available within the complexes. Families with young children can often exchange child care with a nearby family. School buses come through the complex to take children to and from the area public schools.

Make inquiries directly to the WMU Apartment Office, Faunce Student Services Building, Western Michigan University, Kalamazoo, MI 49008-5079. Telephone: 800-882-9819 or 616-387-2175 or fax 616-387-6989.

OFF-CAMPUS HOUSING

Approximately 72 percent of Western’s students live off campus in privately owned housing. Thus, a unique service is provided to assist them in locating a place to live. Rental listings of apartments, houses, and sleeping rooms are maintained and printed for publication on an ongoing basis. Hundreds of listings in need of roommates, as well as those available as roommates, are up-dated regularly and used extensively by the thousands of students who live off campus and share their housing costs. While most students look forward to off-campus living as an opportunity to pursue individual lifestyle, they are often plagued by strained roommate relations and financial difficulties that interrupt their academic achievement. Recognizing the significance of an adequate housing environment for all students, the University’s rental listing program is supplemented with tenant counseling and educational programs as well as rental counseling services. For additional information regarding off-campus housing, contact the Office of Off-Campus Life, Room 3510, Faunce Student Services Building. Telephone: 616-387-2336.

SORORITY/FRATERNITY HOUSING

Most houses are privately owned and operated by various fraternity and sorority organizations for their members. Currently three fraternities and two sororities lease on-campus housing. For more information, contact the Office of Student Life, Faunce Student Services Building.

International Student Services

Western Michigan University has long recognized the value of international educational exchange. Over the years, thousands of students from other nations have entered WMU with the total University environment as their interests and time allow.

International students interested in seeking admission to Western should contact the Office of International Student Services for an application form and instructions. To qualify for admission, a prospective student must demonstrate to the University that he/she is academically capable of undertaking the academic program being proposed. Before a student can be admitted and the Certificate of Eligibility for a visa (Form I-20 or IAP-66) issued, educational records documenting all previous secondary and post-secondary schooling must be on file, along with a financial statement that has been signed and returned from a sponsor showing that adequate funds are available to cover the student’s educational and living expenses for the duration of studies.

ENGLISH COMPETENCY OF STUDENTS FROM NON-ENGLISH SPEAKING BACKGROUNDS

Prospective students from non-English speaking countries must submit the scores of a recognized English language proficiency examination prior to initial registration. Applicants who have successfully completed at least forty-five semester hours at another accredited U.S. institution may be exempted from this requirement at the discretion of the Office of International Student Services, depending upon the quality of their previous academic work, performance recommendations, and other factors. The two examinations preferred by the University are the Test of English as a Foreign Language (TOEFL) and the Michigan English Language Assessment Battery (MELAB). To qualify for unrestricted fulltime enrollment, a prospective student must present a TOEFL “total score” of at least 85. TOEFL test-takers also need to take the Test of Written English (TWE) when they take their exam, if available at that administration.

Within certain limits, a prospective student who has achieved less than the required minimum score will be allowed to register for courses on a restricted basis. The limits and the restrictions to be observed will be established and approved by the Office of International Student Services. (See Student Health Insurance for the University’s policy on health and accident insurance for foreign students.)

ENGLISH LANGUAGE INSTRUCTION FOR INTERNATIONAL STUDENTS

The Career English Language Center for International Students (CELCIS) provides intensive English language instruction for those prospective students who need further training in English in order to qualify for regular admission to the University. F-1 students in the CELCIS program must be enrolled full-time. Twenty hours of coursework per week. Resident aliens. F-2 students may attend CELCIS part-time. Classes at various levels include Speaking and Listening Comprehension Grammar Academic Reading and Vocabulary Building Academic Writing Research Paper Writing Extra-curricular activities include weekly English table, conversation partners, home visits and various social, sport, and cultural programs.

There are four CELCIS terms per year, two 15-week terms (fall and winter) and two seven-week terms (spring and summer). The University Testing and Evaluation Services offers the institutional TOEFL at the end of each term. The Certificate of Eligibility for a visa (Form I-20 or IAP-66) is issued by CELCIS for admission to the CELCIS program. Admission to CELCIS does not, however, imply admission to the University for academic study.

For further information and application forms, contact: Career English Language Center for International Students, Western Michigan University, Kalamazoo, Michigan 49008-3859. Telephone: 616-387-4806.

Internships

Students seeking information on internship, cooperative education, field placement, and practicum should visit the Student Employment Referral Service. Professional Practice Services, a part of the Student Employment office, is a centralized clearinghouse for employers seeking students to fill internship positions and for students seeking these opportunities.

Assistance with resume writing, letter writing, and application materials is available in groups and on an individual basis. The service also provides shadowing experiences where students can spend from 3/4 hour to 1 full day observing a professional in a field of interest to the student. The office is located in A-100 Ellsworth Hall Telephone 387-2725.

The Martin Luther King, Jr. Program

The Martin Luther King, Jr. Program is a probationary student development program that has been in existence at WMU since 1964. Nailed 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 designed to encourage "minority" students to pursue a post-secondary education. Funded through a grant from the Kellogg Foundation, the program was able to provide scholarships as well as academic support 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 summer of the student's freshman year.

The primary purpose of the MLK Program is to
1. encourage students who would not otherwise pursue a higher education to do so,
2. provide supportive services—such as academic advising, vocational and personal counseling, tutoring, and testing—to meet each individual's needs; and
3. support students through completion of thirty-six credit hours at the University.

Interested students should apply through the regular University Admissions process for freshman status. (A counselor, c考证asseker, or other person familiar with the family's circumstances may request an application fee waiver.) The Office of Admissions and Orientation will notify students eligible for consideration, and the program will arrange a personal, on-campus testing/session to help in making admission decisions.

Students selected for admission and their parents/guardians must:
1. sign and return a contract accepting the terms of the program,
2. complete and mail all financial aid forms, and
3. complete an on-campus orientation session.

Students begin their freshman year in the Summer Academy, a three-week program beginning in August. Each student is assigned a counselor. This peer counselor is a graduate or upperclass student who functions as friend, student, evaulator, liaison, and resource person to the new student. The counselors and the full-time administrative staff work in conjunction with other University departments to provide personal attention and supportive services as needed for each individual.

The transition from high school to the University community is often a difficult one. By the time the freshman year begins, the student is allowed time to make some adjustments before the hectic pace of the fall semester begins.

During the summer session, students must take a minimum of six credit hours and a maximum of nine credit hours. A minimum of twelve hours is required during each semester, fall and winter.

The MLK Program does not offer any direct financial assistance to its participants. All WMU students interested in financial assistance must apply through the Office of Student Financial Aid and Scholarships.

The Office of Student Financial Aid and Scholarships.

Awards are made on the basis of need as determined through the applications. Students not eligible for monies based on federal guidelines may secure a Guaranteed Student Loan through a bank in his/her hometown. Telephone: 387-3322.

Minority Affairs, The Division of

The Division of Minority Affairs facilitates the development and continuance of a supportive environment for our ethnic minority student population. As a result, the Division assists the University in its objective to increase the minority presence and participation at the institution. Specifically, the Division:
1. Provides information to the University community about the importance and value of diversity in this educational process.
2. Offers programs and services in response to ethnically specific student needs and concerns, including cultural awareness and student organizational support aimed at increasing minority student retention.
3. Monitors students impressions and satisfaction with delivery of services from other areas to which they have been referred. Provides feedback to these areas on students perceptions.
4. Serves as an advocate in presenting concerns that affect the quality of life for minority students on the campus of Western Michigan University, and works with students to identify concerns and to develop solutions.
5. Supports programs targeted at pre-college youth in order to increase the participation of minority students in higher education.
6. Provides information and on-campus program assistance to the Office of Admissions and Orientation to help increase the recruitment and enrollment of minority students.

The activities of the Division 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.

Off-Campus Life

The Office of Off-Campus Life at Western Michigan University is a service center for the approximately 17,000 students who live off campus and commute to classes from many distances and locations. It is located in Room 3510 of the L. Dale Faunce Student Services Building. Its primary function is to administer a complete rental program for students in need of off-campus housing. Car pools, share-a-ride, roommate listings, tenant/landlord mediation, transportation information, and other community information are just some of the other on-going services carried out by Off-Campus Life. The success or failure of a student's academic life can often be traced to the living environment. Don't minimize the importance of good housing. Telephone: 387-2336.

Religious Activities

Western Michigan University recognizes that helping people to clarify their values, act on their commitments, articulate their own beliefs, and understand the beliefs of others is an important part of the educational process. The University endorses no religious affiliation or tradition, but it welcomes and facilitates the presence of many religious organizations.

A wide spectrum of religious opportunities including traditional, contemporary, and experimental worship, individual and small group Bible studies, workshops and retreats, travel experiences, social concerns, religious drama, and action groups is available to interested students.

Various church groups provide support for clergy whom they assign to campus ministry. Those professionals are available to students and their families for personal and religious counseling, information on all campus religious programs, and materials and resources for religious activities. Campus ministers are not employees of Western Michigan University, but serve as resource for students as representatives of their various churches.

The Office of Religious Activities, which is a part of University Student Services, serves as a clearinghouse for campus religious programs and is responsible for management of the Kanley Memorial Chapel and for scheduling events there.

The Kanley Memorial Chapel facility includes an interfaith chapel, several meeting rooms, and offices. It is maintained by the University as a center for religious activities and serves as the meeting place for most student religious organizations. It is also the home of Sunday worship services and provides a popular site for student weddings. The Office of Religious Activities and seven campus ministers have offices in the building.

In addition to Kanley Memorial Chapel, there are five student centers operated by specific denominations on or near campus.

Specific information regarding the religious groups or services on or near campus is available in the Office of Religious Activities. Telephone: 387-2501.

Sara Swickard Preschool

The Sara Swickard Preschool, located at 1211 Knollwood on campus, is open from 7:00 a.m. to 5:30 p.m. weekdays. The location is convenient for student parents who wish to leave their children on the way to class. Children 2 to 9 years old and toilet trained may be enrolled full or part-time (2 to 10% hours each day). The program is designed to meet each individual's needs and impact their environment. The environment is designed to minimize failure of a student's academic life can often be traced to the living environment. Don't minimize the importance of good housing. Telephone: 387-2336.

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, Kalamazoo College, Kalamazoo Valley Community College, or Davenport College, 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.

HEALTH HISTORY QUESTIONNAIRE

The Admissions Office sends each student, upon acceptance to the University, a Health History Questionnaire. Completing this questionnaire and returning it to the Sindecuse Health Center is an important part of the admissions process. The health history form become a permanent part of the student's medical record and an important reference when medical treatment is required. Any student younger than 18 years of age must also submit a Medical Treatment Authorization Form signed by a parent or guardian. This form will be included in the admissions packet and must also be returned to the Sindecuse Health Center.

All information and Health Center records are strictly confidential. Student signature is required for release.

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, nutrition assessment, and sports medicine. In addition, Health Center physicians and physician assistants can refer students to other medical specialists in the Kalamazoo area whenever indicated.

PHARMACY
A full-service pharmacy provides prescription medications at a cost savings to students. It also carries a limited amount 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. You may pay for pharmacy items by cash, check, MasterCard, Visa, Discover Card, or you may bill your student account. Many major insurance cards for prescription coverage are also 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 all general diagnostic x-rays. All x-rays are developed for immediate evaluation by Sindecuse Health Center clinicians and are further interpreted by a radiologist.

ALLERGY INJECTIONS
Students requesting allergy injections must provide their antigen and injection schedule to Health Center staff. No appointment is needed. 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 tuberculosis testing, required for some classes and job, is also available. No appointment necessary. Check with the Health Center for times TB testing is performed.

HIV TESTING
HIV testing is available to all students. For more information, call 387-4HIV.

SPORTS MEDICINE CLINIC
The Sports Medicine Clinic provides comprehensive diagnosis and treatment of injuries associated with physical therapy services. The clinic is staffed by a physical therapist two certified athletic trainers, a sports medicine specialist, and a podiatrist consultant.

URGENT CARE
The Health Center’s urgent care clinic is designed for sudden injuries or illness. No appointment is necessary.

APPOINTMENT INFORMATION
Students are encouraged to choose a physician or physician assistant 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 5:00 p.m., Monday through Friday.

If you have an appointment, go directly to your clinician and you should arrive ten minutes early for your appointment and plan on your visit lasting at least one hour. If you have prescription drug coverage through outside insurance, you should bring that identification card and information with you. If you cannot keep your appointment, let the Sindecuse Health Center know so that your time can be used to help another student. There is a charge for not canceling an appointment.

SINDECUSE HEALTH CENTER HOURS
Appointments
Monday - Wednesday and Friday, 8:15 to 11:30 a.m. and 1:00 to 3:30 p.m.; Thursday, 9:00 to 11:30 a.m. and 1:00 to 4:30 p.m.

Urgent Care Clinic
Monday - Friday, 8:00 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. You may park in one of the one-hour parking permits in the Lobby. Short-term parking is available in the semi-circle drive while you receive your permit.

STUDENT HEALTH FEE BENEFIT PLAN
All Western Michigan University students enrolled for four or more 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) for a minimal charge. All students who are not full-time, as well as spouses of WMU students, will “buy-in” to the student health fee plan on their first professional visit of the semester/session. Students are eligible to be seen at the Health Center one semester or two sessions after graduation. Eligibility extends from the first day of the applicable semester/session for which the fee has been paid, to the first day of the next semester/session. Fee schedules are available at the Sindecuse Health Center.

The Health Fee Benefit Plan applies only to services rendered in the Sindecuse Health Center. Visits to non-emergency or immediate care centers, medical specialists outside the Health Center, and transportation by ambulance are not covered by the fee. Services not ordered by Health Center personnel, but requested by clinicians outside the University, can be provided by the Health Center but will be charged to you according to the current fee schedule.

Charges for Health Center services may be paid by cash, check, MasterCard, Visa, or Discover Card. However, we request that all fees under $1 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.

OPTIONAL HOSPITAL, MEDICAL, AND SURGICAL INSURANCE
All students are urged to carry some form of health insurance that covers medical, surgical, and hospital expenses which are 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.

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 have alternate policies approved by the Health Center during the first two weeks of the semester/session in order to waive the mandatory enrollment premium. No refunds of insurance premiums can be given after that time.

The insurance coordinator at the Health Center is available to assist students weekdays from 8 a.m. to 11:30 a.m. (9 a.m. to 11:30 a.m. on Thursday) or by calling 387-3266.

Student Health Advisory Committee
The Student Health Advisory Committee gives you the chance to access the health plan and policies in which the Sindecuse Health Center can offer high-quality health services at the lowest possible price for students. The committee participates in policy formation, program review, and program development for the Health Center. Call Mrs. Zimmer at 387-3259 for more information.

University Wellness Programs
You, more than anyone else, are in charge of your health! A healthy body, high self-esteem, the ability to develop meaningful relationships, the skills to manage stress, and prevention of illness are all within your personal power to achieve. The Sindecuse Health Center’s University Wellness Programs offers a wide range of opportunities to help you achieve your health potential. Most programs are provided for you at no charge as a Student Health Fee benefit. Health promotion opportunities include:

• A Wellness Resource Center, located in the Sindecuse Health Center front lobby and in all Residence Halls.
• Self-Care Cold Center, located in the Sindecuse Health Center front lobby and in all Residence Halls.
• Computerized Nutrition Assessment — Optimal nutrition can be a key to improved physical and intellectual performance. What you eat has a definite impact on how you look, how well you feel, your resistance to illness, and prevention of heart disease, cancer, and osteoporosis. The Health Center can help you analyze your diet and suggest food sources that can help you achieve a balanced nutrient intake for high-level wellness.
• Weight Control — Our seven-week weight management workshop can help you increase your skills in eating and nutrition management, stress management, thought management, behavioral techniques, and commitment to increased physical activity.
• Managing Stress — A feedback session designed to reduce the impact of stress and out-of-control can affect your emotional stability, your relationships, your ability to concentrate, and your sense of purpose in life. In addition, stress is known to play a significant role in many physical illnesses and to contribute to lower resistance to all infections and disease. The Health Center offers stress management workshops to help you increase your ability to manage and minimize distress in your life.
self-esteem, your academic performance, and ways to discuss prevention with those who are not sexually active young adults. It covers information about HIV and AIDS, the importance of early testing, the benefits of early treatment if HIV positive, and the anonymous counseling and testing process available to students at the Health Center. Information provided can help students better understand methods of personal protection and ways to discuss prevention with someone else, like a sexual partner or a younger brother or sister. It is information that all should know in the process of exploring how we choose to express our sexuality. Come find out answers to many questions students have about a life-threatening infection that can be prevented.

Overeater’s Anonymous: A Twelve-Step Program for Recovery from Preoccupation with Food and Compulsive Overeating — Overeater’s Anonymous is a fellowship of individuals who, through shared experience and mutual support, are recovering from compulsive overeating. We welcome anyone who wants to stop eating compulsively.

The Sindecuse Health Center invites you to actively participate in maintaining and improving your health. Optimal health results from an appropriate combination of preventive health care and living a healthy lifestyle. So invest now in your health — think about the health decisions you make and develop habits that will enhance your self-esteem, your academic performance, and ultimately, your sense of personal satisfaction.

Speech, Language, and Hearing Services

The Van Riper Language, Speech, and Hearing Clinic, a service program provided by the Department of Speech Pathology and Audiology for persons with communication disorders, is located on the East Campus in the Speech and Hearing Center. Students and their dependents may take advantage of diagnostic and therapeutic services for speech, language, and hearing problems by contacting the department for an appointment. Because the services are an integral part of the department’s clinical education program, no charges are made for these services. However, there is a nominal fee to defray the cost of materials and equipment. For WMU students and staff the fee is waived. Telephone: 387-8047.

Student Activities and Organizations

Learning doesn’t happen only in a classroom! In fact, students spend only 20 percent of their time in the classroom. The rest of the time is spent socializing and getting involved in various campus and community activities. Students can enrich and broaden their collegiate life by becoming involved in any of the 280 student organizations/ages.

Student organizations/agencies are divided into the following interest areas:
- Business
- Fine and Creative Arts
- Greek (social/service)
- Honoray
- International
- Minority
- Professional
- Religious
- Special Interest
- Sports

Student Agencies

Support Groups

Student Government (Western Student Association)

Research shows that students who participate in extra and co-curricular activities gain important life skills. Recently, we developed and implemented a program called the Emerging Leaders Program (ELP). Participants are provided a formal program that teaches “life skills” through usuable, practical, and a changeable process of self-improvement. By assisting with the development of life skills and offering the opportunity to participate in campus and community activities, the Office of Student Life helps students make those vital “connections” in society.

There is a student agency on campus called Campus Activities Board (CAB) to provide a cohesive, diversified, and balanced programming/entertainment schedule for the WMU community. They sponsor an on-campus comedic/voluntary night club called “Bernie’s After Hours” featuring nationally acclaimed talent(s) and show current hit movies at Miller Auditorium called “Movies at Miller.”

Student Employment Referral Service (SERS)

Employment for a large percentage of WMU students is a fact of life. Students are using employment to not only pay their college expenses but for career exploration, resume building, skill development and to maintain positive self esteem. SERS helps students help themselves through a variety of employment programs like: The Federal and State College Work Study Program, off campus job listings through the Job Locator and Development Program, on campus job listings and career related employment and internships through the Professional Practice Services Program. SERS also sponsors a Summer Employment Day in February each year.

Students interested in any of the above programs should visit the office located in A100 Elsworth Hall. Telephone: 387-2725.

Student Volunteer Services

Student Volunteer Services (SVS) is dedicated to furthering the student community service movement on campus and to enhancing the traditional classroom education through experiential service-learning opportunities. The mission of 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/clothing/shelter services, mental and physical health care, friendship/role model services, recreation, education, cultural arts and sciences, financial/legal/government services, handicapped services, advocacy, natural resources, and media/public relations.

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 are encouraged to visit our office located in the Lee Honors College. Telephone: 387-3365.

Testing and Evaluation Services

Testing and Evaluation Services provides many self-assessment instruments for students without vocational goals or for those individuals who are looking for alternatives. Vocational interest inventories, personality measures, and achievement tests are administered in helping students to make a career decision. There is a minimal charge to cover the test scoring.

Testing and Evaluation Services has the most extensive "Test File" in this area. These files can be of assistance for class projects or general information. They are open to both students and faculty members at no cost and may be checked out.

Information and registration assistance can be obtained on most major required admission tests such as the Graduate Record Examination, Miller Analogies Test, and the College Level Examination Program.

University Ombudsman

The University Ombudsman is an intervention agent and impartial person who helps students, faculty, and staff resolve academic and non-academic concerns. The Ombudsman listens to and discusses your concerns. He or she provides you with information that answers your question or helps you locate someone who can assist you. 

He or she explains the University's policies and procedures and the University's rules and regulations. If you think you follow up with you and others at the University to make sure your concern is resolved, and recommends changes in the information that will make it more responsive to every member of the community. The basic principles of the University Ombudsman are independence, impartiality, and confidentiality. The Ombudsman is authorized to make thorough investigations and has access to all University offices and records, reports, and other documents in the University. No person shall suffer any penalty because they seek assistance from the Ombudsman.

The Ombudsman is appointed by and reports directly to the President. The office is located in 218 Bernhard Center. Telephone: 387-5300.

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. Changes in enrollment or current address must be reported immediately to the Office of the Registrar. Proof of a change in dependents should be sent directly to the V.A. Regional Office in Detroit. Forms may be obtained at the Office of the Registrar.

In addition to normal scholarship standards, students receiving benefits from the Veterans Administration are advised of their additional rights and responsibilities. All students have a grade report mailed to them shortly after the close of each semester or session. If the student's grade-point average falls below 2.00, an explanatory letter accompanies the grade report. Remedial action on the part of the student is recommended in the letter.

A complete record of all classes taken and grades received in the Office of the Registrar. A student copy of this record is available upon personal request, with proper identification. Student copies picked up in person are free; there is a $3.00 charge for mailed copies.

Students who are academically dismissed or on continued probation must see the Registrar in order to receive the appropriate
counseling before being certified again to the Veterans Administration. Students may be requested to change curricula, to retake specific courses, or to take other remedial action before re-certification. After two semesters on probation, the Veterans Administration is notified. Benefits may be terminated for such students even if allowed to remain in school.

Students are certified on the basis of attendance and academic progress toward degree goals. Serious overpayment problems can be eliminated by prompt notification to the Office of the Registrar of changes in these areas.

Each student receiving benefits is required to sign a statement once a year outlining plans for enrollment for the coming year and declaring personal responsibility for regular attendance during that year.

Women’s Resources and Services

Women’s Resources and Services, a unit of the Office of Student Life, provides a variety of educational programs and supportive services to students that focus on women’s concerns and gender issues. All programs and services are free and available to both men and women. Because many “women’s issues” are increasingly seen as broader social concerns, male involvement in WRS activities is actively sought and welcomed. Male students play an important role in WRS largest educational effort—the Sexual Assault Education Project.

SEXUAL ASSAULT EDUCATION PROJECT

The Sexual Assault Education Project provides educational programs and materials to students focusing on acquaintance and date rape awareness and prevention. Educational programs are presented by male and female student Peer Educators through classrooms, residence halls, sororities and fraternities, and other student groups and campus events. Several publications about acquaintance rape and services for victims are produced and distributed by WRS. A large collection of research and reading materials is available for student use.

SEXUAL ASSAULT VICTIM ADVOCATE

The assistance of a Victim Advocate is available to sexual assault victims and their friends and family. Victim Advocates provide information on victim rights, options for taking action, and campus and community resources for assistance. Although Victim Advocates do not provide professional counseling, they offer support, encouragement, non-judgmental listening, and assistance in carrying out decisions.

SEXUAL HARASSMENT EDUCATION

Staff provide educational programs on sexual harassment in classes, residence halls, and student organizations. WRS produces and distributes information for students on the university’s sexual harassment policy and procedures. The office also maintains a large collection of research and reading materials on this topic for student use.

INFORMATION AND REFERRAL

WRS serves as a clearinghouse for information about women’s issues, organizations, events, activities, and services on campus and in the community. The WRS resource library also includes information on sources of financial aid for women.

NON-TRADITIONAL WOMEN STUDENTS

WRS sponsors the Non-Traditional Women Students’ Network, which meets regularly for mutual support, sharing, friendship, and problem-solving. The office also maintains a collection of reading materials and other information of particular interest to older women students.

VOLUNTEER OPPORTUNITIES

WRS is committed to providing students with opportunities to develop knowledge, skills, and professional experience. Student volunteers serve as Peer Educators in the Sexual Assault Education Project and as Sexual Assault Victim Advocates. Students with graphic design skills are used to design advertising materials and publications. WRS welcomes inquiries from students about designing a program, project, or internship to meet their individual interests and professional needs.

Women’s Resources and Services is located on the third floor of Ellsworth Hall, with administrative offices in A-33 Ellsworth. For further information, students are invited to visit or call 387-2990.
Archives
The University Archives and Regional History Collections is located in East Hall, Room 111. Staff collect, preserve, and make accessible records which document the history of the University and of twelve southwestern Michigan counties. Holdings include books, ephemera, newspapers, microfilm, photographs, oral history tapes, and manuscript collections. In addition, local public records from southwestern Michigan are on deposit from the State Archives.

Athletics (Intercollegiate)
The University is represented by men’s teams in football, baseball, basketball, indoor and outdoor track, cross country, tennis, gymnastics, ice hockey, and soccer. Women’s teams represent the University in basketball, cross country, gymnastics, softball, tennis, indoor and outdoor track, and volleyball.

Athletics are governed by the Athletic Board, which adheres to the policies and principles established by the National Collegiate Athletic Association. Western Michigan University is a member of the Mid-American Conference. Other members of the conference are Akron, Bowling Green, Central Michigan, Eastern Michigan, Kent State, Miami (Ohio), Toledo, Ball State, and Ohio. The teams winning Mid-American Conference championships in men’s and women’s basketball, baseball, and volleyball 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.

THE ATHLETIC BOARD
The Mid-American Conference consists of ten universities associated for the purpose of intercollegiate sports competition. The league is organized and controlled by the Presidents’ Council, which appoints a commissioner to oversee league activities.

On campus, policy relating to the conduct of men’s and women’s intercollegiate sports is recommended to the President by the Athletic Board.

External Affairs
The Office of External Affairs is responsible for cultivating productive relationships with a variety of University constituencies, for providing leadership to other offices of the University in matters relating to external constituent relations, and for projecting a positive image of the University to its constituents and to the general public. A significant portion of the total financial support and other forms of support for the University is directly related to the efforts of the Office of External Affairs.

The office is divided into three major areas: alumni relations, development (or fund raising), and legislative affairs. There are several other areas that report to the vice president for external affairs and general counsel, including the University’s legal counsel and collective bargaining and contract administration.

LEGISLATIVE AFFAIRS
Western Michigan University is a state-assisted university, deriving a significant percentage of its annual operating budget and capital improvement funds through allocations by the State of Michigan. The Office of Legislative Affairs is responsible for representing the needs, interests, and accomplishments of the University to appropriate elected and appointed state officials. The legislative affairs staff serve as an indispensable conduit or link between the University and the state government in Lansing. The Office of Legislative Affairs is located in Walwood Hall.

ALUMNI RELATIONS/WMU ALUMNI ASSOCIATION
There are more than 130,000 graduates of Western Michigan University. The Office of Alumni Relations is responsible for maintaining and enhancing the lifelong relationship that exists between the University and its former students. The office is located in the McKee Alumni Center in Walwood Hall.

Approximately 80 percent of all alumni live in a six-state Great Lakes region, about two-thirds of Western’s alumni are Michigan residents, and one out of every five reside in Southwest Michigan. The alumni relations staff endeavor to build strong relationships with alumni regardless of where they live. There are a growing number of regional alumni organizations (chapters) serving alumni in cities throughout the United States, and increasing efforts to build ongoing relationships with alumni in other countries.

The responsibility for maintaining and enhancing the relationship between the University and its alumni is shared with the WMU Alumni Association. An organization of dues-paying members governed by volunteer alumni leaders who comprise the association’s board of directors. Among the many activities that are jointly undertaken by the alumni relations staff and the WMU Alumni Association are Homecoming, a variety of class reunions and reunions of other alumni groups, regional alumni meetings and activities, and formation and development of constituent alumni societies. The Alumni Association sponsors annual recognitions for “Distinguished Alumni” and for “Excellence in Teaching” among members of the University faculty.

The association maintains a link with current students through the Student Alumni Association (SAA), which plans a variety of programs throughout the year designed to increase the interaction between current and former students.

DEVELOPMENT/WMU FOUNDATION
Private fund-raising efforts of the University fall under the authority and coordination of the Western Michigan University Foundation, an independent nonprofit corporation 501(c)(3) created in 1976 “to promote and to provide private financial support to Western Michigan University.”

The WMU Foundation is composed of approximately 200 members—alumni, business and civic leaders, and major benefactors of Western. It is governed by a forty-two-member volunteer board of directors. Under the charter of the WMU Foundation and by policy of the University, all private gifts to Western are received through the WMU Foundation, regardless of the designation of the gift. In addition to its primary role of actively soliciting private support, the foundation is also responsible for the management of gifts received and for appropriately distributing gift revenues to the University.

The activities of the foundation and the actual fund-raising programs on behalf of the University are supported by and administered by professional and clerical/technical employees of the University who serve as the “foundation staff.” The staff is responsible for fund-raising in the areas of annual support and major gifts from alumni and other individuals and from corporations and other organizations. The staff is also responsible for gift accounting and record-keeping, gift acknowledgment and donor recognition, and a variety of fund-raising related activities and special events. The offices of the WMU Foundation are located in Walwood Hall.

Faculty Senate
The Faculty Senate is composed of members elected by the faculty to represent the departments and the University at large, and others appointed by the President. It meets each month to promote the common interests of the University and give the faculty a share in the determination of institutional policy.

Faculty Senate Councils are composed of faculty members elected by the Faculty Senate for three-year terms; certain ex officio members, several members appointed by the President of the University, and student members selected by the Western Student Association and the Graduate Student Advisory Committee. The terms of elected members expire in April in a staggered year sequence. The Councils include Admissions, Financial Aid, and Student Affairs, Budget and Finance, Campus Planning, Graduate Studies, Regional Education, Research Policies, and Undergraduate Studies. For names of members and further information, contact the Faculty Senate office. The Faculty Senate President for 1993-94 is Visho Sharma and the Senate Vice President is Joe Ellin.
The Admissions, Financial Aid, and Student Affairs Council is responsible for initiating, reviewing, developing, and recommending policies dealing with the stimulation and execution of research and creative activity in the University.

UNDERGRADUATE STUDIES COUNCIL
The Undergraduate Studies Council is a policy-making and review body with jurisdiction over any matter related to the undergraduate programs at the University. Thus, for example, it is concerned with the establishment of new departmental programs, new interdisciplinary undergraduate programs. Adverse action concerning existing programs or courses, and needs for additional or specialized instruction. Also included in the role of the USC is the disciplinary review of the work of the standing committees which act on behalf of the Council, within the framework of its purview.

Libraries, University
The University Libraries consist of the Dwight B. Waldo (Main) Library, the Music and Dance Library, the Physical Sciences Library, and the Education Library. The total collection, which numbers over two-and-a-half million publications, includes books, bound periodicals, music scores, recordings, maps, documents, and materials in microform. About 10,000 periodical and serial titles are currently received.

The main collection is housed in the Dwight B. Waldo Library, which is named for the first president of the University. Built in 1959, it was enlarged in 1967 to almost double its original size. A 105,000 square-foot addition and renovation of 145,000 square feet of existing space was completed in 1991. The new addition incorporates the former Business and Institute for Ciceronian Studies Libraries and provides room for the ever-expanding collection as well as 1,900 student stations.

The Library system is a repository for United States and Michigan government documents. Microprint editions of selected United Nations documents and official records are also available.

A microform collection of more than 1,150,000 items is maintained. Some 555,000 bibliographic items and subscriptions to about 600 periodical and serial titles. This branch is located on the third floor of Rodell Hall.

The Education Library in Sangren Hall has some 555,000 bibliographic items and receives more than 600 periodical titles. The University Libraries have a number of computer-based services available to users. WESTNET, the West Michigan Information Network, provides access to the following databases: FINDER, Western's online catalog, KELLY, a regional online catalog, and DataQuest, selected online indexes. INDEX is the online catalog with author, title, subject and keyword access to the University Libraries' collections. KELLY is a regional online catalog containing the holdings of the University Libraries.

Regional Education Council
The Regional Education Council is a policy-making and review body with jurisdiction over any matter related to the on-campus offerings; non-credit and degree programs, and their relationship to on-campus offerings; non-credit programming, including conferences, seminars, workshops and short courses offered by the Division of Continuing Education; and public service programming.

RESEARCH POLICIES COUNCIL
The Research Policies Council is responsible for reviewing, developing, and recommending
computerized operation allows users to significantly shorten time spent on literature searches for research projects. It is available to faculty, staff, and students on a cost recovery basis. Inquiries about this service may be made at Reference Services in the main library and at all branch libraries.

Interlibrary loan service is available to both students and faculty to provide access to materials not owned by the University Libraries. Requests for loans may be initiated at public service desks in all libraries, as well as at the Interlibrary Loan office in Waldo Library.

Students enrolled in off-campus classes at public service desks in all libraries, as well as the Interlibrary Loan office in Waldo Library.

Students enrolled in off-campus classes are always welcome at the libraries on campus. Remote access to the library's online databases is available from the regional centers as well as from home computers. The Interlibrary Loan service is always welcome at the libraries on campus, as well as at the Interlibrary Loan office in Waldo Library.

Students enrolled in off-campus classes are always welcome at the libraries on campus. Remote access to the library's online databases is available from the regional centers as well as from home computers. The Interlibrary Loan service is always welcome at the libraries on campus, as well as at the Interlibrary Loan office in Waldo Library.

Media Services

Media Services (Division of)
1450 Dunbar Hall
(616) 387-5000
Fax: (616) 387-4630

Media Services is an academic support unit providing classroom teaching, distance learning/broadcasting, and technical support to the University. The unit is made up of several departments including Cable Television (EduCABLE), Faculty Development Services, Media Lab, Media Production, Media Resource Center, Media Utilization, Technology Initiatives, and WMUK-FM. Services related to the various units will be described below.

CABLE TELEVISION
0430 Dunbar Hall
(616) 387-4800

EduCABLE is a full service cable television, radio and audio distribution system serving 3800 residential units on campus and some academic buildings. The system offers forty-three channels of television ranging through entertainment, enrichment, education, instruction, and information. Twenty radio stations, including Western's WMUK and WIDR, are retransmitted for best high fidelity stereo reception in resident hall rooms along with five satellite delivered audio services. EduCable is operated in partnership with the Telecommunications Department.

EduCABLE Access Center (Channel 7) and Electronic Bulletin Board

The EduCABLE Access Center is designed to encourage the free flow of communication among the University Community. Students and student organizations can create video programs to share with on-campus residents. Channel 30 is designed for general public viewing and is intended to promote WMU educational and cultural activities. Events such as public lectures, seminars, concerts, plays, film series and dance events are announced on this electronic bulletin board.

EduCABLE Channel 30 will be displayed in a growing number of public areas on the WMU campus and eventually will be delivered to area cable systems for use on their higher education channels.

FACULTY DEVELOPMENT SERVICES
3302 Sangren Hall
(616) 387-5305

Support is provided faculty members, graduate teaching assistants, and academic departments through inservice development programs, mid-semester course evaluations, consultation on teaching improvement and professional concerns, financial grants, awards, and development resources. The office publishes the Faculty Development News, circulates The Teaching Professor, and conducts research studies of a faculty development nature in which the findings are published. The Faculty Development Fund to partially support travel and the Tuition Subsidy Program are administered by the Office.

MEDIA LABORATORY
3302 Sangren Hall
(616) 387-5054

The Media Laboratory is a self-instructional lab providing assistance and equipment to faculty, staff, and students for their own production of media presentation materials. Some supplies are sold on a cash basis but most are obtained with a supply ticket purchased at the Cashier's Window in the lower level of the Administration building. The following services and supplies are available at the Media Lab:

- Laminating
- Dry mounting
- Overhead transparencies
- AV equipment operation instructions
- Video editing
- Audio editing
- Video studio
- Photography
- Copy stand
- Binding
- Graphic supplies and equipment
- Contact the Media Laboratory for more information about any of these services.

MEDIA PRODUCTION
1450 Dunbar Hall
(616) 387-5000

The Media Production area within the Division of Media Services, comprised of a team of media specialists, provides professional support to departments, faculty, and staff for the development of graphic, photographic, audio, and/or video projects. Services include:

- Media consultation
- Photography (prints, slide duplication)
- Graphic design and production
- Audio production and duplication
- Video production
- Teleconferencing support services
- Telecourse design and production
- Multimedia/Interactive Video production
- Computer-generated color hard copy, slides and transparencies
- Computer animation

The primary mission of Media Production is to serve the instructional needs of the University community, however, other projects are welcome as long as they are of a non-profit, non-partisan, or non-religious nature.

MEDIA RESOURCE CENTER
2213 Sangren Hall
(616) 387-5060

The Media Resource Center provides faculty, staff, and students with audiovisual materials and equipment. The center includes an educational film and video library, preview facilities, and central office on the second floor of Sangren Hall as well as audiovisual equipment centers in Dunbar and Sangren Halls. Other services include film and videotape scheduling, audiovisual consultation, a source library for locating media materials nationwide, and maintenance service for audiovisual equipment.

AV Equipment

Faculty, staff, and student organizations can request AV equipment by contacting the equipment room in Dunbar Hall or in Sangren Hall. Twenty-four (24) hours advanced notice is preferred, but if the desired equipment is available, it can usually be picked up immediately. There is no charge for instructional use of AV equipment. For non-instructional use, there is a charge, which varies by equipment item requested.

MEDIA UTILIZATION
1450 Dunbar Hall
(616) 387-5001

The coordinator provides information on media resources and arranges satellite-delivered programming for faculty, academic departments, and student groups. The unit catalogs the University Film and Videotape Collection, purchases new media materials, handles duplication of copyright-cleared programs and instructional off-air recording requests, and manages sales of Media Production produced video programs.

OFFICE OF TECHNOLOGY INITIATIVES
1490 Dunbar Hall
(616) 387-5004

The Office of Technology Initiatives was instituted in 1991 to provide educational media outreach from the Western Michigan University campus to its regional centers, to its primary service area in Southwest Michigan and, via satellite technology, to the North American continent and beyond. The Office assists private sector businesses and the broader educational community in utilizing the specialized resources that WMU has developed, such as our satellite transmitting teleport and diverse video production capabilities.

TECHNICAL SERVICES
1160 Friedmann Hall
(616) 387-5780

Technical Services offers engineering support for the various media units within the Division of Media Services and to the University community. The unit operates and maintains the various electronic facilities of the Division including the WMUK radio studios and transmitter/tower, television studios, cable television network, electronic classrooms, lecture halls, satellite uplink and downlink equipment, and audiovisual maintenance and repair services for the University. Staff of Technical Services also consult with other units of the University on Technical matters.

Musical Activities

Numerous musical activities and organizations at Western Michigan University are available for the cultural enrichment of the student. Faculty members, students, and guest artists provide a schedule of more than three hundred on-campus recitals every year, to which all University students are invited. Students may participate actively in musical life on campus by joining one of the many ensembles—the New Music Ensemble, Symphonic Band, Concert Band. Orchestra.
University Chorale, Collegiate Singers, Gold Company, Grand Opera, Jazz Orchestra, Jazz Lab Band, Treble Choir, College Musicum, Pep Band, Musical Theatre productions and Opera Workshop. The School of Music also offers opportunities for participation in small ensemble groups for voices, strings, woodwinds, brass, jazz, and percussion.

On occasion School of Music performances, productions are presented by Miller Auditorium and the Student Entertainment Committee.

Parking
Detailed regulations concerning the use of motor vehicles on campus are available from the Parking Violations Bureau of the Department of Public Safety. All students are eligible to park a motor vehicle on University property; however, they must first register their motor vehicle with the Parking Violations Bureau (located in the Public Safety Annex) and pay a registration fee. Information concerning parking regulations, parking permits, and parking violations can be obtained by visiting the office, located in the 2300 block of West Michigan Avenue across from Faunce Student Services Building or by telephoning 387-4609 during normal University business hours.

Police
Located at 511 Monroe, off the 1300 block of West Michigan Ave., the Department of Public Safety is open 24 hours a day providing a full range of police services through the use of a universal police division, a dedicated emergency response 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 this goal, the department’s various divisions and bureaus have coordinated their efforts to create and maintain a feeling of security and safety within the community.

Information can be obtained by visiting the office, telephoning 387-5555 or 911 in an emergency. Questions concerning parking permits and parking violations should be directed to the Parking Violations Bureau in the Public Safety Annex located in the 2300 block of West Michigan Avenue across from Faunce Student Services Building. Telephone 387-4609 during normal University business hours.

Publications
Western Herald, WMU’s student newspaper, is published Mondays, Tuesdays, Wednesdays, and Thursdays during the fall and winter semesters, Monday and Thursday during the spring semester, and Wednesday during the summer semester. 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 University-wide during fall and winter semesters and every other week during spring and summer when classes are in session. By the Office of Public Information, which also produces the Westerner in association with the Office of Alumni Relations. The Westerner is published four times each year for alumni and other friends of the University.

Radio
WMUK is Western’s full power stereo public radio broadcasting service, operating at 102.1 on the FM dial with a power of 50,000 watts. WMUK(FM) began broadcasting in 1951, with a power of 400 watts. In 1955 a Kellogg Foundation grant made possible a power increase to 36,000 watts. In 1973, through a federal grant, WMUK increased its power to 50,000 watts and moved transmission facilities to a site 10 miles north of campus. WMUK now serves an area 80 miles in radius; this area includes most of the southwestern quarter of the state.

WMUK(FM) provides a cultural extension of the University through its broadcasts of campus, community, and area events. Through the satellite-linked National Public Radio network of stations, WMUK provides listeners with outstanding programming in the fine and popular arts, news, and information from around the world. WMUK has built an enviable reputation in classical, bluegrass, and jazz music programming, as well as programming for Spanish-speaking audiences.

WMUK(FM) is a charter member of NPR, the National Public Radio network of over 400 non-commercial radio stations.

WMUK(FM) has won many honors for its programming over the years, including the Major Armstrong Award for excellence in community service programming, the Corporation for Public Broadcasting award for extraordinary service to the community through public radio, the Ohio State Award, and the George Foster Peabody Award for meritorious service in broadcasting.

WIDR(FM), a 100-watt station operated by students, broadcasts on 89.1. Facilities of WIDR(FM) are located in the L. Dale Faunce Student Services Building. WIDR(FM) offers a unique opportunity for Western Michigan University students to gain experience in programming, promotion, and station operation.

Substance Abuse Services
University Substance Abuse Services, located in the Sindecuse Health Center, provides an outpatient treatment and prevention program for Michigan University students concerned with their use, misuse, or abuse of alcohol and other mood-altering substances. Under the direction of the University Counseling Center, Division of Student Affairs, the program offers information, assessment, training, counseling and supportive therapeutic referral and follow-up services to individuals and groups. Also offered are support groups to those students seriously interested in exploring their relationship with mood altering drugs (alcohol, marijuana, stimulants, narcotics, depressants and barbiturates) as well as groups for adult children of alcoholics.

University Substance Abuse Services is licensed by the state of Michigan Department of Public Health and is directed by a nationally certified substance abuse therapist and professor of counseling. Services are free and completely confidential as required by state and federal law. Students are encouraged to make an appointment through the Sindecuse Health Center reception area, or, by calling 387-3252.

Theatre
All students in good academic standing, regardless of major, may participate in the University Theatre program of the Department of Theatre. Housed in the excellent and spacious Laura V. Shaw Theatre complex, theatre opportunities each year include acting, art management, design, and technical work in faculty-directed productions for public performance on the proscenium and arena stages, as well as student-directed “laboratory productions.”

University Recreation Programs and Facilities

CAMPUS RECREATIONAL ACTIVITIES

Campus Recreational Activities provides students, faculty, and staff with opportunities to participate in non-credit organized sports and recreational activities. Participation in such experiences as informal recreation, sports clubs, intramural sports, outdoor recreation and special events can greatly enhance your quality of life at the University. The Campus Recreation program is designed to provide a sound, attractive offering of organized recreational activities which will appeal to the leisure time pursuits of students, faculty and staff.

Informal Recreation
The informal recreation program 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, indoor and outdoor tracks, fitness/weight room, and swimming pools.

Equipment for the various activities may be checked out from the equipment room located in the Gary Center. Participants need only to leave their university identification card when using the equipment.

Generally, facilities and equipment are available for use Monday through Friday afternoons and evenings as well as Saturday and Sunday.

Sports Clubs
Sports Clubs are designed to provide the University community with the opportunity to participate in sports and activities of special interest. Sports Clubs provide opportunities for student competition at various levels of play, contribute to the development of student leadership and provide a bond between individual clubs. Each club is formed, developed, governed, and administered by the student membership of that club. Participation is voluntary and all currently enrolled Western Michigan University students are eligible for club membership. To join a particular sports club contact the Student Activities Office (387-2115) or Campus Recreational Activities (387-3760).
Intramural Sports
Intramural championship competition is conducted on a single elimination or round robin tournament basis. Competition is held in men's, women's and co-rec divisions and residence hall, independent and fraternity/sorority leagues. Activities include softball, touch football, volleyball, basketball, tennis, racquetball, and more. Opportunities for leadership are available for students who wish to officiate contests.

Outdoor Recreation
Cross country ski equipment is available on a daily or weekend rental basis. Call the CRA office for details.

Special Events
Campus Recreation normally conducts one or two special events each semester such as National Girls and Women Sport Day, SpikeFest Volleyball Tournament, Jump Rope for Heart, Schick Three Player Basketball Tournament, and the Turkey Trot two mile race. These events may coincide with other University events or reflect a seasonal or holiday theme. Games, activities and contests are offered in an informal festive atmosphere designed to provide interaction among the participants. For additional information about any of the programs be sure to contact the Campus Recreation Office.

UNIVERSITY FITNESS PROGRAMS
University Recreation Programs and Facilities has as a major responsibility the social and physical development of Western's students. Quality fitness and health promotion programs are priority areas for achieving optimal well being and preventing disease. A variety of fitness opportunities for students who are interested in improving their health and physical development through safe and effective exercise programs are available.

Instructor-Led Fitness Classes
A comprehensive offering of instructor-led fitness classes are available for students, including high and low impact aerobics, water exercise, and yoga stretch and tone. All classes are taught by instructors who have current CPR certification, received specialized training and successfully completed WMU's fitness instructor certification process. Each class format follows proper guidelines and recommendations for safe and effective exercise participation. For specific days and times of classes, see the schedule of student fitness opportunities or call 387-3262.

Fitness/Weight Room
Located in the new Student Recreation Complex, the Fitness/Weight Room contains a full line of variable resistance weight machines and free weights, computerized exercise bicycles, stair climbers, rowers, and ski machines. Expanded hours provide convenient workout times and include guidance on the proper use of the state-of-the-art equipment. Student exercise specialists are available at designated times to provide recommended guidelines to meet personal goals. For specific days and times, see the schedule of student fitness opportunities or call 387-3262.

PhytSyles
PhytSyles 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 risk screening, body composition analysis (percentage of fat), and physical assessments for flexibility, muscular strength and endurance. A consultation option to obtain exercise recommendations and guidelines based on current level of physical fitness and personal goals is also available. For specific days and times, see the schedule of student fitness opportunities, the PhytSyles brochure or call 387-3262.
STUDENT RIGHTS AND RESPONSIBILITIES

Student Academic Rights and Responsibilities

Western Michigan University defines the issues of academic evaluation, academic honesty, conduct in academic research, and academic policy application as matters of academic conduct. The following policies and procedures shall apply to all matters of student academic conduct.

Student Academic Rights and Responsibilities

1. Student performance will be evaluated solely on academic criteria, as specified by the instructor in class or on the course outline in accordance with departmental, college, and university policy.
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 and interpretation, but they are responsible for learning the content of any course of study for which they are enrolled.
4. Students will be informed by the faculty about course requirements, evaluation procedures, and the academic criteria to be used in each class. This information will be provided in writing at the beginning of the semester or sufficiently in advance of actual evaluation.
5. Students have the right to have all their examinations and other graded material made available to them with an explanation of the grading criteria. Faculty will retain all such materials not returned to the student for at least one full semester (or through spring plus summer sessions) after the course was given. Faculty are not required to return such material to the student but must provide reasonable access.

Academic Honesty

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

Violations of academic honesty include:

1. Cheating
2. Plagiarism
3. Falsification of University records
4. Complicity

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). Cheating is intentionally using or attempting materials in any academic exercise.

Plagiarism

Definition: Plagiarism is intentionally, knowingly, or carelessly presenting the work of another as one's own (i.e., without proper acknowledgement of the source). The sole exception to the requirement of acknowledging sources is when the ideas, information, etc., are common knowledge.

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 acknowledgement is required when material from another source is paraphrased or summarized, in whole or in part, in one's own words. To acknowledge a paraphrase properly, one might state: "To paraphrase Locke's comment..." and then conclude with a footnote or endnote identifying the exact reference.
3. Borrowed facts Information gained in reading or research which is not common knowledge must be acknowledged.
4. Common knowledge Common knowledge includes generally known facts such as the names of leaders of prominent nations, basic scientific laws, etc. Materials which add only to a general understanding of the subject may be acknowledged in the bibliography and need not be footnoted or endnoted.
5. Footnotes and endnotes One footnote or endnote 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 acknowledgement made. Similarly, when a passage is paraphrased, acknowledgement is required.

Complicity

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

Clarification:
Examples of complicity include knowingly allowing another to copy from one's paper during an examination or test; distributing test questions or substantive information about the materials to be tested before the scheduled examination; 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**

Computer misuse is disruptive or illegal use of computer resources.

**Clarification**

1. No student shall access, copy, examine, modify, utilize, or destroy any computer equipment, hardware, software, or file that is not specifically intended for his/her own personal use, without authorization.

2. Disruptive or illegal use of computer resources includes, but is not limited to: violating copyrights held on software or programs, tampering with computer equipment or hardware or with the operation of any computer system or function/execution; plagiarizing or cheating in any form; acting in a manner disruptive to other users or operators; and invading personal or institutional privacy with the use or aid of any computer equipment.

Conduct in Research

Research and creative activities occur in a variety of settings at the University, including classroom, laboratories, offices, private offices, computer laboratories, computer work areas, and computer workstations. Research and creative activities rest on a foundation of mutual trust. Misconduct in research and in creative activity destroys that trust and is prohibited. Students shall adhere to professional standards of integrity in both artistic and scientific research including appropriate representations of originality, authorship and collaborative crediting.

**Definition**

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

**Clarification**

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

1. **Fabrication of Data** Deliberate invention or counterfeiting of information.

2. **Falsification of Data** Dishonesty in reporting results, ranging from unauthorized alteration of data, improper revision or correcting of data, gross negligence in collecting or analyzing data, to selective reporting or omission of conflicting data.

3. **Plagiarism and Other Misappropriation of the Work of Another** The representation of another person's ideas or writing as one's own, in such ways as stealing others' results or methods, copying or presenting the writing or ideas of others without acknowledgment, or otherwise taking credit falsely. Representing another's artistic or technical work or creation as one's own. Just as there are standards to which one must adhere in the preparation and publication of written works, there are standards to which one must adhere in creative works in the visual, literary and dramatic arts.

4. **Abuse of Confidentiality** Taking or releasing the ideas or data of others which were given in the expectation of confidentiality, e.g., stealing ideas from grant proposals, award documents, or manuscripts intended for publication or exhibition/performance when one is a reviewer for granting agencies or journals or when one is a juror.

5. **Dishonesty in Publication or Exhibition/Performance** Knowingly publishing, exhibiting or performing work that will mislead, e.g., misrepresenting material, particularly its originality, or adding or deleting the names of other authors without permission.

6. **Deliberate Violation of Apprenticeship Requirements** Failure to adhere to or receive the approval required for work under research regulations of federal, state, local or university agencies, including guidelines for the protection of human subjects or animal subjects and the use of recombinant DNA, radioactive material, and chemical and 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 research activities, e.g., the protection of human subjects, the welfare of laboratory animals and biosecurity. Allegations in these areas may be brought by Human Subjects Institutional Review Board, the Institutional Animal Care and Use Committee and the Institutional Biosafety Committee.

Academic Policy and Status

Academic policy includes any decision affecting a student's academic status other than academic evaluation, academic honesty, or conduct in research. Examples of other academic policy and status matters include but are not limited to: rulings on program admission, the application of program or University requirements or related academic policy approved through the faculty governance system.

Academic Conduct Violation: Consequences and Appeals

The student may request assistance from the University ombudsman at any point during the appeals procedure. The contact may be for the purpose of clarifying procedures, obtaining information, or requesting assistance through an informal resolution.

**Consequences**

A description of every violation of standards for academic honesty, conduct in research, University academic policy, or other academic status matters cannot be included in this policy statement. When the academic rules and guidelines set forth in this policy are violated, consequences may vary according to circumstances since particular cases may involve different sets of circumstances.

Faculty members may take those actions they deem appropriate; these may include: (a) a failing grade for the work involved, or (b) failure in the course. Faculty may recommend actions to responsible academic supervisors, and the supervisors may, with or without faculty recommendation, take action involving: (1) removal from the program, and/or (2) other sanctions up to and including academic dismissal from the University. The faculty member or academic supervisor will file a memo with the registrar, indicating the violation and sanction involved. Before the memo will be placed in the student's official academic file, the registrar shall provide opportunity for the student to discuss the matter with him/her.

**Appeals**

1. Grade Appeals Students may appeal grading decisions under the "Academic Grade Appeals Procedure" detailed below.

2. All Other Appeals All other actions may be appealed under "General Academic Appeals Procedure." In cases where a grade and another action are recommended, the General Academic Appeals Procedure will be used.

Academic Grade Appeals Procedure

1. Whenever a student believes he/she has a grievance regarding a grade, he/she shall first arrange a meeting with the faculty member who will explain the grade for the grade and, if warranted, recommend a change.

2. The student must initiate contact with the faculty member involved or in his/her absence the appropriate unit chair/director within 90 days of the end of the semester for which the grade was assigned. Failure to act within the ninety-day time period will disqualify the student from further consideration of the matter.

3. If the student believes that he/she has not received a satisfactory resolution of the grievance from the faculty member he/she shall then meet with the academic unit chair/director, who may effect a satisfactory resolution.

4. If the student remains dissatisfied after meeting with the academic unit chair/director, the student may meet with the University ombudsman for an appeal. The function of the ombudsman in this situation is to collect information from the student, academic unit chair/director, and the faculty member. The University ombudsman may make a decision that: (a) the student's grievance is unwarranted and should not be considered further, (b) the student's grievance is warranted and the ombudsman will attempt to arrange a resolution agreeable to the faculty member and the student, or (c) the student's grievance is warranted, but an agreeable resolution cannot be reached, and the grade grievance will then be referred to the Academic Fairness Committee.

5. The Academic Fairness Committee is appointed by the University President from a roster of faculty recommended by the Western Student Advisory Committee. The Committee consists of four faculty, three undergraduate students, and three graduate students, with the chair appointed by the University President.

6. When a case is presented to the Academic Fairness Committee, the chair will call the Committee into session within 30 days of the referral. The Committee shall investigate the case, making sure that all interested parties have a full opportunity to present their positions. The Committee may decide upon: (a) no grade change, (b) a change of letter grade, (c) credit/no credit, or (d) any other grade used by the Records Office. The decision of the Committee is final and must be made within 60 days after the first meeting of the Committee on the case.

7. If the Academic Fairness Committee decides there should be no change of grade, it will so inform the student, the faculty member, the academic unit chair/director, and the ombudsman. If the Committee recommends a change of grade, the Committee will first inform the faculty member of its intent so that he/she...
may initiate the change. If the faculty member prefers not to initiate the change, the Committee will notify the registrar of the change.
8. To protect all parties involved, confidentiality consistent with the Committee’s task will be maintained.
9. Occasions do occur when a faculty member or administrative official may wish to question a grade or a grade change independent of the appeals procedure (Sec. VI. A-G). In such instances, the faculty member shall be consulted.

**General Academic Appeals Procedure**

Students may appeal charges of or sanctions for violations of the academic rules and guidelines concerning academic honesty, conduct in research, or applications of an academic policy using the following procedures.

1. A student who disagrees with the charge or decision shall first meet with the faculty member or person bringing the charge or making the decision within 90 days of receiving notification of the action.
2. If the disagreement between the student and the faculty member or other academic official is not resolved, a student may appeal in writing to the next administrative level (e.g., academic unit) within 14 calendar days of receiving notice of the first review. If the academic unit has approved procedures in place for considering such appeals, the chair/director shall refer the appeal to that process. If the unit does not have established procedures, the chair/director shall consider the appeal.
3. If no resolution is reached and the student wishes to appeal the unit level decision, he/she may request in writing a review by the college dean within 14 calendar days of receiving notice of the unit’s decision. In cases such as dismissal from an academic program or from the University, the college dean shall refer the student’s appeal to a College Academic Review Board under procedures outlined below. The College Academic Review Board will make a recommendation to the dean within 30 days.

**College Academic Review Board**

Each college (excluding the Honors College and the Graduate College) will establish a College Review Board consisting of five members, three faculty and two students. The three faculty members are elected by the college at large for one nonrenewable four-year term. One undergraduate student and one graduate student who are candidates for degree programs in the college are appointed by the Western Student Association and the Graduate Student Advisory Committee respectively for one renewable two-year term. Terms run from September 1 to August 31 of each calendar year.

The dean may accept the College Review Board’s recommendation or may forward the Review Board’s recommendation and his/her alternate recommendation to the provost. In a case involving a graduate student, the college dean will consult with the dean of the Graduate College before issuing a decision.

4. If the student wishes to appeal the decision of the dean or the College Review Board, he/she may request in writing a review by the provost within 14 calendar days of receiving notification of the college level review. The provost’s decision will be final except for written appeal to the president, when academic dismissal from the University is the recommended penalty.

5. Students may appeal charges of academic dishonesty made by the registrar, Undergraduate Admissions, the Graduate College or other units not in an academic college structure first to the director of that unit, and then to the provost. The provost’s decision will be final.

6. At each review level in the appeals process, the reviewer shall investigate the appeal, making sure that all interested parties have a full opportunity to present their position. The review will be able to recommend: (a) support for the initial charge and/or sanction; (b) modification of the initial charge and/or sanction; (c) no support of the initial charge and/or sanction. Records must be maintained at each review level.

7. If a student fails to appeal to the next step within any of the time limits specified in this policy, the prior action will be considered final.

8. Throughout the appeals process, a student may select one representative to provide assistance during all proceedings. However, the student must advise the review officer in writing, identifying the representative when requesting an appeal.

**Student Conduct**

Rules and regulations in the Student Code covering student conduct are developed by the Division of Student Affairs and reviewed by the Admissions, Financial Aid and Student Affairs Council composed of faculty, administration, and students. The policies, when approved by the Board of Trustees, are published in the Student Code. Rules and regulations appearing in this code are developed under the philosophy reflected in this statement. Western Michigan University is committed to maintaining an environment which protects the right of students to freely pursue academic inquiry and personal expression while encouraging them to develop critical judgment, civility, and self-discipline. The Dean of Students has overall responsibility for student conduct and discipline. When infractions of rules and regulations occur, students will be referred to the Office of Student Judicial Affairs for disposition.

**The Family Educational Rights and Privacy Act**

The Family Educational Rights and Privacy Act of 1974 is a Federal law which states that (a) a written institutional policy must be established and (b) a statement of adopted procedures covering the privacy rights of students must be made available. The law provides that the institution will maintain the confidentiality of student education. Western Michigan University accords all the rights under the law to students who are declared independent. No one outside the institution shall have access to, nor will the institution disclose any information from, students’ educational records without the written consent of the students, except to personnel within the institution, to officials of other institutions in which students seek to enroll, to persons or organizations providing students financial aid, to accrediting agencies carrying out their accreditation function, to persons in compliance with a judicial order, and to persons in an emergency in order to protect the health or safety of students or other persons. All these exceptions are permitted under the Act.

Within the Western Michigan University community, only those members, individually or collectively, acting in the students’ educational interest are allowed access to student educational records. These members include faculty, administrative, clerical, and professional employees, and other persons who manage student record information (e.g., Office of the Registrar, Academic Records Office, Controller’s Financial Office Admissions and Orientation). At its discretion, the institution may provide Directory Information in accordance with the provisions of the Act to include: student name, address, telephone number, date and place of birth, curriculum and major field of study, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student, participation in officially recognized athletic sponsorship, and weight and height of members of athletic teams. Students may withhold Directory Information by notifying the Registrar. Only records covered by the Act will be made available within forty-five days of the request.

Students wishing to review their educational records must make written requests to the Registrar. Only records covered by the Act will be made available within forty-five days of the request. Students may have copies made of their records with certain exceptions (e.g., a transcript of an original or source document which exists elsewhere). These copies are made at the students’ expense, at the prevailing rate of ten cents per page.

Educational records do not include the records of instructional, administrative, and educational personnel, which are 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. Health records, however, may be reviewed by physicians of the students’ choosing. Students may not inspect or review the following, as outlined by the Act: financial information submitted by their parents, confidential letters and recommendations associated with admissions, employment, or job placement, or honors to which they have waived their rights of inspection and review; or educational records containing information about more than one student; in which case, the institution will permit access only to that part of the record which pertains to the inquiring student. The institution is not required to permit students to inspect and review confidential letters and recommendations placed in their files prior to January 1, 1975, provided that such letters were collected under established policies of
confidentiality and were used only for the purposes for which they were collected. Students who believe that their educational records contain information that is inaccurate or misleading, or is otherwise in violation of their privacy or other rights, may discuss their problems informally with the person in charge of the records involved. If the decisions are in agreement with the students' requests, the appropriate records will be amended. If not, the students will be notified within a reasonable period of time that the records will not be amended and will also be informed of their right to a formal hearing by the Registrar. Students may then request a formal hearing. The request must be in writing to the Registrar who, within ten days after receiving such request, will inform students of the date, place, and the time of the hearing. Students may present evidence relevant to the issues raised and may be assisted or represented at the hearings by one or more persons of their choice, including attorneys, at the students' expense. The hearing officer who adjudicates such challenges will be the Registrar, or a person designated by the Registrar, who does not have a direct interest in the outcome of the hearing.

The decision of the hearing officer will be final, will be based solely on the evidence presented at the hearing, will consist of written statements summarizing the evidence and legal arguments for and against the decisions, and will be delivered to all parties concerned. The educational records will be corrected or amended in accordance with the decisions of the hearing officer, if the decisions are in favor of the students. If the decisions are unsatisfactory to the students, the students may also contribute to statements commenting on the information in the records or statements setting forth any reasons for disagreeing with the decisions of the hearing officer. The statements will be placed in the educational records, maintained as part of the students' records, and released whenever the records in question are disclosed.

Revisions and clarifications will be published as expenence with the law and institutional policy warrants.

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, sex, sexual orientation, age, religion, national origin, or handicap. Therefore, in that same perspective, neither sexual harassment nor sexism will be tolerated at Western Michigan University. It is expected that each member of the University community will consider himself/herself responsible for the proper observance of this policy.

DEFINITIONS

Sexual Harassment: Sexual harassment is defined as unwelcome sexual conduct which is related to any condition of employment or evaluation of student performance. This definition is intended to include more than overt advances toward actual sexual relations. It applies as well to repeated or unwarranted sex-related statements, unwelcome communications, sexually explicit comments, and/or graphics. All persons should be sensitive to situations that may affect or cause the recipient discomfort or humiliation or display a condescending sex-based attitude towards the person. Sexual harassment is illegal under both state and federal law. In some cases, it may be subject also to the criminal sexual conduct act. Conduct will be defined as sexual harassment when any or all three of the following conditions exist:

1. The sex-related situations are unwelcome by the recipient.
2. A specific or implied connection with employment or student status is involved.
3. The sexual harassment continues after the recipient has made it clear that the conduct is unwelcome.

*Note: In cases of overt physical sexual conduct, a blatant threat if sexual favors are not given, or promised reward in exchange for sexual favors, no notice that the conduct is unwelcome shall be necessary and a finding of sexual harassment may be based on a single occurrence.

Sexism: Sexism is defined as the perception and treatment of a 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 campus or workplace is unacceptable at the University and its eliminations 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 Associate Vice President for Human Resources, and students should report it to the Office of the University Ombudsman.

RECOGNIZING SEXUAL HARASSMENT AND SEXISM

Sexism and sexual harassment can take the form of:

- Derogatory jokes or comments based on sex.
- Use of graphics or other materials degrading persons based on their sex.
- Unwelcome touching or ogling.
- Overt advances.
- Coercion, with the promise of reward.
- Threats, with the promise of punishment.
- Physical assault.

Sexism and sexual harassment are prohibited at Western Michigan University. The University’s policy on harassment and sexism states: “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.

YOU COULD BE A VICTIM

Who are the victims? Anyone, male or female, young or old, can be the victim of sexual harassment, but two groups are the most vulnerable: women entering male-dominated fields of study, and women from minority groups. Both of these types of women may feel uncomfortable and out of place in their environments. The harasser, sensing this discomfort, finds them easy prey.

TAKING ACTION AGAINST THE SEXUAL HARRASSER

If you are being harassed, take action to stop it. The University will support you.

Some options available to you are:

- Say no. Make it loud and clear. A harasser does not expect confrontation.
- Keep records of all incidents and conferences.
- Find witnesses or others who will back up your claim.
- Get support from a friend, counselor, professor, or anyone else you trust. Make sure you don’t keep it bottled up inside; the more help you get, the faster the harasser will stop.

President’s Statement on Racial and Ethnic Harmony

Western Michigan University is firmly committed to the principles of equality and nondiscrimination. On its campus, students, faculty, and staff of many races and ethnic backgrounds live and work 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, staff of diverse racial and ethnic 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 the institutional position in this regard. 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, handicap, height, weight, 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 Affirmative Action Officer. 2018 Seibert Administration Building (387-5868)

The Affirmative Action Officer will receive and investigate complaints of prohibited discrimination filed with him/her 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 Affirmative Action Officer or professor, instructor, or program director within fourteen (14) calendar days of events or knowledge of events giving rise to the complaint. A complaint must be filed by the student and discussed with the Affirmative Action Officer before any formal grievance can be initiated.

The Affirmative Action Officer will make reports and recommendations to the complaining students and to the academic dean or program director concerned. In the event the student’s complaint is not satisfactorily resolved, the student may file a formal written grievance. Formal written grievances protesting prohibited discrimination shall be filed in accordance with the Anti-Discrimination Grievance Procedure for Students.

A grievance is defined as a formal written allegation by a student(s) that there has been a violation of the University’s Anti-Discrimination Policy or a discriminatory application of official University policies, procedures, rules, or regulations regarding student rights or privileges.

Any student(s) who wants to file such grievance should contact the Affirmative Action Officer, 2018 Seibert Administration Building (387-5858). The grievance must be filed within thirty (30) calendar days after the event or events being grieved took place. The Affirmative Action Department will forward the grievance to the appropriate Vice President or his/her designate hearing the appeal receives the grievance from the Affirmative Action Department. Within seven (7) calendar days after this meeting, the appropriate Vice President or his/her designate hearing the appeal will communicate an answer in writing to the involved parties.

THE GRIEVANCE PROCEDURE

Step 1: Departmental Level
A formal grievance must be filed with the Affirmative Action Department no later than thirty (30) calendar days after the event or events being grieved took place. The Affirmative Action Department will then forward the grievance to the Step 1 representative, who will be the Department Head or any other person designated by the appropriate Vice President to respond to the grievance. The Step 1 representative must provide a written answer within fourteen (14) calendar days after receiving the formal grievance.

Step 2: Appeal to the Vice Presidential Level
If the grievance is not resolved at Step 1, the student may appeal to the appropriate Vice President within seven (7) calendar days after the grievant receives the Step 1 answer. The President, at his/her discretion, will handle the grievance personally or will designate a representative to conduct a hearing or investigation of the grievance, provide a written answer within fourteen (14) calendar days after receiving the formal grievance.

Step 3: Appeals to the Presidential Level
If the grievance has not been resolved at Step 2, it may be appealed to the University President. The Affirmative Action Department must receive the appeal within seven (7) calendar days after the grievant receives the Step 2 answer. The President, at his/her discretion, will handle the grievance personally or will designate a representative to conduct a hearing or investigation of the grievance, provide a written answer within fourteen (14) calendar days after receiving the formal grievance.
Bachelor's Degrees

The Board of Trustees, on recommendation of the President and faculty of Western Michigan University, confers degrees as follows:

BACHELOR OF ARTS

The student who completes a curriculum conforming to the requirements of this degree, with a minimum of forty hours of General Education, Language and Literature, Science, Social Science, and designated Fine Arts courses, is eligible for the degree of Bachelor of Arts. Exception: Students in the College of Arts and Sciences should see the Arts and Sciences section of this catalog for Bachelor’s requirements.

BACHELOR OF BUSINESS ADMINISTRATION

BACHELOR OF FINE ARTS

BACHELOR OF MUSIC

BACHELOR OF SCIENCE

The student who completes a curriculum conforming to the requirements of this degree, with a minimum of forty hours of General Education, Language and Literature, Science, or Social Science areas, is eligible for the degree of Bachelor of Science.

BACHELOR OF SCIENCE IN ENGINEERING

Aeronautical, Automotive, Computer Systems, Electrical, Material Science, Industrial, Mechanical, and Paper

BACHELOR OF SCIENCE IN MEDICINE

Physician Assistant

BACHELOR OF SOCIAL WORK

SECOND BACHELOR’S DEGREE

A student may earn a second bachelor’s degree at Western Michigan University. In order to qualify, a student must meet all Western Michigan University bachelor degree requirements and earn a minimum of thirty semester hours of residence credit beyond those required for the first degree. The additional hours need not be taken after completion of requirements for the first degree. Students who are interested in a second degree must receive written approval for their program of study from the appropriate academic advisor and subsequently from the Registrar’s Office before beginning their course work.

Graduate Degrees

MASTER OF ARTS

MASTER OF BUSINESS ADMINISTRATION

MASTER OF DEVELOPMENTAL ADMINISTRATION

MASTER OF FINE ARTS

MASTER OF MUSIC

MASTER OF PUBLIC ADMINISTRATION

MASTER OF SCIENCE

MASTER OF SCIENCE IN ENGINEERING

MASTER OF SCIENCE IN ACCOUNTANCY

MASTER OF SOCIAL WORK

SPECIALIST IN EDUCATION

Sixth-year programs are offered in Educational Leadership and School Psychology.

DOCTOR OF EDUCATION

Three doctoral degree programs are offered by the College of Education. Counseling and Personnel, Education Leadership, and Special Education.

DOCTOR OF PHILOSOPHY

Programs leading to the Ph.D. degree are offered in Mathematics, Psychology, Science Education, and Sociology.

DOCTOR OF PUBLIC ADMINISTRATION

Certificates

Validity. Level of Michigan Certificates

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 eighth grades all subjects in a self-contained classroom, and sixth to, and including, eighth grades in the teachable major(s) and/or minor(s).

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 “Professional Certificate Requirements” section below, the Temporary Vocational Authorization, and the Occupational Education certificate. The Provisional certificate replaced the Continuing certificate and the Occupational Education Certificate replaced the Full Vocational certificate on July 1, 1992.

Provisional Certificate Requirements

A Provisional certificate is issued by the Michigan Department of Education upon satisfactory completion of an approved program, including a bachelor’s degree, offered by a teacher preparation institution and payment of a $125.00 certificate fee. An overall grade point average of 2.5 is required at Western Michigan University for a Provisional certificate. Beginning September 1, 1991, the Michigan Board of Education will issue a teaching certificate to a person only after passing both a basic skills examination and an appropriate subject area examination for each subject in which certification is granted.

Professional Certificate Requirements

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. PLANNED PROGRAM. 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.

The success of the teaching experience is determined by the State Board of Education upon recommendation of the University and of the local school district(s) in which the candidate taught.

Experience can be accumulated through part-time (including substitute teaching) and/or full-time teaching under the following pro-rating formula: one half or more of a teaching day (2/3 or 2/1/2) is the equivalent of one day, and 150 accumulated days is the equivalent of one year. There is no requirement that such experience be under contract, in consecutive years, be completed in Michigan, nor be completed before expiration of the Provisional certificate. All experience stays forever cumulative toward the Professional certificate.

2. PLANNED PROGRAM. The candidate must earn eighteen semester hours after the issuance of the Provisional certificate in a course of study established and approved as a “planned program” by an approved teacher education institution. A person with an approved master’s degree (regardless of when earned) is not required to complete the eighteen semester hour program. A “planned program” is a master’s degree program, an additional subject endorsement (a major or minor program), an additional grade level program, or an eighteen hour professional development program signed by the Certification Officer.
Validity Span of Michigan Certificates

All initial Michigan Provisional certificates, Provisional Renewal certificates, Professional Education certificates, Occupational Education certificates, and Temporary Vocational Authorizations expire on June 30 of the appropriate year, determined by the month and year of issuance. The initial Michigan Provisional certificate and the Temporary Vocational Authorization are valid for 5x1/4 to 6x1/4 years, depending on the month of issuance. A Provisional Renewal is valid for 2x1/2 to 3 years depending on the month of issuance.

Continuing certificates (issued prior to July 1, 1992 — predating the present Professional certificate), Permanent certificates (issued prior to July 1, 1976 — predating the Continuing certificate), and Full Vocational Authorizations (issued prior to July 1, 1992 — predating the Occupational Education certificate), have identical validity spans and identical reinstatement requirements. They automatically remain valid as long as the holder serves in an "educational capacity" (full- or part-time education employment at any level) for a minimum of 100 days (need not be consecutive) in any given five-year period. (The "five given five-year period" is determined by looking backward—NOT forward—from any current date to the equivalent date five years earlier.) For partial day or evening educational employment, one-half or more of a teaching day (2x1/2 or more clock hours) constitutes the equivalent of one day, but no more than one day can be earned in a calendar day.

Certification Application Procedures

The Professional, Occupational, and Provisional Renewal will be recommended by the approved Michigan teacher education institution which "planned" or approved the eighteenth 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 1968 requires the collection of certification fees by the Department of Education "as a condition of having the application evaluated for conformance with the application requirements." By signing a fee agreement form which is attached to the appropriate certification application form from the recommending college/university the applicant is agreeing to pay the appropriate fee when and directly by the Department of Education. After payment is made, the certificate will be issued by the Department of Education. Applications are available from the Certification Officer, College of Education, Sangren Hall, 616-387-3473.
CURR: JHS Middle School and Junior High
CURR: ITD Interior Design
CURR: IET Industrial Education (Teaching)
CURR: FAS Fashion Merchandising
CURR: BAD Business Administration
CURR: PBA Pre-Business Administration
Haworth College of Business: BUS
Major: Must elect major from BAD Curriculum
CURR: BAC Business Administration
Major: ACT Accountancy
Major: ADV Administrative Systems
Major: ADV Advertising and Promotion
Major: BCM Business Communication
Major: CIS Computer Information Systems
Major: ECO Economics
Major: FIN Finance
Major: FMM Financial Marketing
Major: GBS General Business
Major: IDM Industrial Marketing
Major: INS Insurance
Major: ISM Integrated Supply Management
Major: MGT Management
Major: MKT Marketing
Major: PAB Public Administration
Major: REAL Real Estate
Major: RET Retailing
Major: STB Statistics

College of Education: EDU
(3) Students selecting teacher certification programs will be placed in the "PRE-EDUCATION" (PED) CURRICULUM until requirements have been met. See the College of Education section for complete information on admission requirements.
CURR: DI Diets
Major: DI Diets
CURR: EED Elementary Education
Major: EGM Elementary Group Minors
Major: EEM Elementary Music
Major: MUS Music, Elementary
Major: FAS Fashion Merchandising
Major: FAS Fashion Merchandising
Major: PSA Food Service Administration
Major: PSA Food Service Administration
Major: IFR Individual and Family Relationships
Major: IFR Individual and Family Relationships
Major: IET Industrial Education (Teaching)
Major: DRA Drafting
Major: GIA General Industrial Education
Major: GRA Graphic Arts
Major: MWA Metalworking
Major: MEO Mechanical Engineering
Major: WD Woodworking
CURR: ITD Interior Design
Major: ITD Interior Design
CURR: JHS Middle School and Junior High
Major: CPS Computer Science
Major: ENG English
Major: FRE French
Major: GER German
Major: MAT Mathematics
Major: SCI Science
Major: SPA Spanish
CURR: SED Secondary Education
Major: AMS American Studies
Major: ANT Anthropology
Major: BIO Biology
Major: CMH Chemistry
Major: CPS Computer Science
Major: EAR Earth Science
Major: ECO Economics
Major: ENG English
Major: FRE French
Major: GBS Geography
Major: GER German
Major: HIS History
Major: LAT Latin
Major: MAT Mathematics
Major: PHY Physics
Major: POL Political Science
Major: PSY Psychology
Major: SCI Science
Major: SEB Secondary Education in Business
Major: SOC Sociology
Major: SPA Spanish
CURR: PED Physical Education
Major: CHEM Community Health Education
Major: HET Health Education Teaching
Major: PEX Physical Education—Exercise Science
Major: PYE Physical Education—Teacher/Coach
CURR: PED Pre-Education
Major: Select major approved for certification
CURR: SDC Special Education—Emotionally Impaired
Major: SDE Special Education—Emotionally Impaired
Major: SSS Special Education—Emotionally Impaired
Major: SSM Special Education—Mentally Impaired
Major: SME Special Education—Mentally Impaired
Major: SMI Special Education—Mentally Impaired
Major: SCH Special Education—Physically and Otherwise Health Impaired
Major: SME Special Education—Physically and Otherwise Health Impaired
Major: SMI Special Education—Physically and Otherwise Health Impaired
Major: SBE Special Education—Visually Impaired
Major: SBE Special Education—Visually Impaired
Major: SBS Special Education—Visually Impaired
Major: TET Textile and Apparel Technology
Major: VET Vocational Education Teaching
Major: FAS Fashion Merchandising
Major: GRA Graphic Arts
Major: HSE Home Economics Education
Major: MWA Metalworking
Major: WPC Power/Automotive
Major: SEM Secondary Education in Marketing
Major: VTO Vocational Technical Education (Non-Teaching)
Major: VTE Vocational Technical Education (Non-Teaching)

College of Engineering and Applied Sciences: AAS
(4) Students selecting engineering programs will be placed in the "PRE-ENGINEERING" (PE) CURRICULUM until requirements have been met. See the College of Engineering and Applied Sciences section for complete information on admission requirements.
CURR: AER Aeronautical Engineering
Major: AER Aeronautical Engineering
Major: AET Aircraft Maintenance Engineering
Major: AET Aircraft Maintenance Engineering
Major: AUM Automotive Engineering Technology
Major: AUM Automotive Engineering Technology
Major: AVD Aviation and Operations
Major: CSE Computer Systems Engineering
Major: CSM Construction Science and Management
Major: EE Electrical Engineering
Major: EGR Engineering Graphics
Major: EM Engineering Management
Major: MFT Manufacturing Engineering Technology
CURR: EE Electrical Engineering
Major: EE Electrical Engineering
Major: EGR Engineering Graphics
Major: EM Engineering Management
Major: MFT Manufacturing Engineering Technology

College of Fine Arts: FAR
(6) Students selecting a teacher certification program will be placed in the "PRE-EDUCATION" (PED) CURRICULUM until requirements have been met. See the College of Education section for complete information on admission requirements.
CURR: ART Art
Major: ART Art
Major: ART Art
CURR: DACE Dance
Major: DACE Dance
CURR: MUS Music
Major: MUS Music
Major: MUSIC Music Composition
Major: MUS Music History
Major: MUS Music—Jazz Studies
Major: MUS Music Performance
Major: MUS Music Theory
Major: MUS Music Therapy
Major: MUS Music Therapy
CURR: THT Theatre
Major: THT Theatre
Major: THT Theatre
Major: THT Theatre

College of Health and Human Services: HHS
CURR: EMP Employee Assistance Programs
Major: EMP Employee Assistance Programs
Major: OT Occupational Therapy
Major: OT Occupational Therapy
Major: PSA Physician Assistant
Major: PSA Physician Assistant
Major: PEM Pre-Employee Assistance Programs
Major: PDC Pre-Employee Assistance Programs
Major: POT Pre-Occupational Therapy
Major: POT Pre-Occupational Therapy
Major: PSW Pre-Social Work
Major: PSW Pre-Social Work
Major: PSW Pre-Social Work
Major: PSW Pre-Social Work
Major: PSW Pre-Social Work
Major: PSW Pre-Social Work

Honors College
CURR: HC Honors College
The Honors College Curriculum is a closed curriculum available only to previously admitted members of the Honors College. For more information, contact the Honors College at (616) 387-3230
CURR: ME Mechanical Engineering
Major: ME Mechanical Engineering
CURR: MTL Applied Material Science
Major: MTL Applied Material Science
CURR: PAE Paper Engineering
Major: PAE Paper Engineering
CURR: PAF Paper Science
Major: PAF Paper Science
CURR: PE Pre-Engineering
Major: Select specific engineering major
CURR: PRT Printing
Major: PRT Printing
CURR: PRO Production Technology
Major: PRO Production Technology

Division of Continuing Education: DCE
CURR: GUO General University Studies
Major: GUO General University Studies
Major: AMT American Studies
Major: ASLS Applied Liberal Studies
Major: APdi Applied Professional Studies
Concentrations
CJ Criminal Justice
CR Health Studies
SOT Social Science Studies
TAS Technical and Scientific Studies

DEGREES AND CURRICULA
## Programs Requiring Major and Minor Slips

(In All Cases Check Catalog Requirements)

Note: “No” means that a slip is not required for the major, curriculum, or minor. “None” means that a major, curriculum, or minor is not offered.

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<th>MINOR SLIP REQUIRED</th>
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Student Planned Curriculum

The Student Planned Curriculum (STC) provides students the opportunity to pursue educational goals which cannot readily be accommodated in other university curricula. The usual major/minor requirements are suspended within this program. Instead the individual student, working with an assigned advisor, selects coursework based around his/her academic and educational goals. Thus the student enjoys maximum freedom and flexibility in designing such a program. Aside from the University’s General Education and Intellectual Skills requirements, the curriculum consists entirely of elective courses which must be sufficient in number to meet general degree requirements.

Students completing this curriculum are eligible to receive either the B.A. or B.S. degree depending upon the particular configuration of coursework selected.

The primary uses of the STC fall into three categories: 1) as a preparation for graduate or professional study; 2) as a way to pursue employment possibilities in areas where no conventional curricula exist; and 3) as a convenient and pleasurable way to obtain a broad interdisciplinary undergraduate education without particular concern for career possibilities. Non-traditional students are often especially attracted to it for this latter reason.

Any undergraduate student in good academic standing, with 75 or fewer semester hours earned, is eligible to enter the STC. Students may initiate this process by contacting the University Counseling Center (387-1590) and requesting an appointment with one of the designated STC counselors. Those entering the curriculum are expected to develop a written statement outlining educational goals as well as the proposed course of study.

General University Studies

The Division of Continuing Education has developed a baccalaureate degree program for adult students who are unable to take courses on the Kalamazoo campus. It especially serves those with a community college background or its equivalent. This undergraduate degree program is known as the General University Studies curriculum, which leads to either the Bachelor of Arts or the Bachelor of Science degree, depending upon the subject matter content of the program. Specific course requirements vary with the selected area of concentration. All programs must be planned with an academic advisor for the area of concentration. Arrangements for consultation with an advisor will be provided at the student's convenience. Inquiries about the General University Studies programs should be directed to any of the Division's offices.

The Division's central office is located in B-wing of Ellsworth Hall on Western's main campus in Kalamazoo. Six additional regional centers are located as follows:

- Grand Rapids Regional Center
  2333 East Beltline, SE
  Grand Rapids, MI 49546-5036

- Kalamazoo Off-Campus Programs Office
  B-103 Ellsworth Hall
  Western Michigan University
  Kalamazoo, MI 49008-5161

Lansing Center
  200 N. Washington Square, Suite 200
  Lansing, MI 48933-1204

Muskegon Regional Center
  440 S. Quarterline Road
  Muskegon, MI 49442-2532

Kendall Center — Battle Creek
  50 West Jackson
  Battle Creek, MI 49017-3505

Southwest Regional Center
  2510 Lakeview Avenue
  St. Joseph, MI 49085

GENERAL REQUIREMENTS

The general requirements for a bachelor’s degree in the General University Studies curriculum include the following:

1. Complete at least 122 hours of credit, with a minimum of 60 hours of academic work from an accredited four-year, degree-granting institution. At least 30 hours outlined are to be taken through Western Michigan University.
2. Completion of a planned area of concentration, involving a minimum of 45 semester hours of credit. Some work may include credit completed in the first two years of the student’s preparation or credit given for non-accredited training or experience.
3. Completion of the General Education requirement of 35 semester hours of credit. This work does not have to be exclusive of work included in the area of concentration.

AREAS OF CONCENTRATION

American Studies
Applied Liberal Studies
Applied Professional Studies
Criminal Justice
Health Studies
Social Science Studies
Technical-Scientific Studies

Please see section on the Division of Continuing Education elsewhere in this catalog.

Preprofessional Curricula

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.

DENTISTRY
Maria McGurn
Medical Sciences Advisor
387-4366

Most dental schools require three years of academic study and prefer baccalaureate degree candidates. They expect students to have good basic training in chemistry, biology, and physics, good communication skills, and some background in the humanities and social sciences. In general, dental schools require two years of each of the following courses: English, Physics, Biology, Inorganic Chemistry, and Organic Chemistry. Since minimum course requirements vary among dental schools, you should find out specific requirements by consulting the publication, Admission Requirements of U.S. and Canadian Dental Schools, which is on reserve in Waldo Library and is also available in 2060 Friedmann Hall. The Dental Admission Test (DAT) is required by all dental schools, and is offered at Western Michigan University each spring and fall. Most preprofessional students at Western Michigan University major in either Biology, Biomedical Sciences, or Chemistry. However, dental schools look with equal favor on other majors, as long as students complete the minimal preprofessional requirements. It is important that preprofessional students see the preprofessional advisor on a regular basis for curriculum guidance. The advisor is located in 2060 Friedmann Hall.

Also available through the advising office are Preprofessional Adviser Booklet, Dental Admission Test application forms, centralized application service forms, and Preprofessional Evaluation Committee Services. Preprofessional students are encouraged to join the Medical Sciences Association, which is composed of students interested in health science careers.

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

1. CHEM 101 or 102, 120, 360, and 361
2. BIOG 101, 102, 213, 250, and 350
3. PHYS 113/114 and 115/116 or 205/206 and 207/208
4. ENGL 105 plus a literature course.

LAW
Advisors: Haworth College of Business
W. Morrison, N. Batch, T. Gossman,
F. W. McCarty, S. Schanz, L. Stevenson, C.
Van Auken-Haight
3290 Haworth College of Business
387-5729

Advisors: College of Arts and Sciences
Norma J. Hayes
2060 Friedmann Hall
387-4366

P. G. Renstrom
3029 Friedmann Hall
387-5697

No special college program is required or recommended by most law schools. In general, law schools urge a solid four-year program leading to a baccalaureate degree. Although it is relatively unimportant what the prospective law student uses for a major, it is most important that a high level of academic achievement be maintained. It is also important that the prospective lawyer’s education be as broad as possible.

The first-year student is urged to concentrate on satisfying first-year General Education requirements, and on improving his/her writing and speaking skills by taking courses in English and communications. A first-year student should see a prelaw advisor during the first semester for
assistance in selecting a curriculum. A transfer student should see a prelaw advisor as soon as possible.

MEDICINE AND OSTEOPATHIC MEDICINE
Maria McGurn
Medical Sciences Advisor
2060 Friedmann Hall
387-4366

Medical schools increasingly want students with diverse backgrounds and a wide variety of skills and interests. They expect good basic training in chemistry, biology, physics, and mathematics, but also want students to have well-developed communication skills and long-term interests in the humanities and social sciences. In general, medical schools require two semesters each of English, Physics, Biology, Inorganic Chemistry, and Organic Chemistry. Since minimum course requirements vary among medical schools, you should find out specific requirements by consulting the publication, Medical School Admission Requirements, which is on reserve in Waldo Library (card catalog No. R745.A8) and is also available in 2060 Friedmann Hall. The Medical College Admission Test (MCAT) is required by nearly all medical schools, and is offered at Western Michigan University each spring and fall. Most premedical or preosteopathic students at Western Michigan University major in either Biology, Biomedical Sciences, or Chemistry. However, medical schools look with equal favor on other majors, as long as students complete the minimal premedical requirements. It is important that premedical and preosteopathic students see the preprofessional advisor on a regular basis for curriculum guidance. The advisor is located in the College of Arts and Sciences Advising Office, 2060 Friedmann Hall.

Also available through the advising office are Premedical Advisory Booklets, Medical College Admission Test application forms, centralized application service forms, and Preprofessional Evaluation Committee services. Premedical and preosteopathic students are encouraged to join the Medical Sciences Association, which is composed of students interested in health science careers.

Students should complete the minimal requirements by the end of their junior year or before they take the Medical College Admission Test. In addition, courses in cell biology, genetics, physiology, and biochemistry are recommended. The sequence of courses will depend on the student's major and minor, as well as appropriate prerequisites. Western Michigan University courses which fulfill minimum medical school requirements, and also provide a good foundation for the Medical College Admission Test, are listed below:
1. CHEM 101 or 102, 120, 360, and 361
2. BIOS 101, 102, 213, 250, and 350
3. PHYS 113/114 and 115/116 or 205/206, 207/208
4. ENGL 105 plus a literature course.

PRE-ARCHITECTURE
Norma Hayes, Advisor

A preprofessional curriculum in architecture is outlined in this catalog in the College of Arts and Sciences section.
Joseph G. Reish
Dean

Jean Wyer
Academic Advisor

Julie Wynva
Director, Student Volunteer Services

The mission of the Carl and Winifred Lee Honors College is to design and foster curricular and co-curricular programs for the academically talented student. These programs allow students to pursue their major areas of study and to join with other bright students in Honors courses, internships, research projects, community work, and social activities. The 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 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 the Honors education. Students become involved with the college not only through courses but through the Honors Student Association and Honors housing. The college sponsors trips, speakers, a newsletter, and other cultural and social activities. Through these activities students enhance their 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 which the College Volunteer Opportunities Fair, Hunger Cleanup, and Into the Streets.

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

THE ACADEMIC PROGRAM OF STUDY

The Lee Honors College admits students at all stages 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 which coordinates with other University requirements. At the freshman-sophomore level, it consists of courses which 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 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.

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 616-387-3239.

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 printed each semester. All Honors courses are so indicated on the transcript.

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

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

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

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

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

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

HNRS 495 Individual Studies
Variable Credit
Students in the Lee Honors College may enroll in this course for one or several semesters upon approval of the Dean of the Lee Honors College. The course is an administrative facility for individual study outside the usual course structure.

HNRS 499 Honors College Thesis

3-6 hrs.

The design, writing and defense of a directed research project appropriate to the major disciplinary area of the student. The thesis must be directed by a faculty sponsor and approved by two additional faculty members knowledgeable in the discipline or allied discipline. A copy of the final project must be filed with the Lee Honors College. Prerequisite: approval of the thesis project by the Dean.
authority to sign contracts for the University to other University officials.

All courses offered abroad, faculty and student exchanges, study tours, affiliations, and consultancies conducted in the name of Western Michigan University must be authorized by the Executive Director. This provides protection for scholars and students and allows for an accurate record system regarding the University’s endeavors. It also assures that the legal and financial responsibilities of the University are properly understood.

The Office of International Affairs maintains a close working relationship with the two units responsible for serving the needs of foreign students: the International Student Services Office, which handles the admission and special circumstances of foreign students; and the Career English Language Center for International Students, which provides intensive English instruction for foreign students seeking admission to U.S. institutions of higher learning.

Institution-to-Institution Linkages

The Office of International Affairs negotiates formal linkages with educational institutions abroad. These institutional affiliations involve direct operational ties, arrived at through mutual agreement and providing mutual benefit. Western Michigan University’s interest in institutional affiliations around the world is a logical outgrowth of the University’s integrated, international perspective on education.

These linkage contracts have facilitated faculty and student exchanges, teaching and research opportunities for professors and students, visiting scholar programs, scholarships for students, and the development of library resources. The University assigns a high priority to establishing academic cooperation agreements which involve mutual collaboration and benefits and institutionalize a “Michigan connection” with the world.

Western Michigan University’s “twinning program” with Sunway College in Kuala Lumpur, Malaysia is a good example of a mutually beneficial linkage contract. Through this cooperative degree program, Malaysian students who seek undergraduate degrees in business, mass communications, computer science, pre-engineering, sciences, and general education take their first two years of courses at Sunway College and the final two years at WMU. A full-time resident director from Western Michigan University supervises the curriculum to ensure that WMU-modelled courses at Sunway are exact equivalents of those at WMU. Owing to the substantial savings in tuition fees and living expenses, the pursuit of a foreign degree by Malaysian students is thus made more affordable. Since its inception in 1987, hundreds of students have passed through this innovative program.

CURRENT LINKAGE PARTNERS

Africa
- Addis Ababa University, Addis Ababa, Ethiopia
- Obafemi Awolowo University, Ile-Ife, Nigeria

Americas
- University of Quebec at Trois Rivieres, Quebec, Canada
- Autonomous University of Guadalajara, Guadalajara, Mexico

Asia
- Guangxi University, Nanning, People’s Republic of China
- Nankai University, Tianjin, People’s Republic of China
- Xibei University, Xi’an, People’s Republic of China
- National Kaohsiung Normal University, Kaohsiung, Taiwan, Republic of China
- Aoyama Gakuin Women’s Junior College, Tokyo, Japan
- Josai University, Sashima, Saitama, Japan
- Josai International University, Togane, Chiba, Japan
- Keio University, Tokyo, Japan
- Nihon University, Tokyo, Japan
- Rikkyo University, Tokyo, Japan
- St. Margaret’s Junior College, Tokyo, Japan
- Takapoka College of Law, Toyama, Japan
- Sookmyung Women’s University, Seoul, Republic of Korea
- Sunway College, Kuala Lumpur, Malaysia

Europe
- Selbilius Academy, Helsinki, Finland
- University of Tubingen, Tubingen, Germany
- Free University of Berlin, Berlin, Germany
- University of Paderborn, Paderborn, Germany
- University of Passau, Passau, Germany
- Institute of Nuclear Research of the Hungarian Academy of Sciences, Debrecen, Hungary
- Yago School, Madrid, Spain
- University of Leicester, Leicester, United Kingdom
- University of Latvia, Riga, Latvia
- Institute of Spectroscopy, Russian Academy of Sciences, Moscow, Russia
- Inter-University Center, Dubrovnik, Croatia

Middle East
- The American University in Cairo, Cairo, Egypt
- Tel Aviv University, Ramat Aviv, Israel

Area Studies Programs

On campus, the International and Area Studies Program serves as the focus of four specialized studies: African, Asian, European, and Latin American Studies. The course offerings for these interdisciplinary programs are selected from more than a dozen departments. Each of the four area studies
programs offers courses on the region's arts, culture, languages, European languages spoken in the region, philosophies, religions, history, geography, economic conditions, political systems, social changes, and international relations. Full descriptions of the study areas options are given in the interdisciplinary programs section of this catalog. The Center for Korean Studies and the Canadian Studies Committee also sponsor course offerings in their fields of interest.

Study and Travel Abroad
Throughout the world, growing numbers of students are crossing borders to participate in international educational experiences. Each year more than 70,000 Americans study abroad, part of a larger global flow of one million students who are learning about the world outside their home country. Western Michigan University students study abroad to a challenging course of study at a foreign institution, or by enrolling in a foreign program sponsored directly by Western Michigan University or another American institution, by enrolling in a foreign institution, or by enrolling in a foreign program sponsored directly by Western Michigan University or another American institution. In all cases students must enroll with the advice and guidance of the Foreign Study Coordinator in the Office of International Affairs.

Locations Abroad
Western Michigan University undergraduates regularly study in approximately 30 different countries and enroll in programs and universities throughout the world. The university has established a number of its own foreign study programs and affiliations with selected institutions abroad. In addition to a challenging course of study at a foreign institution of higher learning, these programs offer the experience of immersion in the life and culture of the host country.

Asia

JAPAN
JCMI: Japan Center for Michigan Universities, Hikone, Shiga Prefecture. The JCMI is a joint project of Shiga Prefecture, the Saitama Prefecture, and Michigan’s 15 public universities, offering a two semester program in Japanese language and culture, and intensive summer Japanese language programs. Course offerings include Japanese (4 levels), Japanese society & culture, and courses taught by visiting scholars e.g. Japanese business, technology management, Japanese politics and government, and communication and contemporary media. A limited number of $5000 scholarships are provided by the Michigan Japan Foundation.
Keio University Student Exchange Program offers one scholarship for two semesters of study in Tokyo. This competitive scholarship covers tuition, room, and board.

The Japan Adventure/Japan Horizon Programs in Otsu, Shiga Prefecture, and Sakaide, Shikoku combine study and work in this unique, low-cost program sponsored by Lansing Community College. Participants take Japanese language and culture classes with Japanese instructors while working on a cruise ship or in a tourist complex ashore. This is an ideal program for beginning students of Japanese.

Ryu-Rikkyo University Student Assistance Scholarship covers tuition for two semesters of study at Rikkyo University, Tokyo.

MALAYSIA
WMU’s South-East Asia Semester at Sunway College, Kuala Lumpur offers the only U.S. study abroad program in Malaysia and includes WMU Resident Director on-site. All courses are duplicates (same numbers, texts) of WMU home campus courses, including business, communications, computer science, pre-engineering, sciences, and general education. Fall, winter, and spring-summer semesters. Instruction in English.

Australia
Curtin University of Technology, Perth, Western Australia offers strong programs in accounting, business (e.g. Export Marketing, International Management, Human Resource Functions), engineering, and science. Curtin places major emphasis on Pacific-Indian Ocean affairs, with business, history, communications and cultural studies oriented to this region. Other major programs are Aboriginal and Australian Studies, maritime archaeology, health sciences, science and math education. One and two semester programs.

Monash University, Melbourne, Victoria offers a full curriculum, with special strengths in Australian literature, business, Southeast Asian studies, Japanese Studies, Asian languages, Australian studies, anthropology, administrative sciences, biology and mathematics. One and two semester programs.

Europe

THE GRAND TOUR OF EUROPE
European Arts and Culture: Renaissance to Modern are the focus of this summer term field course following in the tracks of Boswell and Goethe on the classic itinerary of the Grand Tour: The Netherlands, France, Germany, Austria, Switzerland, and the ultimate destination: Italy. Offered bi-annually in even numbered years.

AUSTRIA
Vienna: Semester or Year Abroad offers courses in business and liberal arts taught in English, plus German language (3 levels). Fall, winter, or academic year options. Sponsored by the Midwest Consortium for Study Abroad (MCSA).

BELGIUM
“European Culture and Society” Program at KU Leuven, near Brussels. Founded in 1425, the Katholieke Universiteit Leuven (KUL) is situated in a “university town” just twenty minutes from Brussels, capital of the European Community (EC). Courses focus on the development of the European Community, with offerings in business, history, international relations, and the European Community, literature, communications, sociology, philosophy, theology (all in English), plus Dutch (Flemish), French and German language courses. Fall, winter, or academic year options; must be junior or senior.

CROATIA
A Future of Religion Seminar is offered each spring at the Inter-University Center of Post-Graduate Studies in Dubrovnik.

CZECH REPUBLIC
Charles University, Prague offers courses in economics, politics, history, culture (all taught in English), Czech language. Fall, winter, or academic year options. Sponsored by C.I.E.E.

ENGLAND
The University of Leicester offers a full curriculum, including American studies, biological sciences, economics, geography, history of art, math, sociology, chemistry, English, geology, history of science, physics, archaeology, computer science, French, German, Italian, political science, astronomy, economic and social history, history, law, and psychology. Personal tutors are allocated to each student each semester. Fall, winter, or academic year options.

The American College in London offers courses in business administration, commercial art, fashion design, fashion merchandising, and interior design. Fall, winter, spring, and summer quarters.

The WMU Oxford Summer Seminar, offered bi-annually in odd-numbered years for four decades, is WMU’s oldest and most prestigious summer study abroad opportunity. Participants study British literature and culture while in residence at a college of the University of Oxford.

International Business in Europe, a WMU summer course focused on the development of the European Community, is offered in cooperation with the University of Leicester. Participants study the economics, law, and business practices of the EC and multinational firms operating in the European single-market.

FINLAND
The Sibelius Academy, Helsinki, offers studies in performing music, jazz, folk music, music education, opera, orchestra and choir conducting, and composition and music theory.

FRANCE
The American University Center in Aix-en-Provence offers intermediate and advanced French language instruction and liberal arts courses. Fall, winter, and academic year options.

University of Haute Bretagne, Rennes (Britanny) offers courses in advanced French language, culture, civilization. Fall, winter, or academic year options. Sponsored by C.I.E.E.

GERMANY
The Free University of Berlin, the University of Paderborn, the University of Passau, and the University of Tubingen participate in student exchange programs with WMU. Competitive scholarships are available for some of these exchanges provided by the Office of International Affairs.

ITALY
The University of Macerata, northeast of Rome, offers courses in art history, economics (European integration), history, political science, literature, Italian language (3 levels), taught in English by Italian faculty of the university. Fall, winter, and spring terms. Sponsored by ACSA. American Center for Study Abroad.

Studio Art Centers International (SACI), Florence offers studio arts, Italian language, and liberal arts courses. Studio art classes include drawing, painting, etching, lithography, sculpture, photography, film production, ceramics, fabric design, weaving, jewelry, serigraphy, painting conservation,
graphic and interior design. Fall, winter, late spring, and summer terms. Sponsored by the Cleveland Institute for the Arts.

RUSSIA
WMU spring or summer field courses offer instruction in the language, history, politics, and culture of Russia and other members of the Commonwealth of Independent States.

SPAIN
University of Alicante offers Spanish (beginning), history, art history, international business, sociology, participants take 3 courses in Spanish language, and 2 other courses taught in English. Program sponsored by C.I.E.E.

University of Seville and Universidad Internacional Menendez y Pelayo offer course options in: 1) advanced Spanish language and liberal arts, 2) business and advanced Spanish, and 3) a student teaching program. Semester or academic year options. Program sponsored by C.I.E.E.

Latin America and the Caribbean
DOMINICAN REPUBLIC
The Pontificia Universidad Catolica Madre y Maestra in Santiago offers Spanish language and Caribbean area studies courses. Fall, winter, or academic year. Program sponsored by C.I.E.E.

MEXICO
The Universidad de las Americas (UDLA), Puebla, offers a full curriculum taught in Spanish, including business and management, and Spanish language (3 levels). One or two semester programs.

PUERTO RICO
WMU’s Seminar in Tropical Biology is a field program held annually in spring term in Puerto Rico. The course explores the biogeography of a Caribbean island, including rain forests, desert zones, and coral reefs.

Middle East and the Mediterranean
EGYPT
The American University in Cairo offers Arabic language (3 levels); anthropology, business management, chemistry, communications, computer science, economics, Egyptology, engineering, English, math, Middle Eastern studies, physics, political science, sociology, all taught in English. Semester, academic year, and summer options.

ISRAEL
Tel Aviv University offers courses in Arabic and Hebrew languages (3 levels), archaeology, arts, business/management, Israeli studies, Jewish/Judaic studies, life sciences, Middle East studies, taught in English. Semester or academic year options.

MEDITERRANEAN INSTITUTE
WMU’s Summer Institute on the Mediterranean World is a study-abroad program which cruises to archaeological sites in Italy, Southern France, Greece, Turkey, Egypt, and Israel.

Other Locations
C.I.E.E. PROGRAMS
Western Michigan University is a member of the Council on International Educational Exchange (C.I.E.E.), which through its Cooperative Centers for Study Abroad offers a variety of international educational opportunities. C.I.E.E. has developed programs for students of many different academic backgrounds in developing countries, and programs that include an experiential learning component. In addition to the C.I.E.E., programs in the Czech Republic, Dominican Republic, France, and Spain noted above, WMU students may participate in programs in Brazil, China, Costa Rica, Hungary, Indonesia, Poland, Russia, Thailand, and Vietnam. Full information and application materials are available for all of these programs at the Office of International Affairs.

INTERNATIONAL MUSIC SEMINARS
Strings, piano, Alexander Technique, art and photography are the focus of summer workshops for musicians, painters, and photographers. Concurrent with the workshops are a concert series and international art and photography exhibits. Locations vary from year to year, past sites include Innsbruck, Austria; Exeter, England; and Bologna, Italy.

INTERNATIONAL SOCIAL WORK SEMINARS
Field courses in Comparative Social Service Systems are offered in cooperation with universities and social services agencies abroad. Locations vary from year to year, past sites include El Salvador, England, Nicaragua, and Kenya.

SPRING AND SUMMER FIELD COURSES
In addition to these programs, Western Michigan University sponsors a variety of overseas courses and study-tours in spring and summer designed for students, teachers, alumni/iae, and friends of the University. Sites of past programs include China, Japan, India, and Kenya.

Since Western Michigan University’s study abroad offerings are subject to change, interested students are urged to contact the Office of International Affairs for up-to-date information.

About Studying Abroad
WHO STUDIES ABROAD
WMU undergraduate students from all colleges and majors are eligible to study abroad. Approximately 70,000 American college students study abroad each year. Given the growing interdependence of the world community, overseas experience is becoming an important component of a complete college education.

WHEN STUDENTS STUDY ABROAD
WMU students usually study abroad their sophomore, junior, or senior year. Many students find that their sophomore or junior year is the most satisfactory time to study abroad. To ensure adequate preparation, it is useful to begin planning for study abroad six to twelve months before the intended semester(s) abroad.

TRANSFER OF CREDITS AND GRADES
Students participating in study abroad through the Office of International Affairs will receive credit for their work abroad. The Foreign Study Coordinator has catalogs, program materials, and evaluations to help students plan their studies abroad. As part of the application process, students must obtain approval of their academic plans from the Foreign Study Coordinator, and must arrange credit transfer with the FSC before leaving for study abroad. The Foreign Study Coordinator will assist students through the process of applying, pre-arranging, and transferring credit.

FOREIGN LANGUAGE REQUIREMENTS
Many foreign study programs do not require any previous experience with a foreign language, while other programs require up to two years or the equivalent of college-level language study. Students should begin serious plans for foreign language study in their freshman year so they can study in a country in which English is not the primary language.

For students who do not have proficiency in a foreign language, there are many options outside of English-speaking countries. WMU students can study in programs taught in English e.g. in Belgium, Egypt, Israel, and Malaysia, including many of the options mentioned above. Some students do not start studying the host country’s language until they are abroad, and can make rapid progress in the foreign environment.

LENGTH OF STAY
WMU students may study abroad for a spring or summer term, one semester, or the academic year. Students who are studying foreign languages find it beneficial to study abroad for at least two semesters. Many students, however, will find a single semester program to be attractive. Any experience abroad is beneficial, however, most participants report that the longer they stay abroad the more the benefits.

HOUSING ARRANGEMENTS
Options for study abroad students include living with a selected family, in a university residence hall, or in an apartment.

ADMISSION AND APPLICATION
PROCEDURE
All students who wish to receive WMU credit for study abroad must meet with the Foreign Study Coordinator and fill out the WMU Study Abroad application materials available at the Office of International Affairs.

FINANCIAL AID
Western Michigan University students who are eligible for grants, loans, and scholarships may be able to use most of their sources of aid for all WMU-approved study abroad programs. Scholarships offered by the Office of International Affairs are specifically for foreign study are listed in the scholarships section of this catalog. Students needing financial assistance to participate in overseas programs should consult with the Office of International Affairs and the Office of Student Financial Aid and Scholarships regarding eligibility, process, and deadlines.

INTERNATIONAL WORK AND VOLUNTEER INFORMATION
Students may purchase the International Workcamp and other International Work and Volunteer Information

Summer Institutes
Summer Institutes in “English Language and American Culture,” “Business and American
Society, "Law and American Society," and/or "Technology and American Society," are offered by the Office of International Affairs in cooperation with the Career English Language Center for International Students (CELDIS) each year in June, July, and August. A combination language and lecture program is tailored to the interests and schedule of each group. Subjects covered may include American English, Business English, American national character, history, politics, social issues, international relations, business practices, arts, and music.

The Business, Law, and Technology Programs include visits to factories, offices, and farms, including such places as the General Motors, Nioppon Denso, Pioneer Seed Company, and the Chicago Board of Trade. The extracurricular program includes home visits with American families, a picnic at a Lake Michigan beach, local touring and visits to such places as the President Gerald R. Ford Museum in Grand Rapids and the Henry Ford Museum (Greenfield Village) near Detroit. Summer Institutes are often combined with tours around the United States.

Fulbright Campus Office

The Office of International Affairs is the official campus liaison office with the Council for the International Exchange of Scholars (CIES) and the Institute of International Education (IIE). Information about Fulbright Scholar-in-Residence Grants, Visiting Fulbright Scholars and Occasional Lecturers, Teacher Exchange Programs, and Fulbright Grants for Graduate Study Abroad are made available to faculty members and students. WMU numbers among its faculty more than 25 alumni/albumae of the Fulbright program who have won awards to Argentina, Australia (2), Botswana, Finland, France, Germany (4), India (7), Japan, Peru, the Philippines (3), Romania, Russia, Spain, and Sweden. WMU students have long competed successfully for Fulbright Grants for Graduate Study; recent awards included grants for research in the literature of Bangladesh, study in economics in Columbia, a teaching assistantship in Germany, and archaeology in Italy.

Peace Corps

Western Michigan University is the fourth largest source of Peace Corps volunteers among all colleges and universities in Michigan, according to a report published by the Peace Corps. Since the Peace Corps' founding in 1961, more than 300 WMU graduates have served as volunteers. The Office of International Affairs assists in informational and recruiting activities.

Liaison with International Education Organizations

The Office of International Affairs maintains contact with international administrators and study abroad advisors at other universities, embassies, consulates, and consultants on international education. The office also maintains affiliation with appropriate national and state organizations such as the Association of International Education Administrators, Institute of International Education, the Council on International Educational Exchange, the Association of Collegiate Registrars and Admissions Officers, and NAFSA: the Association of International Educators.

Directly and through constituent units of the University, the Office of International Affairs builds linkages with organizations engaged in providing international services to U.S.-based and foreign clients. It also distributes information about the international programs, activities, and capabilities of Western Michigan University to other institutions, agencies, and government units located in the United States and abroad.

International and Area Studies

Howard J. Dooley, Executive Director
2090 Friedmann Hall
(616) 387-3951

African Studies Program
Sisay Assefa, Advisor

Asian Studies Program
Michitoshi Soga, Advisor

European Studies Program
William Ritchie, Advisor

Latin American Studies Program
Ernest Rossi, Advisor

The International and Area Studies Program, established over thirty years ago with the assistance of a major Ford Foundation grant, serves as the focus of four areas of specialization: African Studies, Asian Studies, European Studies, and Latin American Studies. Every semester, more than 140 courses are offered in International and Area Studies by faculty in 13 departments. The Area Studies programs operate under the aegis of the Office of International Affairs. Detailed descriptions of the major and minor requirements for these programs may be found in the College of Arts and Sciences interdisciplinary programs section of this catalog.

Center for Korean Studies
Andrew Nahm, Director
4063 Friedmann Hall
(616) 387-4636

The Center for Korean Studies, established in 1972, promotes study and research in Korean culture and politics. In cooperation with the Asian Studies Program, it sponsors course offerings in Korean language, history, arts, and government by appropriate departments. The Center publishes books on Korea, holds conferences and seminars on Korea, and organizes summer institutes in Korean studies and study tours to Korea.

Canadian Studies Committee

Office of International Affairs
2090 Friedmann Hall
(616) 387-3951

The Canadian Studies Committee promotes teaching and research in Canadian history, culture, and contemporary affairs. It sponsors course offerings in Canadian subjects, and organizes symposia on Canadian subjects and U.S.-Canadian relations.
The Department of Military Science courses are open to all university students. Courses are intended to develop responsibility, individual confidence, leadership and tactical skills, and to broaden students' knowledge of the role of the military in society. The department offers a four year and a two year Military Science program, which can lead to an officer's commission in the Army Reserve, Army National Guard, or Regular Army upon successful completion of the program. ROTC scholarships are available to students, and a student need not be enrolled in the military science program to compete for the ROTC scholarship.

The chair of the department and all instructors are officers or noncommissioned officers of the United States Army assigned to the department by permission of the University. They administer the military science program and conduct all classes offered by the department. The government provides uniforms for all Advanced Course students as well as additional financial assistance for students in the last two years of the program.

Career Opportunities
Army ROTC increases opportunities for students by giving them options and by developing leadership potential for a civilian and/or military career. To enter the Advanced Course, a student agrees to finish the ROTC instruction, then accept a commission and an assignment in either active or reserve forces duty.

The active duty career option is usually three years for non-scholarship students, and assignment to a leadership position similar to the junior management level in the civilian sector. Starting salary for a second lieutenant on active duty is approximately $23,000, 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; not be 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 Basic Camp, prior military service, or successfully passing all Basic Course academic requirements; be able to pass the Army Physical Fitness Test; be of good character as evidenced by no record of disciplinary problems or civil convictions; not be an alcohol abuser or drug user; and pass a Military Entrance Physical Exam.

Scholarships
Army ROTC has one of the largest scholarship programs in the nation. 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 $450 per year for textbooks; and a tax-free subsistence allowance (up to $1,000) each year the scholarship is in effect. Additionally, WMU provides ROTC scholarship recipients with a $1000 annual incentive award.

Facilities
The department is located in Oakland Gym. With an indoor marksmanship range 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 Oakland Gym by calling 616-387-8120 or 616-387-8116.

Four Year Program
The four year military science program is divided into a Basic Course (first two years) and an Advanced Course (last two years) and is offered as a minor program by the University. Students who participate in the Basic Course are under no obligation to the active Army or the reserves.

Basic Course
The Basic Course is designed to give students a general knowledge of the role of national defense and also provides knowledge of leadership skills needed by military officers. Students completing the Basic Course have an opportunity to be considered for the Advanced Course program and obtain a commission in the active Army or Reserve Components. ROTC students take at least one military science course each semester. First year students normally take MLSC 140 in the fall and MLSC 150 in the winter semester. Sophomore students take MLSC 240 during the fall and MLSC 250 during the winter.

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. Foreign students must contact the chair of the department prior to enrolling in military science courses.

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 $100 per month while school is in session (up to $1,000 a year). The major emphasis of the Advanced Course is the development of individual leadership and military skills. During the junior year, students complete MLSC 340 and 350. Between the junior and senior year, students will receive pay for attending a six-week camp which can qualify for academic credit (MLSC 390). During the senior year, students complete MLSC 440 and MLSC 450. Course work is also required of students in the areas of history, behavioral sciences, written communications, mathematics, and computer science in order to continue the Military Science minor. These courses will be taken in the general education distribution program areas. The Department of Military Science academic advisor should be consulted on the specific courses which satisfy these requirements. Exceptions must be approved by the chair of the department.

Two Year Commissioning Program

For those students who are transferring into the University, graduate students, and currently enrolled students who have not taken military science classes, but desire to be commissioned as a second lieutenant, a two-year program is available. Students enter this program by applying for attendance at no obligation, to a six-week ROTC Basic Summer Camp at Fort Knox, Kentucky. Attendance and successful completion of Basic Summer Camp is substituted for the Basic Course classes. At the basic camp, which can qualify for academic credit (MLSC 290), 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 he or she is 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 $100 per month while school is in sessions (up to $1,000 a year).

Military Science Minors

A department minor slip is required.

FOUR YEAR PROGRAM

Freshman Year
MLSC 140 and MLSC 150 4 hrs.
Sophomore Year
MLSC 240 and MLSC 250 5 hrs.
Junior Year
MLSC 340 and MLSC 350 6 hrs.
Senior Year
MLSC 440 and MLSC 450 5 hrs.

TWO YEAR COMMISSIONING PROGRAM

Prerequisite: Veteran or Basic Camp, or approval of department chair.

Junior Year
MLSC 340 and MLSC 350 6 hrs.
Senior Year
MLSC 440 and MLSC 450 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.
HIST 414 3 hrs.

B. Mathematics
MATH 111 3 hrs.
MATH 116 3 hrs.
MATH 296 4 hrs.

C. Political Science
PSCI 250 4 hrs.
PSCI 350 4 hrs.

D. Psychology/Sociology
PSY 100 3 hrs.
SOC 171 3 hrs.

Military Science Courses (MLSC)

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture-lab hours).

BASIC COURSE

MLSC 140 Military Survival Skills (2-2)
2 hrs. Fall, Winter
Emphasis is placed on outdoor survival skills; including land navigation, survival cooking, cold/wet weather injury prevention, basic first aid, CPR, and physical fitness. An off-campus exercise will put to use skills acquired during the course.

MLSC 150 Military Aspects of National Power (2-2)
2 hrs. Fall, Winter
A study of the factors contributing to national and international power, and an introduction to the principles of warfare and the causes of international conflict.

MLSC 240 Basic Leadership (2-2)
2 hrs. Fall
A study of leadership principles and methods of instruction. Includes a study of the evolution, purpose, and organization of the military.

MLSC 250 Basic Tactics (3-2)
3 hrs. Winter
A study of tactical considerations and employment of small military units to include their movement based on topographic map reading and land navigation techniques.

MLSC 290 Basic Leadership Field Experience
3 hrs. Spring, Summer
A six-week training session designed to supplement campus instruction by providing the cadet practical experience and instruction in tactical and technical subjects with specific emphasis on leadership training in the form of problem analysis, decision-making, and troop-leading experiences. Prerequisites: Approval of department chair.

MLSC 340 Advanced Leadership (3-2)
3 hrs. Fall
Studies of authority and responsibility, communication, leadership fundamentals, planning, counseling skills coordination, and ethical decision-making with emphasis on practical application to military situations. Prerequisite: Approval of department chair.

MLSC 350 Advanced Concepts of Tactical Employment (3-2)
3 hrs. Winter
A study of tactical situations. Development of planning and coordination sequences applicable to the employment of military resources. Prerequisite: Approval of department chair.

MLSC 390 Advanced Military Leadership (3-0)
3 hrs. Fall
A six-week training session designed to supplement campus instruction by providing the cadet practical experience and instruction in tactical and technical subjects with specific emphasis on leadership training in the form of problem analysis, decision-making, and troop-leading experiences. Prerequisites: Approval of department chair.

MLSC 440 Command and Staff (3-2)
3 hrs. Fall
A comprehensive course in the fundamentals of military administrative, logistical, training management, and the Army Officer Evaluation Reporting Systems. Prerequisites: Approval of department chair.

MLSC 450 Military Law, Ethics and Professionalism (2-2)
2 hrs. Winter
Course content includes a survey of military justice, ethics, and professionalism required of military leaders. Prerequisite: Approval of department chair.

MLSC 499 Studies in Military Science
1-4 hrs. Fall, Winter, Spring, Summer
An opportunity for students who have been unable to take military science courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the student. Topics may vary from semester to semester and students may repeat the course. Prerequisite: Approval of department chair.
THE UNIVERSITY CURRICULUM

Dr. Lynne McCauley, Director
Ms. Marilyn Duke, Assistant Director
203 Moore Hall

A Freshman Year Program For Students Who Choose To Explore Academic and Career Options

University Curriculum provides beginning and transfer students who wish to explore academic and career options with advising, assessment, and referral services designed to help them select a curriculum. The program is designed with a sensitivity to students' developmental as well as academic needs.

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

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

- University 101: Freshman Seminar, 1-3 hours
- Arts and Sciences 100: Career Exploration and Development, 1 hour
- Academic Skills Center Programs and Workshops
- Career Exploration and Media Center
- Skills and Interest Assessment
- Specially-designed freshman curriculum options suited to skills and interests.

Course Options

UNIVERSITY (UNV)

UNV 101 Freshman Seminar
1-3 hrs.

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

ARTS AND SCIENCES (A-S)

A-S 100 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. Homework assignments will involve written exercises and research in the Career Media Center. Credit/No Credit.
College Requirements

1. Students who will graduate through the College of Arts and Sciences must fulfill the College's proficiency requirement in a foreign language according to the following schedule:
   - Students currently enrolled in a Bachelor of Arts program in the College of Arts and Sciences will complete the foreign language requirement in effect in the catalog under which they entered.
   - All students entering in Fall 1993 and after who will graduate through the College of Arts and Sciences under the 1993-95 catalog or subsequent catalogs, whether in Bachelor of Arts or Bachelor of Science degree programs, must fulfill a proficiency requirement of at least two semesters of a foreign language. This requirement may be met by (a) attaining an appropriate score in a foreign language placement examination, (b) demonstrating completion of at least two years of any one foreign language in high school, provided that the grade for the last semester of the second year is a "B" or better, or (c) completing two semesters of college level study of any one foreign language with a passing grade.

2. Students who will graduate through the College of Arts and Sciences may use courses offered through Self-Instructional Programs according to the following schedule.
   - The Credit/No Credit option is not applicable to General Education Distribution or proficiency requirements for students who will graduate through an Arts and Sciences curriculum.

Curricula and Majors

For a list of College of Arts and Sciences curricula and majors, see "Undergraduate Curricula and Approved Majors" in the Degrees and Curricula section of this catalog.

Admission to Majors

In order to be admitted to any major in the College of Arts and Sciences, students should apply to the department or program before they have completed 36 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. Students should consult the catalog for other specific requirements for their major and minor.
The Arts and Sciences Curriculum

Bachelor of Arts or Bachelor of Science Degree

The Arts and Sciences Curriculum requires:

1. A major in the College of Arts and Sciences.
2. A minor in any of the colleges of the University.
3. Eight (8) semester hours of a foreign language or two (2) years of a foreign language in high school provided final semester grade is "B" or better, or appropriate score on placement exam.
4. General Education requirement, see General Information section of this catalog.
5. Two (2) hours of Physical Education.
6. University Intellectual Skills, College Writing, Baccalaureate Writing, and Computer Literacy requirements.
7. Electives and/or cognates required by major or minor to make a total of 122 hours.

The staff of Academic Advising Office advises students concerning General Education 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 Arts and Sciences and Liberal Arts Curricula, after they have received their credit evaluation forms from the Admissions Office, should have their transfer courses evaluated for credit toward their General Education and other 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 Arts Curriculum

Bachelor of Arts or Bachelor of Science Degree

1. Seventy (70) hours in the College of Arts and Sciences.
2. One course in Science or Mathematics.
3. One course in Social Sciences.
4. General Education requirement thirty-five (35) hours. Consult the curriculum advisor.
5. Major and Minor in the College of Arts and Sciences.
6. A minimum of fifty (50) hours of 300, 400, or 500 level courses.
7. Sixteen (16) hours of a foreign language or proficiency by exam.
8. General Education requirement thirty-five (35) hours. Consult the curriculum advisor.
9. Major or Minor to make a total of 122 hours.

Other Curricula

For the other curricula offered by the College of Arts and Sciences, see the respective programs on the following pages. Advice regarding these programs may be obtained from the appropriate curriculum advisor listed with each program.

The Academic Advising Office

George H Demetrakopoulos
Norma Hayes
Maria McGurn
2060 Friedmann Hall
387-4366

Students in the Arts and Sciences Curriculum and the Liberal Arts Curriculum should see a college advisor to plan their degree program. The staff of the College of Arts and Sciences Advising Office advises students concerning General Education requirements, 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 Arts and Sciences and Liberal Arts Curricula, after they have received their credit evaluation forms from the Admissions Office, should have their transfer courses evaluated for credit toward their General Education and other 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.

Arts and Sciences

College Courses (A-S)

(Course described in italics is approved for General Education.)

A-S 100 Career Exploration and Development

1 hr. (Credit/No Credit)

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. Homework assignments will involve written exercises and research in the Career Media Center.

A-S 300 Peace and Global Futures

4 hrs.

This multi-disciplinary course focuses on issues related to the prospects of human survival on this planet. The knowledge, methodologies and theories of several disciplines, from the social and natural sciences as well as the humanities, are used to attempt a holistic grasp of the nuclear and environmental threats and of the alternatives facing humankind.

A-S 399 Field Experience

(Community Participation)

2-8 hrs.

A program of independent study combining academic work with social, environmental, civic or political field work. May be used as elective credit only. Prerequisites: A written outline of the student's project, approved by a faculty supervisor, with approval from the office of the Dean.

A-S 501 Studies in American Culture

1-3 hrs.

An interdisciplinary study of perennial issues in American life. The materials for this course are drawn from literature, the arts, the social sciences, philosophy, and religion. This course must be approved by the American Studies Program Advisor.

FOREIGN STUDIES SEMINARS

Students may receive up to 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 any of the course plans indicated here for work done in seminars planned and conducted by other institutions, or for work done independent of seminars planned by the College of Arts and Sciences.

A-S 504 Foreign Studies Seminar

1-6 hrs.

Seminars in the Social Sciences conducted outside the U.S. 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. May be repeated for credit.

A-S 505 Foreign Studies Seminar

1-6 hrs.

Seminars in the Humanities conducted outside the U.S. Students completing such a seminar may receive credit in the departments of Communication, English, Languages and Linguistics, Philosophy, Religion and the departments of the College of Fine Arts, if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.
INTERDISCIPLINARY PROGRAMS

1. American Studies Program
2. Black Americana Studies
3. Criminal Justice Program
4. Environmental Studies Program
5. Integrated Language Arts Minor
7. Medieval Institute Program
8. Science (Group) Major
9. Science and Mathematics Teaching Minor
10. Social Science Major and Minor
11. Women’s Studies Major and Minor
12. World Literature Minor

American Studies Program
Ronald Davis, Advisor
4075 Friedmann Hall (387-4650)

Students in American Studies follow an interdepartmental program bringing to bear the insights of art, music, drama, literature and the social sciences on the problems of American life. A broad-ranging study of American culture can provide an excellent background for students preparing for careers in education, advertising, journalism, research organizations and publishing houses, politics, public relations work in government and industry, the foreign service, mass communications, or law. American Studies also offers perceptive students an opportunity to evaluate the forces shaping their own culture and to assess their personal role in a complex society.

A 3.00 grade point average is generally considered a prerequisite.

MAJOR IN AMERICAN STUDIES
Students majoring in American Studies are expected to complete:
1. At least 36 hours in five approved fields.
2. At least 18 hours in courses numbered 300 or above.
3. At least 12 hours in one participating department.
4. An interdisciplinary course dealing with basic issues in American culture.

Baccalaureate Writing Requirement
Students who have chosen the American Studies major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
HIST 390 Introduction to the Study of History
PHIL 410 Professional Ethics

MINOR IN AMERICAN STUDIES
The Minor requires 20 hours from four approved fields of American Studies and one two-hour interdisciplinary independent study (Arts and Sciences 501). Approval of the advisor is required for entry into the program. Minor slip is required.

Black Americana Studies
LeRoi R. Ray, Jr., Director and Advisor
815 Sprau Tower (616) 387-2664

Leander C. Jones
Benjamin C. Wilson

This interdisciplinary program has a corrective and supportive function to the curricula and services of the University. Its broad design is to penetrate, permeate, and pervade the life of the University. Its more specific aims are to provide every student who comes to the University knowledge and understanding of the role that people of African descent (Black Americans) have played and played in making America what it is. It is retelling the American story.

A minor will consist of the four undergraduate courses (BAS 200, 300, 301 and 314 or 320) and at least 8 hours of departmental courses. A teaching minor will require at least 12 hours of departmental courses. The student will select both the general minor and a teaching (or group) minor in consultation with the Director of Black Americana Studies and an advisor in the student’s major.

BAS 200 Black Presence
3 hrs.
A survey of the impact of the physical presence of people of African ancestry and descent in the Western Hemisphere from the earliest days of the age of exploration to the present. Historically oriented, the course is designed to be interpretative rather than chronological; to deal with Black presence as party to the expansion of Western Europe in the New World; as active participation in setting and developing the colonies; as a people apart or of contrast. How did the presence of Africans influence the development of the life and institutions of the country in Colonial, National and later years?

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

BAS 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 African 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 have shaped to survive in a hostile environment.

BAS 301 Black Experience-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 role of Black Messianic leaders, the migration from the rural-agricultural South to the urban-industrialized North, the emergence of Black Nationalism-Civil Rights Movement and the non-Black backlash. BAS 300 is highly recommended.

BAS 310 The Black Woman: Historical Perspective and Contemporary Status
3 hrs.
This course is an examination of the historical perspective and contemporary status of the Black woman and her story, paying critical attention to her image and role in the American society. The course emphasizes the problems, issues, and concerns of the Black woman. Students will participate in securing visiting Black female speakers and documenting their story as Black women.

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

BAS 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.

MINOR IN AMERICAN STUDIES
Students majoring in American Studies are expected to complete:
1. At least 36 hours in five approved fields.
2. At least 18 hours in courses numbered 300 or above.
3. At least 12 hours in one participating department.
4. An interdisciplinary course dealing with basic issues in American culture.

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Students who have chosen the American Studies major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
HIST 390 Introduction to the Study of History
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MINOR IN AMERICAN STUDIES
The Minor requires 20 hours from four approved fields of American Studies and one two-hour interdisciplinary independent study (Arts and Sciences 501). Approval of the advisor is required for entry into the program. Minor slip is required.

Black Americana Studies
LeRoi R. Ray, Jr., Director and Advisor
815 Sprau Tower (616) 387-2664

Leander C. Jones
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This interdisciplinary program has a corrective and supportive function to the curricula and services of the University. Its broad design is to penetrate, permeate, and pervade the life of the University. Its more specific aims are to provide every student who comes to the University knowledge and understanding of the role that people of African descent (Black Americans) have played and played in making America what it is. It is retelling the American story.

A minor will consist of the four undergraduate courses (BAS 200, 300, 314 or 320) and at least 8 hours of departmental courses. A teaching minor will require at least 12 hours of departmental courses. The student will select both the general minor and a teaching (or group) minor in consultation with the Director of Black Americana Studies and an advisor in the student's major. BAS core courses 200 Black Presence, and 300 and 301 Black Experience, have been approved for General Education credit.

Black Americana Studies Courses (BAS)
(Courses described in italics are approved for General Education)

BAS 200 Black Presence
3 hrs.
A survey of the impact of the physical presence of people of African ancestry and descent in the Western Hemisphere from the earliest days of the age of exploration to the present. Historically oriented, the course is designed to be interpretative rather than chronological, to deal with Black presence as party to the expansion of Western Europe in the New World, as active participation in setting and developing the colonies; as a people apart or of contrast. How did the presence of Africans influence the development of the life and institutions of the country in Colonial, National and later years?

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

BAS 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 African 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 have shaped to survive in a hostile environment.

BAS 301 Black Experience-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 role of Black Messianic leaders, the migration from the rural-agricultural South to the urban-industrialized North, the emergence of Black Nationalism-Civil Rights Movement and the non-Black backlash. BAS 300 is highly recommended.

BAS 310 The Black Woman: Historical Perspective and Contemporary Status
3 hrs.
This course is an examination of the historical perspective and contemporary status of the Black woman and her story, paying critical attention to her image and role in the American society. The course emphasizes the problems, issues, and concerns of the Black woman. Students will participate in securing visiting Black female speakers and documenting their story as Black women.

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

BAS 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 Black Americans to Western Michigan University through the annual W E B DuBois conference.

BAS 350 Blacks in Michigan
3 hrs.
A survey of the significance of Blacks in the making of Michigan history. We will trace the movement of Blacks into Michigan, investigate patterns of settlement, reactions to the émigrés, and the development of the Black families and churches 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.

BAS 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 assist in the conduct and documentation of the proceedings of the annual Black Male-Female Panel Discussion of social issues of special interest to the Black community, including family dynamics, male-female relationships, and strategies for the improvement of those relationships.
BAS 500 Black Humanism
3 hrs.
An examination of the creative dimension of the Black Experience. Isolated and set apart in an enemy environment, Americans of African descent have been very creative in a wide range of human undertakings. The fact has been acknowledged and accepted, but this creativity has not had free range. One of the outcomes of the Black Revolution has been the emergency of “soul” as a concept to label the artistry and artfulness of Black American life. The creative dimension has also included science and technology. Black humanism is a way of getting at the life-styles of Black communities and individuals and the availability of the Black Presence and Experience. What universal elements can be identified in “soul”? What are the unique qualities of “soul”? What would American life and culture be like without this elusive quality?

BAS 510 Multiethnic Education
3 hrs.
This course is designed to prepare teachers and administrators who will work in a multiethnic setting. The course is primarily aimed at helping teachers at any level who teach a social studies component, but teachers of all other subjects, e.g., physical and biological sciences and special education and school administrators will find the course useful. Students will learn how to compile data on the ethnic makeup and resources of the local community, developing instructional packages for use in multiethnic courses and for evaluation materials prepared.

DEPARTMENTAL COURSES
The following courses are related to Black Americana Studies. Students may elect the additional hours necessary to satisfy requirements for a minor or a teaching minor from the following departmental courses. (Please note: Black Americana Studies is interdisciplinary in approach, and students are encouraged to select courses from several fields of study rather than concentrating in one area to satisfy departmental course requirements.)

Anthropology
- 220 Cultural Anthropology 3
- 332 Topics in World Culture Areas: Cultures of Africa 3

Economics
- 201 Principles of Economics 3
- 202 Principles of Economics 3
- 410 Labor Problems 3

English
- 223 Black American Literature 4

History
- 314 American Minorities 3
- 388 African Civilization 3

Political Science
- 341 African Political Systems 4

Religion
- 304 African Religions 4
- 311 Myth and Ritual 4

Sociology
- 200 Principles of Sociology 3
- 314 Ethnic Relations 3

Criminal Justice Program
Ronald C. Kramer, Director
2408 Sangren Hall
(616) 387-5284

Carole J. Rogers, Advisor
2407 Sangren Hall
(616) 387-5286

Criminal Justice is an interdisciplinary curriculum designed to provide perspective on the entire criminal justice system. The program is designed to provide a well-rounded, theoretical, and practical education necessary for careers in criminal justice and/or graduate work in law, criminology, or other areas.

Program requirements: thirty-three hours of core and specialized classes including: Criminology, Criminal Justice Process, Sociology of Law Enforcement, Juvenile Delinquency, Correctional Process, Advanced Criminology, and Criminal Law. Specialized work in juvenile justice, courts, probation, and corrections is available as well as certification as a Michigan police officer.

Curriculum and program details may be found under Sociology/Criminal Justice.

Environmental Studies
Dave Hargreave, Director
240 Moore Hall
(616) 387-2723

Molly Cole, Program Coordinator
239 Moore Hall
(616) 387-2716

The Environmental Studies Program emphasizes the quality of life and encourages action aimed at bringing about an ecologically sustainable way of life. An interdisciplinary program, it provides students with a variety of intellectual and practical experiences that probe thought about humanity and our relationship to the natural environment. Environmental Studies encourages students to devise creative solutions to environmental problems. It offers them the opportunity to prepare for a professional role in an environmentally oriented field, to become an environmental educator, to assume a position of leadership in the area of environmental advocacy, or to develop the attitudes and skills commensurate with a personally fulfilling, environmentally responsible way of living.

Program details and course descriptions for Environmental Studies may be found under the Department of Science Studies located elsewhere in this Undergraduate Catalog.

Integrated Language Arts Minor (ILAM)
Maryellen Hains, Coordinator
924 and 623 Sprau Hall
(616) 387-2627

An interdisciplinary program of COLLEGE OF ARTS AND SCIENCES English COLLEGE OF EDUCATION Education and Professional Development COLLEGE OF HEALTH AND HUMAN SERVICES Speech Pathology and Audiology

This program is not currently accepting applications. This 24-hour interdisciplinary program for preservice elementary school teachers emphasizes the integrated nature of language learning.

The critical importance of fieldwork in the learning of preservice teachers is recognized in the program and is an integral part of each course. Students in the program are encouraged to develop and implement innovative instructional materials and practices based on sound theory.

Each course is taught by a faculty member with interdisciplinary expertise from one of the departments participating in the minor. Each course focuses on a particular aspect of language development which will be presented through a balance of lectures, discussions, and workshops together with opportunities for student-initiated learning.

Students can enter the program in their sophomore year. Application forms are available from The Education and Professional Development Department or from Michele McLaughlin in the English Department, 620 Sprau Tower, phone 387-2570. She can make an appointment with the ILAM Coordinator, Maryellen Hains. Advising hours are Tuesday from 1:30-3:30 in 623 Sprau Tower.

Admission Requirements: GPA of 2.75 or higher; ED 250 Human Development and Learning (or its equivalent); English 282. Children’s Literature (or its equivalent). You must have a minor slip to enroll in classes. Entry courses are only offered in Winter Semester.

Program
This 24-hour interdisciplinary minor for elementary education students consists of the following:

Entry Courses—must be taken concurrently:
- ILAM/SPPA 260 Linguistic Development of the Child 2 hrs.

Intermediate Courses:
- ILAM/ENGL 375 Acquisition of Literacy and the Early Elementary Child 4 hrs.
- ILAM/ENGL 376 Acquisition of Literacy and the Later Elementary Child 4 hrs.

Capstone—to be taken after at least 16 hours of the minor are completed:
- ILAM/ED 460 Integrated Language Arts Seminar 4 hrs.

For individual course descriptions see catalog listings under the participating department.
International and Area Studies

Howard J. Dooley
Executive Director of International Affairs, International and Area Studies

AFRICAN STUDIES PROGRAM
Sisay Asefa, Advisor

ASIAN STUDIES PROGRAM
Michohtso Soga, Advisor

EUROPEAN STUDIES PROGRAM
William Ritchie, Advisor

LATIN AMERICAN STUDIES PROGRAM
Ernest Rossi, Advisor

The International and Area Studies Programs were established by the Trustees and Administration of Western Michigan University as interdisciplinary programs devoted to the study of cultures located geographically outside the continental United States. Coordination of the International and Area Studies Program is provided by the Office of International Affairs.

There are numerous programs that should be of great interest to undergraduate students, each detailed description of each will be found on the following pages of this catalog. In broad outline, these programs of study fall within two categories: (1) undergraduate co-ordinate majors of twenty-four semester hours, and (2) undergraduate minors of fifteen semester hours, including minors approved for the secondary education curriculum. Students who enroll in any of these co-ordinate majors must also enroll in a standard major in any college in the University.

The International and Area Studies Programs are a joint endeavor by faculty and students designed to provide a curricular framework within which to examine, analyze, and—hopefully—understand the peoples and institutions of the world in cross-disciplinary perspective.

The programs seek to provide students with a broad variety of intellectual and experiential stimuli designed to promote an understanding of areas—their history, languages, literature and fine arts, social structures, political processes, major intellectual currents, geography, economic problems, and the relationship of these factors to the role of these nations in the world community. Students enroll in relevant departmental courses including readings and independent studies.

The International and Area Studies Programs are designed for those undergraduate students who plan to pursue careers in international business, education, government, or the professions in which success would be enhanced by an understanding of peoples whose values, traditions, customs and institutions differ markedly from those with which most of us are familiar.

These programs seek to promote the following educational objectives:

1. To assist Western Michigan University students achieve a better understanding of other peoples and institutions.
2. To explore, analyze, and evaluate the impact of specific areas on the course of world events.
3. To stimulate the acquisition of foreign language skills by Western Michigan University students.
4. To provide a forum for the exchange of views between students and faculty concerned with contemporary world affairs.
5. To encourage cross-disciplinary research and study by both students and faculty of issues affecting the contemporary world.

A language is required in some majors. However, any student planning the study of an area at the graduate level or the pursuit of a foreign-related career should obtain as much fluency in a language as possible as an undergraduate. To avoid studying a language only makes the successful pursuit of a related career more difficult.

The International and Area Studies Programs develop and promote opportunities for students enrolled in these programs to study and travel in foreign countries—thereby acquiring firsthand understanding of contemporary conditions while further developing facility in one or more foreign languages. Academic credit earned as a result of study or research undertaken abroad may be accepted toward completion of requirements for the coordinate major or minor.

Students should consult the appropriate area for the development of a program of study and for each registration if necessary.

AFRICAN STUDIES PROGRAM

Coordinate Major
Sisay Asefa (Economics), Advisor
5025 Friedmann Hall
387-5540

The African Studies Program is an interdisciplinary international education program of concentrated study leading to a coordinate major or regular minor in African studies as part of the student’s overall bachelor’s degree program. Its specific aims are to develop a greater appreciation of the rich variety of African cultures and their achievements; to stimulate acquisition of languages spoken in Africa and knowledge about contemporary African affairs; and to provide a forum for the exchange, analysis, and evaluation of information and ideas concerning U.S.—African relations and the importance of Africa in the world.

This program is ideally organized for the student who wishes to take advantage of the Student-Planned Curriculum available at Western. A student who enrolls for the coordinate major in African studies must also have a disciplinary major in any college of the University. The program requires 24 semester hours of courses for the major and 15 semester hours for the minor (24 hours for students enrolled in any curriculum in the College of Education).

Courses for the coordinate major or minor must be taken from the following list of courses and departments. Students must consult the appropriate advisor for guidance in selecting appropriate courses.

*Core Courses
**Only related to African Studies

**Baccalaureate Writing Requirement
Students who have chosen the African Studies coordinate major will satisfy the Baccalaureate Writing Requirement by successfully completing the designated course in their standard major.

**Study Abroad
Core requirements for the African Studies major or minor may be satisfied in part by appropriate course work at African universities or in approved study abroad programs. Consult the Foreign Study Coordinator in the Office of International Affairs for study abroad opportunities in Africa, and the African Studies major or minor advisor for applicability.

AFRICAN STUDIES

MINOR
Undergraduates may choose an interdisciplinary coordinate major in African Studies. This is a double major program. In addition, to fulfilling the requirements of a disciplinary major in any college of the University, the student is required to take 24 credit hours of approved African Studies courses. An African language is not required for this major; however, it is recommended, and training in an African language counts toward the requirements.

**Baccalaureate Writing Requirement
Students who have chosen the African Studies coordinate major will satisfy the Baccalaureate Writing Requirement by successfully completing the designated course in their standard major.

**MINOR
Undergraduates in any college of the University may choose an interdisciplinary minor in African Studies. Fifteen semester hours (24 for students enrolled in education curricula) of approved African Studies courses are required. The minor in African Studies has been approved by the State Board of Education for teacher certification at the secondary education level.

**CORE COURSES

ANTH 220 Cultural Anthropology* 3
ANTH 240 Principles of Cultural Anthropology* 3
ANTH 332 African Studies 3

ASIAN STUDIES PROGRAM

Coordinate Major
Michohtso Soga (International Affairs), Advisor
2092 Friedmann Hall
387-3999

This is a program to acquaint people with Asia as a whole as well as specific topics and areas within the region. “The future is with the Pacific rim,” is a common phrase and this program is designed to suit the individual focus of each student, whether the goal is international business and finance, technological transfer, economic development, cross-cultural negotiations, education, social work or doing graduate work in an Asian related field. There is a wide range of course offerings and a high degree of freedom for the student to study the various complexities and process going on in this region stretching from Mongolia to Australia and Micronesia to the Middle East.

COORDINATE MAJOR
Undergraduates may choose an interdisciplinary coordinate major in Asian Studies. This is a double major program. In addition to fulfilling the requirements of a disciplinary major in any college of the University, the student is required to take 24 credit hours of approved Asian Studies courses. An Asian language is not required for this major; however, it is recommended, and training in an Asian language counts toward the requirements.

**Baccalaureate Writing Requirement
Students who have chosen the Asian Studies coordinate major will satisfy the Baccalaureate Writing Requirement by successfully completing the designated course in their standard major.

**MINOR
Undergraduates in any college of the University may choose an interdisciplinary minor in Asian Studies. Fifteen semester hours (24 for students enrolled in education curricula) of approved Asian Studies courses are required. The minor in Asian Studies has been approved by the State Board of Education for teacher certification at the secondary education level.

**CORE COURSES

ANTH 220 Cultural Anthropology* 3
ANTH 240 Principles of Cultural Anthropology* 3
ANTH 332 Topics in World Cultural Areas* 3
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**EUROPEAN STUDIES PROGRAM**

**Coordinate Major**

William Ritchie (Political Science), Advisor
3025 Friedmann Hall
387-5698

The courses for this program concentrate on the European area. They are drawn from thirteen departments of the University which offer subject matter focused on the European area. The program is designed to appeal to those students who have an interest in Europe and wish to transcend the disciplinary boundaries of any one example of study. The European Major must be undertaken in conjunction with a disciplinary major and is designed to broaden the student’s outlook on the European area in general. Students are encouraged to concentrate on one of the major cultural-linguistic regions of Europe. For those students who have a broad interest in European culture and its institutions, and who do not wish to specialize in one of the major area complexes, there is the general option.

1. A minimum of 24 hours will be required for the completion of the coordinate major in European Studies. The European Studies coordinate major will be offered in the following options concerning these specific areas:
   - British Studies—Professor Dale Patterson (Department of History)
   - Germanic Studies—Professor Johannes Kissel (Department of Languages and Linguistics)
   - Romance Studies—Professor Joseph G. Reish (Lee Honors College)
   - Slavic Studies—Professor Dasha Nisula (Languages and Linguistics)

2. Students are encouraged to consult the area advisors in the field of their interest. Their tentative program worked out by the area advisors should be brought to the European Studies Program advisor for audit and final signature. Interested students can also approach the advisor for European Studies directly.

3. Each regional option will require 8 hours of an appropriate language. Language study can be undertaken in the Department of Languages and Linguistics and through the European Studies Program advisor.

4. Candidates for coordinate major degree may have this requirement waived.

5. The remaining hours are elective with the requirement that they have relevance to the European area and are to be selected in consultation with the student’s advisor. Students who elect the general option of the coordinate major must select an advisory committee. The committee shall consist of the European Studies advisor, or an advisor pertinent to the student’s general option, and a third member to be jointly agreed upon by the student and the European Studies advisor.

**Baccalaureate Writing Requirement**

Students who have chosen the European Studies coordinate major will satisfy the Baccalaureate Writing Requirement by successfully completing the designated course in their standard major.

**MINOR**

Fifteen semester hours taken from the list of European Studies courses are required for completion of a minor concentration in European Studies. Eight hours of language and one course, drawn from each of two disciplines listed in the core, will be part of the requirements. The language requirement can be waived only by written approval of the European Studies advisor. In case the student obtains permission to waive language, the required hours will be drawn from an appropriate list of core courses by the European Studies advisor.

**Study Abroad**

The European Studies major or minor in any of the options may be satisfied in part by appropriate course work at European universities or in approved study abroad programs. For example, the “European Culture and Society Program” at the University of Leuven, Belgium may be awarded a “Diploma of European Studies” by Leuven as well as earn credits towards their WMU program. Consult the Foreign Study Coordinator in the Office of International Affairs for study abroad opportunities in Europe, and the European Studies major/minor advisor for applicability.

**British Studies**

Dr. Dale Patterson (History), Advisor
British Studies Program
4006 Friedmann Hall
387-4639

Dr. William Ritchie (Political Science), Advisor
European Studies Program
3025 Friedmann Hall
387-5698

The Coordinate Major in British Studies is designed to complement, not substitute for, conventional major programs in the various colleges of the University. Undergraduate students having a strong interest in Britain may pursue an interdisciplinary curriculum tailored by the student and the advisor to further the student’s interests and career needs. Twenty-four credit hours must be selected from several of the thirteen departments participating in the program. More than forty separate courses constitute the total British Studies option of the European Studies Coordinate Major-Minor Program.

The Coordinate Minor program in British Studies may be chosen by the student in consultation with the advisor. A minimum of 15 credit hours of approved British Studies courses must be accumulated successfully. Courses in British Studies currently approved for inclusion in the list below are students should consult with the advisor as to additions or changes.

**A-S 504-505 Foreign Studies**


**ECON 484 Comparative Economic Systems**

3

**ENGL 252 Shakespeare**

4

**ENGL 340 Development of English**

4

**ENGL 442 The British Novel**

4

**ENGL 532 English Renaissance Literature**

4

**ENGL 534 Restoration and 18th Century Literature**

4

**ENGL 536 19th Century British Literature**

4

**ENGL 538 French Literature**

4

**ENGL 593 Eastern and Southern Asia**

3

**HIST 302 History of England**

3

**HIST 308 Japanese History**

3

**HIST 320 Chinese History**

3

**HIST 334 Pacific Rim—Asian Tradition**

3

**HIST 345 Modern China**

3

**HIST 347 Modern Japan**

3

**HIST 348 Modern Korea**

3

**HIST 350 Japanese Religion**

3

**HIST 351 Chinese Religion**

3

**HIST 352 Modern World**

3

**HIST 353 Western and Southern Asia**

3

**HIST 444 The British Novel**

4

**HIST 445 Critical Concepts in Literature**

4

**HIST 542 Modern Middle East**

3

**HIST 543 Modern Middle East History**

3

**HIST 545 Modern Middle East Subregions**

3

**HIST 546 Modern Middle East Political Systems**

3

**HIST 547 Modern Middle East Social Systems**

3

**HIST 548 Modern Middle East Economic Systems**

3

**HIST 549 Modern Middle East Cultural Systems**

3

**HIST 550 Independent Study**

3
In addition to the above courses many departments offer seminars, independent study, and variable topics courses which may be included in this program when they concentrate on the British Isles.

**Germanic Studies**

**Dr. Johannes Kissel (Languages and Linguistics), Advisor**

**Germanic Studies Program** 419 Sprau Tower 387-5698

Students in Germanic Studies usually combine a major in a regular academic discipline with a broader study of the culture, history, literature, politics, geography, and economics of the Germanic areas of Europe. Travel and study in the particular areas are encouraged whenever possible. Study abroad opportunities, including exchange programs with German universities, are made available through The Office of International Affairs.

The **Coordinate Major** in Germanic Studies must be combined with a major in a conventional academic discipline such as language, art, music, political science, history, or business. It consists of 24 credit hours which the student chooses together with an advisor from over forty courses in thirteen departments. Eight credit hours or the corresponding knowledge of German or another Germanic language are required together with the three core courses listed below.

The **Coordinate Minor** may be used to supplement conventional majors or as a minor. It consists of 15 credit hours. Eight hours or the corresponding knowledge of German or another Germanic language are required together with two core courses drawing from the list below.

**CORE COURSES**

**GEOG 383 Western and Southern Europe** .................................. 3

**HIST 460 Europe Since 1945** .................................................... 3

**PSCI 340 West European Political Systems** .................................. 4

**A SELECTION OF GERMANIC STUDIES COURSES**

**A-S**

504 - 505 Foreign Studies Seminars ............................................ 1-12

**ART**

221 History of Art ............................................................... 3

**ART**

585 History of Renaissance Art ................................................ 3

**ART**

586 History of Baroque Art ..................................................... 3

**ART**

597 History of Modern Architecture ........................................... 3

**ECON**

484 Comparative Economic Systems ............................................ 3

**ENGL**

410 Norse Literature and Mythology in Translation ........................ 4

**GER**

200 -201 Intermediate German .................................................. 8

**GER**

316 German Composition ........................................................ 3

**GER**

317 German Conversation ......................................................... 3

**GER**

322 German Life and Culture .................................................... 3

**GER**

477 Foreign Study ................................................................ 1-16

**HIST**

566 Studies in Modern European History .................................... 3

**HIST**

644 Early Medieval History ....................................................... 3

**HIST**

445 Later Medieval History ........................................................ 3

**HIST**

458 Europe 1919-1945 .............................................................. 3

In addition to the above courses many departments offer seminars, independent study, and variable topics courses which may be included in this program when they concentrate on Germanic areas.

**Romance Studies**

**Dr. Joseph G. Reish (Lee Honors College), Advisor**

**Romance Studies Program** Lee Honors College 387-3230

Dr. William A. Ritchie (Political Science), Advisor

**European Studies Program** 3025 Friedmann Hall 387-5698

Romance Studies is a coordinate major or minor program emphasizing an interdisciplinary approach to the study of France, Italy, and Spain. Its aim is to present an integrated course of instruction in the arts, sciences, and philosophies of these modern-day nations linguistically and culturally linked to ancient Rome.

The program offers a variety of options to the student interested in broadening his/her knowledge of the cultural life of Western Europe. Courses may include music, political science, history, and Romance languages (French, Italian, and Spanish). A student selects a program of study in consultation with the Romance Studies Advisor.

The **Coordinate Major** in Romance Studies (24 credit hours) is to be taken in conjunction with a standard academic major, such as accounting, English, or dance. The **Coordinate Minor** in Romance Studies (15 credit hours) may be pursued independently of any other University minor. Romance Studies enhances the student’s overall academic program by giving it a global perspective. Knowledge about the world community can be useful in future employment and travel.

The Coordinate Major consisting of 24 credit hours must include three core courses as well as 6 credit hours (or equivalent knowledge) of a Romance language above the 100-101 basic level. To complete the major or minor the student chooses from the list of optional courses.

**CORE COURSES**

**GEOG 383 Western and Southern Europe** .................................. 3

**HIST 460 Europe Since 1945** .................................................... 3

**PSCI 340 West European Political Systems** .................................. 4

**OPTIONAL COURSES**

**A-S**

504 - 505 Foreign Studies Seminars ............................................ 1-12

**ANTH**

333 Cultures of Europe .............................................................. 3

**ART**

225 - 222 History of Art ......................................................... 6

**ART**

585 History of Renaissance Art .................................................. 3

**ART**

586 History of 19th Century Art ................................................ 3

**ART**

589 History of 20th Century Art .................................................. 3

**ART**

590 History of 20th Century Art, 1945-present ................................ 3

**ECON**

484 Comparative Economic Systems ............................................ 3

**ENGL**

442 Modern Drama ................................................................ 4

**FREN**

200 - 201 Intermediate French .................................................... 8

**FREN**

316 French Composition ............................................................. 4

**FREN**

317 French Conversation ............................................................ 4

**FREN**

322 French Civilization ............................................................... 3

**FREN**

328 - 329 Introduction to French Prose, Poetry and Drama .......... 6

**FREN**

344 Summer Study in France ...................................................... 4

**FREN**

477 Foreign Study ................................................................ 1-16

**HIST 452 The French Revolution and Napoleon** .................................. 3

**HIST 456 Europe 1815-1871** ..................................................... 3

**HIST 457 Europe 1871-1919** ..................................................... 3

**HIST 458 Europe 1919-1945** ..................................................... 3

**HIST 468 Topics in European History** .................................... 1-3

**HIST 565 Studies in Modern European History** .................................. 3

**LANG**

375 Foreign Literature in English Translation (French, German, and Spanish) .................................................. 3

**MKTG**

575 International Marketing ........................................................ 3

**MUS**

270 - 271 Music History and Literature ...................................... 6

**MUS**

372 Baroque Music (1600-1750) .................................................. 2

**MUS**

573 Classical Music ................................................................ 6

**MUS**

574 Romantic Music ................................................................ 3

**PHIL**

301 History of Modern Philosophy ............................................ 4

**PHIL**

303 Existentialist Philosophies ..................................................... 4

**PHIL**

307 Phenomenology ................................................................ 4

**PSCI**

541 Comparative Political Systems ............................................. 3

**PSCI**

549 Problems of Foreign Political Systems .................................. 3 or 4

**PSCI**

555 International Law ................................................................. 3

**REL**

305 The Christian Tradition ......................................................... 4

**SPAN**

200 - 201 Intermediate Spanish .................................................. 8

**SPAN**

316 Spanish Composition ............................................................. 3

**SPAN**

317 Spanish Conversation ............................................................ 3

**SPAN**

322 Life and Culture of Spain ...................................................... 3

**SPAN**

325 Introduction to the Study of Spanish Literature .................. 3

**SPAN**

477 Foreign Study ................................................................ 1-16

In addition, departments frequently offer seminars, independent studies, and variable topic courses with direct emphasis on the political, economics, and cultural life of France, Italy, and/or Spain. Students are strongly encouraged to participate in study abroad programs, many of which are sponsored by the Office of International Affairs.
The balance of the courses must be taken from the electives listed under the major.

LATIN AMERICAN STUDIES PROGRAM

Coordinate Major
Ernest Rossi (Political Science), Advisor
3015 Friedmann Hall
387-3005

Students enrolled in this coordinate major must select at least 24 hours from core and elective courses available from the program advisor. Students must demonstrate intermediate-level proficiency in Spanish or Portuguese.

Students wishing to enroll in the Latin American studies coordinate major should make this intention known to the Latin American studies advisor by no later than the first semester of their junior year—and preferably earlier.

Honor Certificate Program A Certificate in Latin American Studies will be awarded from Western Michigan University on graduation to those who have completed the 24-hour coordinate major requirements as well as an oral and written examination by three members chosen from the Latin American Studies Committee.

A grade point average of 3.50 and intermediate level proficiency in Spanish is a prerequisite in this program. The certificate is designed for students whose interest in Latin America goes beyond the usual academic programs. The program is flexible and independent study of the major and East European geographical area.

A student who enrolls in the Coordinate Major in Slavic Studies must take at least 24 credit hours of coursework distributed as follows:

REQUIRED COURSES — All students must take the following:
RUSS 200 Intermediate Russian I 4
RUSS 201 Intermediate Russian II 4
RUSS 310 Russian Civilization 3

ELECTIVE COURSES — The remaining 13 hours are to be taken from among the following courses and/or others as approved by a Slavic Studies advisor.
ECON 484 Comparative Economic Systems 3
ENGL 510 Special Topics in Literature 3
GEOG 384 Post-Soviet States 3
HIST 466 Latin America Since 1855 3
HIST 466 Russian Since 1855 3
LANG 375 Foreign Language in English Translation 3
PSCI 344 Russian and East European Politics 3
PSCI 548 Political Change in Russia 3
RUSS 344 Summer Study in the Soviet Union 4
RUSS 477 Foreign Study 1-16

The Coordinate Minor in Slavic Studies requires at least 15 credit hours (24 for students in the SED Curriculum) as follows:

REQUIRED COURSES
RUSS 100 Basic Russian I 4
RUSS 101 Basic Russian II 4

The balance of the courses must be taken from the electives listed under the major.

INTERDISCIPLINARY PROGRAMS

SPAN 477 Foreign Study 1-16
SPAN 528 Survey of Spanish 3
SPAN 529 Survey of Spanish 3
598 Special Study (Various departments) 3
* Must consult Latin American Studies advisor

Study Abroad
Core requirements for the Latin American Studies major or minor may be satisfied in part by appropriate coursework at Latin American universities or in approved study abroad programs. Participants must consult the Foreign Study Coordinator in the Office of International Affairs for study abroad programs in Latin America, and the Latin American Studies major/minor advisor for applicability.

The Medieval Institute
Ott Gründler, Director and Advisor

Knowledge of Medieval and Renaissance culture is being increasingly recognized as essential to an understanding of modern culture. The Medieval Institute, established by the University to develop and coordinate interdisciplinary programs in medieval and Renaissance studies, in addition to an undergraduate minor, offers a graduate program leading to a 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.

The headquarters of the Medieval Institute is in the Walwood Hall.

MINOR PROGRAM
Students with an undergraduate minor must elect at least 20 hours to include the following:
1. One history course chosen from the approved list.
2. One literature course chosen from the approved list.
3. One course in intellectual history, philosophy, or religion chosen from the approved list.

Electives from the approved list with the approval of the advisor.

APPROVED COURSES

ART
220 History of Art (to the Renaissance) 3
520 Independent Study in Art 2-3
583 History of Medieval Art 3
585 History of Renaissance Art 3

ARTS AND SCIENCES
504 Foreign Studies Seminar: Social Sciences 1-6
505 Foreign Studies Seminar: Humanities 1-6

ENGLISH
252 Shakespeare 4
372 Development of Modern English 4
452 Shakespeare Seminar 4
Medieval Courses (MDVL)
(Course described in italics is approved for General Education.)

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 ideas and values of modern Western culture as they are expressed and exemplified in the images of medieval heroes and their contemporaries.

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 introduce students why one needs to utilize a variety of disciplines to understand a single complex problem, and how to put traditional buildings 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.

Group Science Majors
Group majors are intended for students in the middle school and junior high school curriculum. For information contact the College of Arts and Sciences Advising Office, 2060 Friedmann Hall (616) 387-4366.

The group science major in the Middle School and Junior High School Curriculum will include 12-13 hours of Biological Science, 11-12 hours of Earth Science and 12 hours of Physical Science. A total of 36 hours is required. The following courses are recommended:

Biology
BIOS 101 Animal Biology 3
BIOS 102 Plant Biology 3
One of the following:
BIOS 301 Ecology 3
BIOS 211 Human Anatomy 3
BIOS 220 Applied Botany 3
BIOS 234 Outdoor Science 3
BIOS 250 General Genetics 3
BIOS 541 Invertebrate Zoology 3
Earth Science
GEOG 105 Physical Geography 3
Two of the following:
GEOG 130 Physical Geology 3
GEOG 131 Earth History and Evolution 3
GEOG 300 Oceanography 3
GEOG 301 Minerals and Rocks 3
GEOG 225 Intro to Meteorology and Climatology 3
GEOG 350 Principles of Conservation and Environmental Management 3

Physical Science
One of the following:
PHYS 107 and 108 General Physics 5
PHYS 113 and 114 General Physics I and Physics Lab 5
One of the following:
CHEM 101 General Chemistry I 4
CHEM 162 General Chemistry I 4
CHEM 103 General Chemistry I 4
CHEM 140 Environmental Chemistry 4
One of the following:
CHEM 120 General Chemistry II 4
PHYS 115 and 116 General Physics II and Physics Lab 5
PHYS 104 Astronomy 3
Minimum Total 36

RELATED COURSE OFFERING
PHYS 308 Teaching of Physical Science 3 hrs.
(See Department of Physics)

Science and Mathematics Teaching Minor
Advisor: College of Education
Office of Admissions and Advising
2504 Sangren Hall

This minor is open only to students enrolled in the elementary education curriculum. Transfer students will need to have their previous coursework in sciences 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 and Statistics.

Because of the interdisciplinary nature of this minor, one course must be selected from each of the three science areas.

A. REQUIRED SCIENCE (Select one course from each area. Courses approved for general education are marked with an *)

**BIOS 107 Biological Science 4**
**BIOS 234 Outdoor Science 4**

Biological
**CHEM 120 General Chemistry I 4**

Earth Science
**GEOG 105 Physical Geography (section for elementary education minors) 4**

Physical Science
**CHEM 200 Chemical Science in Elementary Education 4**
**SCI 131 Physical Science in Elementary Education 4**

B. REQUIRED MATHEMATICS
**MATH 151 Geometry for Elementary Teachers (Prerequisite: MATH 150) 3**
**MATH 265 Probability and Statistics for Elementary Teachers 4**
GROUP SOCIAL SCIENCE MAJOR

This major provides an interdisciplinary experience in the social sciences.

Requirements include:
1. At least 36 hours credit in the College of Arts and Sciences from the departments of anthropology, economics, history, political science, and sociology.
2. The following basic courses must be completed. They may be applied towards either the social science major or a minor in one of the departments.
   - ANTH 210 or 240
   - ECON 201 and 202
   - HIST 210 and 211
   - PSCI 200
   - SOC 200
3. A total of 9 hours credit in 300 to 500 level courses.
4. No more than 16 hours credit in any one social science department may be used to apply to the required total of 36 hours.

Baccalaureate Writing Requirement

Students who have chosen the Group Social Science major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:
- ANTH 490 Writing Culture
- ECON 484 Comparative Economic Systems
- HIST 390 Introduction to the Study of History

GROUP SOCIAL SCIENCE MINOR (non-teaching curricula)

Requirements include:
1. At least 24 hours credit in anthropology, economics, history, political science, or sociology, including at least six (6) hours in courses at the 300-level or above.
2. The minor must include the same basic course selection as the group social science major listed above.

GROUP SOCIAL SCIENCE MINOR (elementary education and middle school/junior high school curricula)

At least 24 hours of credit from courses listed below, with no grade lower than "C," including at least 12 hours at the 300-level or above. At least one course must be chosen from each of the following groups:
1. ECON 100, 201, 202
2. PSCI 200, 202, 203, 300, 310
3. ANTH 110, 501, HIST 100, 101, 102
4. HIST 210, 211, 250, 315, 412, 416
5. BAS 200, 301, SOC 200, 320, 390
6. ANTH 220, ECON 490, 588, HIST 313, 370, 385, PSCI 250, 343, 350
7. GEOG 102, 105, 205, 311

GROUP SOCIAL SCIENCE MINOR (secondary education curriculum)

For advising in the secondary education group social science minor contact the academic advisor in your MAJOR department.
1. This minor is open only to, and is required of, students in the secondary education curriculum majoring in anthropology, economics, geography, history, political science, and sociology. It must contain at least 28 hours of credit in these departments, with no grade lower than "C" counted toward the minor.
2. The following basic courses must be completed. Where applicable they must be included in the student’s departmental major:
   - ANTH 120 or 220 or 240
   - ECON 201 and 202
   - GEOG 102 or 105 or 205
   - HIST 210 and 211
   - PSCI 200
   - SOC 200
3. Remainder of the minor must be chosen from courses in the above departments, and must include at least six (6) hours of credit at the 300-level or above. The minor may not include course work from the department in which the student majors. Courses included in the minor beyond the basic requirements listed above must be approved by the student’s major advisor.
4. Course work for the minor at the 300-level or above must be completed within ten years prior to the directed teaching experience. Exceptions may be granted only by the student’s departmental major advisor. Post-baccalaureate students in the minor must also meet the University computer literacy requirement.

ADDITIONAL SOCIAL SCIENCE PROGRAMS

Two additional interdisciplinary social science programs are available through the Division of Continuing Education listed under General University Studies Curriculum. The first is social science studies—interdisciplinary, the second is criminal justice. The latter program is designed for students possessing an Associates Degree in Criminal Justice, Law Enforcement, or Police Science from a community college who desire the bachelor's degree in this field.

For more detailed information see a description of these programs in the Undergraduate Catalog under the heading “Division of Continuing Education” or contact one of the Western Michigan University Regional Centers in Battle Creek, Benton Harbor, Grand Rapids, Lansing, or Muskegon.

Women's Studies Programs

Women's Studies courses are open to all students and may fulfill general education, major, and elective requirements. The Women's Studies Program encourages the development of students of a spirit of inquiry and teaches approaches to thought and action that will prepare students to function effectively in a rapidly changing society. The organizing principle of the field is the concept of gender as a social construction, equally important are the categories of ethnicity, race, class, age, sexual identity, and nationality, and gender is always investigated within this context.

Women's Studies emphasizes connections among disciplines and interdisciplinary methods for investigating issues related to women and gender. Course work encourages students to develop their critical skills and creative potential, and to become advocates for expanded opportunities for all women.

The Women's Studies coordinate major requires a minimum of twenty-four credit hours in the major to be taken in conjunction with a disciplinary major. Course work in the Women's Studies major includes an interdisciplinary core consisting of an introductory course, intermediate courses focusing on methodology and theory, and concluding courses offering a capstone or practical experience. Further course work is to be selected from the approved Women's Studies list in consultation with the Women's Studies advisor.

The Women's Studies minor brings an additional perspective to any field of study and consists of sixteen hours of course work including two required Women's Studies courses and others selected in consultation with the Women's Studies advisor.

COORDINATE MAJOR (24 hours)

Required Courses

WMS 200 Introduction to Women's Studies

WMS 300 Working Women, Past, and Present

or

WMS 310 Women and Social Institutions

WMS 401 Foundations of Feminist Theory

WMS 500 Seminar in Women's Studies

or

WMS 510 Internship Seminar

The following selected from WMS approved courses at the 300 or 400 level. At least:
- One course in Black Americana, Ethnic, or Non-western World (with departmental approval of topic)
- One course selected from the Women's Studies list in Humanities or Arts
- One course selected from the Women's Studies list in Social Sciences or Sciences

MINOR (16 hours)

Required Courses

WMS 200 Introduction to Women's Studies

WMS 401 Foundations of Feminist Theory
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 345 Topics in Anthropology: Gender Issues (variable) . . . . .3

COM 479 Female/Male Interaction . . . . .3

CRT 205 Topics in Consumer Resources and Technology: Women and Health (variable) . . . . .3

CRT 210 Sex Education—An Introduction to Human Sexuality . . . . .3

ENGL 111 Contemporary Topics in Literature: Man, Woman, and Marriage in Literature (variable) . . . . .4

ENGL 416 Women in Literature . . . . .4

GENL 305 Non-Western Societies in the Modern World . . . . .4

SCI 133 Issues in Social Biology . . . . .4

HIST 316 Women in American History . . . . .3

HIST 336 Women in European History . . . . .3

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

PHIL 314 Philosophy and Public Affairs (variable) . . . . .4

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

PSCI 341 African Political Systems . . . . .4

PSY 424 Introduction to Human Sexuality . . . . .3

REL 511 Women and Religion . . . . .4

SOC 190 Men and Women in Contemporary Society . . . . .3

SOC 495 Topics in Sociology and Criminal Justice (variable) . . . . .3

SOC 510 Studies in Social Problems (variable) . . . . .3

SWRK 564 Special Studies: Women and Therapy (variable) . . . . .3

WMS 401 Foundations of Feminist Theory 3 hrs.

WMS 410 Special Topics in Women’s Studies 3 hrs.

WMS 510 Internship Seminar 3 hrs.

WMS 550 Contemporary Feminist Theory 3 hrs.

WMS 598 Readings in Women’s Studies 3 hrs.

Women’s Studies Courses (WMS)

(Courses described in italics are approved for General Education.)

WMS 100 Media and the Sexes 3 hrs.
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 hrs.
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 recognize the diversity and similarity of women’s experience across class, racial and ethnic groups.

WMS 300 Working Women, Past and Present 3 hrs.
Analysis of the social significance of women’s work in the United States. Emphasis is on the history of working participation in the paid labor force, with consideration of women’s changing role in the family and society.

WMS 310 Women and Social Institutions 3 hrs.
An interdisciplinary analysis of the impact of social institutions on women and women’s impact on institutions. Focus is on change in such social institutions as education, law, medicine, the media, business and politics.

World Literature Minor

William Combs, Department of English, Advisor
Robert Felkel, Department of Languages and Linguistics, Advisor

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

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 Languages and Linguistics, 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 concerns 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 Languages and Linguistics 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 Languages and Linguistics (410 Sprau: 387-3001).

REQUIREMENTS

1. Twenty hours, with the following distribution:

   ENGL 312 Western World Literature . . . . .4
   ENGL 313 Asian Literature . . . . .4
   ENGL 314 African Literature . . . . .4

2. Two courses selected from the following list:

   ENGL 210 Film Interpretation . . . . .4
   ENGL 252 Shakespeare . . . . .4
   ENGL 312 Western World Literature, if not used under Requirement (1) . . . . .4
   ENGL 313 Asian Literature, if not used under Requirement (1) . . . . .4
   ENGL 314 African Literature, if not used under Requirement (1) . . . . .4
   ENGL 315 The English Bible as Literature . . . . .4
   ENGL 410 Special Topics in Literature (If the topic is appropriate it may be approved by the minor advisor) . . . . .4
   ENGL 442 Modern Drama . . . . .4
   ENGL 510 Special Topics in Literature (If the topic is appropriate it may be approved by the minor advisor) . . . . .4
   ENGL 530 Medieval Literature in English . . . . .4
   ENGL 538 Modern Literature . . . . .4
   ENGL 555 Studies in Major Writers (If the authors studied are appropriate, this course may be approved by the minor advisor) . . . . .4
ENGL 598 Readings in Spanish

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-American Literature in English Translation 3

LANG 375 Classical Literature in English Translation 3

LANG 450 Classical Greek and Roman Mythology 3

PERMISSIBLE SUBSTITUTIONS FOR REQUIRED COURSES

With the approval of a minor advisor, students may:

1. Substitute one of the following courses for one course listed above in either Requirement 2 or Requirement 3:
   THEA 370, 371, Theatre Backgrounds I, II 3
   THEA 570 Devel. of Theatre Arts 3

2. Substitute an advanced literature course in a foreign language for one of the courses listed above in either Requirement 2 or Requirement 3.

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.

AMERICAN STUDIES PROGRAM

See “Interdisciplinary Programs” in the College of Arts and Sciences.

ANTHROPOLOGY Courses (ANTH)

(Courses described in italics are approved for General Education.)

ANTH 100 Human Origins 3 hrs.

The nature, causes and prospects of being human as seen through an examination of the events and processes of biocultural evolution.

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 general survey of the rich variety and types of traditional and contemporary societies in major culture areas of the world, such as hunting and gathering peoples, nomads, small-scale versus large-scale societies, and Non-Western kingdom states. Intended as a general introduction to the field of ethnography, with emphasis on detailed descriptions of representative societies.

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

The science of archaeology is explored in terms of the methods and concepts used to discover and interpret past human behavior. Select portions of the Old and New World prehistoric cultural sequences provide the frame of reference.

ANTH 220 Cultural Anthropology 3 hrs. Fall, Winter.

A survey of the role and relevance of “culture” in various societies throughout the world, with emphasis on the nature and function of particular cultures and their interrelationship with environment, society, and the individual. (Does not count for anthropology major/minor program.)

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

An introduction to the basic concepts, theoretical approaches, and methodological strategies employed in the study of traditional and contemporary sociocultural systems throughout the world. Attention given to research techniques and the insights derived from detailed case studies and cross-cultural comparisons. (Course intended as general introduction to the field for anthropology majors and minors, combined sociology/anthropology majors, social science and Honors College students.)

ANTH 250 Introduction to Physical Anthropology 4 hrs. Fall, Winter.

A survey of physical anthropology, hominid and primate evolution, the living primates, human osteology, human genetics and population variation.

ANTH 300 The Prehistory of North America 3 hrs.

A survey of the major prehistoric cultures of North America north of Mexico, including American Indian origins, early big-game hunters of the Great Plains, ecological adaptations of the Archaic stage, the complex burial mound and temple mound cultures of the East, and prehistoric Pueblo cultures of the Southwest. Prerequisite: ANTH 110 or 210.

ANTH 305 World Prehistory 3 hrs.

The wide range of human experience lying beyond the reach of history is explored. Cultural sequences created by archaeologists...
and prehistorians for many regions of the world to illuminate the changing relationships between and within human societies and their biophysical and social environments over time will provide the frame of reference for the examination of selected topics in human prehistory. Prerequisite: ANTH 110 or 210.

ANTH 332 Topics in World Culture Areas 3 hrs.
A study of the major non-Western traditions of the world, such as those of North Africa and the Middle East, Sub-Saharan Africa, and Asia. Each offering covers major cultural configurations, e.g., rural-urban, peasant-nomad, great civilizations-tribal organizations. Emphasis will be on the unity and diversity, tradition, and changes of peoples and cultures in the developing world. Topics will be announced each semester. May be repeated for credit with different topics.

ANTH 345 Topics in Anthropology
3 hrs.
An intensive study of selected topics or emerging fields in anthropology. Topics will vary each semester and will be announced each semester. May be repeated for credit with different topics.

ANTH 346 Microcomputers in Anthropology
3 hrs.
The use and application of microcomputer programs in anthropology and social science research, with practical instruction and experience in utilizing a number of software packages specific to portable, disk-based microcomputers, such as: word processing, statistical and multi-variate analysis, data base management, and communication with other computers and network systems via a modem. Emphasis given to learning program commands for purposes of customizing software packages for specific research tasks. Students will be expected to implement one or more software packages as part of their current research activities. Prerequisite: computer literacy or consent.

ANTH 350 Human Evolution
3 hrs.
Study of both the indirect evidence and the fossil evidence concerning human evolution, including comparison with other primates, living and extinct, and a consideration of the present human variation. Prerequisite: ANTH 250 or consent of instructor.

ANTH 360 Sex, Gender, Culture
3 hrs.
Sexual differences around the world are culturally constructed 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 of men and women in different culture settings.

ANTH 370 Culture and Communication
3 hrs.
A consideration of the nature and role of various symbolic systems of communication, especially non-verbal, such as food, dress, art forms, use of space, mythology and folklore. Introduces a general introduction to such fields as semiotics, proverbs, aesthetics, folklore analysis, structuralism, ethnosemantics, and modern linguistic theories of communication as they relate to cultural systems of cognition and social organization.

ANTH 490 Writing Culture
4 hrs.
A survey of the role of scientific description in anthropological knowledge, involving critical examination of select classic monographs. Issues include: how are anthropological texts constructed; what kinds of explanation are sought, and how to explain them write in order to convey credibility for both their descriptions and interpretations of other cultures. Course designed to meet baccalaureate-level writing requirement.

ANTH 498 Honors Study
2 hrs.
A program of independent study (reading or research) to provide the honors student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the Department. May be repeated once. Permission to register must be obtained from the department chair.

The prerequisites to 500-level courses: junior status and 12 hours of coursework in anthropology or consent of instructor. There may be specific prerequisites to individual courses.

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. The specific area or areas to be studied will be announced each semester. (May be repeated for credit.) Prerequisite: ANTH 110 or 210.

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 methods, the preservation of these processes, the companion of agricultural systems in various parts of the world, the geographic distribution and biosystematics of selected cultivars; and the cultural systems which have arisen from the economic foundations of plant domestication. Prerequisite: ANTH 110 or 210.

ANTH 510 Field Methods in Archaeology I
3 hrs. Spring
Instruction in the archaeology of a particular area (e.g., the Great Lakes, Midwest Riverine area) with emphasis on cultural processes and ecological relationships as these emerge during the course of field work on the specific problems chosen for investigation in a given field season. (May be repeated for credit.) Prerequisite: consent of instructor.

ANTH 511 Field Methods in Archaeology II
3 hrs. Spring
Implementation of the field research strategy. Instruction in the basic skills of site excavation, mapping, and retrieval and recording of data; also laboratory analysis, including classification and cataloguing of artifacts. Depending upon the problem orientation in a given field season, instruction may include site location survey, site sampling techniques, and paleoenvironmental reconstruction. To be taken concurrently with 510. (May be repeated for credit.) Prerequisite: consent of instructor.

ANTH 520 Social Science Theory
3 hrs.
The philosophical/theoretical and conceptual foundations of the social sciences. This general will be discussed with special emphasis on contemporary anthropology, including traditional as well as post-structuralist ways of thinking. Prerequisite: ANTH 240 or social science equivalent.

ANTH 522 Research Methods in Ethnography
3 hrs.
A course dealing with research design and ethnographic techniques in the context of the relationship between field research and sociocultural theory. Prerequisite: ANTH 120 or 220 or 240.

ANTH 531 Medical Anthropology
3 hrs.
An examination of anthropological research relating to cross-cultural beliefs and practices about health and illness and the relationship between folk and scientific medical care systems. Includes analysis of public health programs in Western and developing societies, the effect of institutional/bureaucratic social structure on the adequacy of health care systems, and patients' rights in this age of extraordinary medical technology. Prerequisites: ANTH 220 or 240.

ANTH 538 Law and Politics
3 hrs.
The scientific study of law and politics through comparative cultural dynamics, ranging from simple to complex societies. Examples from primarily non-Western societies will be studied. Prerequisite: ANTH 240.

ANTH 540 Social Impact Assessment
3 hrs.
The application of anthropological knowledge to assess and evaluate the socio-cultural effects of proposed developmental policy, programs or projects as they relate to environmental impact assessment while in the planning stage, to improve project design and mitigate undesired secondary effects.

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: ANTH 220 or 240.

ANTH 545 Topics in Ethnology
3 hrs. Fall
An intensive study of the cultures of an area of the world (e.g. Japan, Philippines, Caribbean, East Africa) or selected problems (e.g. kinship systems, millenarian movements). Topic will be announced each semester. (May be repeated for credit.) Prerequisite: ANTH 240 or 220.

ANTH 551 Human Osteology
3 hrs.
A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, palaeoanthropology, and reconstruction of the individual and the population. Prerequisite: ANTH 250.
with an instructor. Intended for advanced
ANTH 598 Readings in Anthropology
3 hrs.
The study of physical anthropology as it
APPLIED COURSE REQUIREMENTS
3 hrs.
prerequisite: consent of instructor.
ANTH 555 Topics in Physical Anthropology
3 hrs.
A consideration of the biological relationships
of specific population groups or general
problems in human biology (e.g. human
prerequisites: ANTH 250.
genetics, human growth and constitution,
paleoanthropology, dental anthropology). Topic
will be announced each semester. May be
repeated for credit with different topics.
prerequisite: ANTH 250.
ANTH 598 Readings in Anthropology
1-4 hrs.
Independent study arranged in consultation
with an instructor. Intended for advanced
students with good academic records. One to
2 hours credit per semester, cumulative to 4
hours. Prerequisite: consent of instructor.

BIOLOGICAL SCIENCES

Leonard C. Ginsberg, Chair
Leonard J. Beuving
Richard D. Brewer
David P. Cowan
Elwood B. Ehrie
Robert C. Eisenberg
Joseph G. Engemann
Alexander J. Eneydi
Karim Essani
Guyu Ficsor
Stephen B. Friedman
Cindy Hoorn
Edgar Inselberg
William F. Jackson
Stephen B. Malcolm
Cecil McIntee
Richard W. Pippen

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 knowledge and training in various areas of the Life Sciences and Medicine.
The Biology Major explores the broad spectrum of the life sciences with
opportunities to study botany, zoology, ecology, or physiology. Students completing
this major should be prepared for one or more of the following goals: (1) graduate
study towards an advanced degree in the Biological Sciences, i.e. M.S. or Ph.D.; (2)
employment in state and 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 in cell biology,
genetics, microbiology, molecular biology, 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,
and 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., D.P.M., or D.V.M.; and
(3) pre-professional training for such clinical areas as physician assistant, pharmacy,
and physical therapy.
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.

Minors are available in Biology, Biomedical Sciences, Botany, or Zoology. It is possible
to major in Biology or Biomedical Sciences and also minor in Botany or Zoology.
Students are invited to contact the department offices (Biology, Room 100 Wood
Hall; 616-387-5625; or Biomedical Sciences, Room 5332 McCracken Hall; 616-387-5625)
for information concerning the Biology and Biomedical Sciences majors and minors.
All major and minor programs are to be pursued under the direction of and with the
approval of a departmental advisor. Students who want to major or minor in Biological
Sciences should consult with the appropriate departmental advisor during freshman or transfer student orientation and regularly thereafter. Courses taken without the
approval of Departmental Advisor may not be acceptable for major or minor credit.
Only departmental courses (BIOS) in which a grade of “C” or better is obtained
may be counted towards a major or minor in Biological Sciences. Transfer students must complete at least 15 credit hours in Biological Sciences at Western Michigan University in their major to be awarded a major and at
least 9 hours in Biological Sciences at Western Michigan University to be awarded a minor from the Department.

Baccalaureate Writing Requirement
Students who have chosen the Biology major or the Biology major in Secondary Education
can satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 319 Plant Physiology or BIOS 350 Human Physiology or BIOS 404 Problems in Teaching Biology (Secondary Education only).

Students who have chosen the Biomedical Sciences major can satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 350 Human Physiology.

Biological Major—Arts and Sciences, Liberal Arts, and Preprofessional Curricula

REQUIREMENTS

A major in biology (BIO) consists of a minimum of thirty-six hours of coursework in BIO courses, including the core courses and electives. Students in the Biology major must take a minimum of six credit hours above 300-level courses, only three credit hours may be BIOS 498 and/or BIOS 499.

CORE COURSE REQUIREMENTS

BIOS 101, 102, 213, 250, 301, and one of the following: BIOS 319 or 350.

COGNATE REQUIREMENTS

CHEM 101 (or 102) and 120, and CHEM 365 or CHEM 360 and 361. Eight hours of college mathematics which must include one of the following options: MATH 118 and 122 or 200; MATH 122 and 123, MATH 122 or 200 and 260 or 366. Two semesters of physics with lab including PHYS 113, 114 (or 205, 206) and
115, 116 (or 207, 208). GEOL 130 may be substituted for PHYS 115, 116 (or 207, 208).

Preprofessional (PD, PM, etc.) students.
In addition to the cognates required for the ASC and LA curricula, the following cognates are needed for admission to most medical and dental schools: CHEM 360 and 361; and PHYS 113, 114, 115, and 116.

In addition to planning your program with the Departmental 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.

PREPARATION FOR GRADUATE SCHOOL

in Biology, Botany, and Zoology (especially in the areas of ecology and field biology).

In addition to the cognates required for the above curricula, the following cognates are needed for admission to most graduate schools: GEOL 130 (in addition to PHYS 115, 116 or 207, 208), a course in statistics (MATH 260, 364, or 365).
Biological Sciences Minor

REQUIREMENTS
A major in Biological Sciences (BMS) consists of a minimum of thirty-six credit hours including the basic core curriculum and electives. Students in the Biological Sciences Major must take a minimum of eight credit hours above 300-level courses; only three credit hours may be BIOS 498 and/or BIOS 499. Since not all BIOS courses may satisfy BMS requirements, students should consult a BMS advisor before selecting upper level courses. A student may be eligible for equivalency and credit transfer toward the major. (See Transfer Students.)

CORE CURRICULUM
BIOS 101, 102, 211, 213, 250, 312 and 350.

COGNATE REQUIREMENTS
CHEM 101 (or 102), CHEM 120, CHEM 360, CHEM 361, CHEM 355, and CHEM 356. Eight hours of college mathematics which must include one of the following options: MATH 118 and 122 or 200, MATH 122 and 123, MATH 125 and 200 and 260 or 361. Two semesters of general physics with laboratory are also required including PHYS 113, 114 (or 205, 206) and 115, 116 (or 207, 208) and 4 hours of physical geology.

Biological Sciences Minor—Secondary Education Curriculum

The SED curriculum consists of core course requirements including BIOS 101 (Animal Biology), BIOS 102 (Plant Biology), BIOS 301 (Ecology), BIOS 213 (Cell Biology), BIOS 250 (Genetics), one of the following physiology courses: BIOS 240, 319, or 350 and BIOS 404 (Problems in Teaching Biology). Cognate requirements include: CHEM 101 (or 102) and 120, and MATH 118 (or 122 or 200).

Biomedical Sciences Minor

REQUIREMENTS
A minor in Biomedical Sciences consists of a minimum of eighteen credit hours including BIOS 101 or 112, BIOS 213 and BIOS 250.

COGNATE REQUIREMENTS FOR A MINOR
Eight credit hours of college level chemistry. CHEM 101 or 102 and CHEM 120, and three hours of mathematics at the MATH 111 or above skill level.

Science and Mathematics Teaching Minor

The Department of Biological Sciences participates in the science and mathematics teaching minor for students in elementary education curriculum (EED). For a full description of the program consult its listing under the Interdisciplinary Programs section in the College of Arts and Sciences.

Transfer Students
A minimum of fifteen hours of coursework in the Biology Major and fifteen hours in the Biomedical Sciences Major must be earned at Western Michigan University. At least nine hours in any of the departmental minors must be earned at Western Michigan University. Transfer students should consult with a departmental advisor before registering for classes.

Biological Sciences Courses (BIOS)
(Courses described in italics are approved for General Education.)

BIOS 101 Animal Biology 4 hrs.
An introductory course in biology in which animals are used to illustrate basic biological principles. The relationships between the structure, function, and habitat of representative animals are emphasized. Surveys of the major animal systems and the major animal phyla are included. This course may be taken concurrently with BIOS 102, Plant Biology.

BIOS 102 Plant Biology 4 hrs.
An introductory course in biology in which plants are used to illustrate basic biological principles. The interaction of structure, function, and environmental factors is emphasized. A survey of monocera, fungi, algae and multicellular plants is included. This course may be taken concurrently with BIOS 101, Animal Biology.

BIOS 105 Environmental Biology 4 hrs.
An ecology course that will examine the relationships among living organisms, including man, and their environment. Emphasis will be placed on basic ecological principles. (Credit does not apply toward a major or minor in biology, botany, or zoology.)

BIOS 107 Biological Science 4 hrs.
Designed to present basic biological principles for elementary education minors, and to give the student an understanding of the operation of the world of life. (Credit does not apply toward a major or minor in biology, botany or zoology.)

BIOS 112 Introduction to Biomedical Sciences 3 hrs. Fall, Winter
A course designed to provide a natural science foundation for BIOS minors, allied health majors, and general education students. Foundation concepts in anatomy, physiology, genetics, microbiology, cell chemistry and biology, ecology and botany are presented for students who do not have strong biology and chemistry backgrounds. Credit does not apply for Biology or Biomedical Sciences major.

BIOS 211 Human Anatomy 4 hrs. Fall, Winter
A lecture and laboratory course in which all major structures of the human body are studied. Prerequisites: BIOS 101 or BIOS 112 or equivalent.

BIOS 213 Cell Biology 3 hrs. Fall, Winter
This course presents an introduction to the field of cell biology. Concepts which are stressed include cell structure and function, types, chemistry, transport, and interactions. Prerequisites: BIOS 101 or BIOS 112 and a college-level chemistry course.

BIOS 220 Applied Botany 4 hrs.
Lectures, discussions, field trips and greenhouse experience are used to develop an understanding of the practical applications of botany. Principles and practices in indoor and outdoor gardening, landscaping, plant propagation, and the care and identification of cultivated plants are emphasized.

BIOS 230 Microbiology and Man 3 hrs. Fall
A course describing the nature of microorganisms, their harmful and beneficial effects on humanity and their role in nature. Not for credit toward a Biomedical Sciences major but does apply toward a minor.

BIOS 232 Microbiology and Infectious Diseases 4 hrs. Winter
An introductory microbiology course emphasizing characteristics and modes of transmission of those microorganisms which cause human disease. For Bronson Hospital nurses, or by consent of instructor. Credit does apply toward a minor in Biomedical Sciences and a major or minor in secondary education.

BIOS 234 Outdoor Science 4 hrs.
This course is designed to increase student awareness and appreciation of organisms in nature. Lectures provide introduction to systematics, 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 and field trips.

BIOS 240 Human Physiology 4 hrs. Fall, Winter
This course is designed to provide non-majors with an understanding of the basic functioning of the organ systems of the human body and their regulation and control. The molecular and cellular mechanisms involved are emphasized. Applications to exercise physiology are made. Clinical applications are introduced where they provide additional insight into basic function and regulatory mechanisms. Prerequisite:
BIOS 101 or BIOS 112; BIOS 211 is recommended.

BIOS 250 Genetics
3 hrs. Fall, Winter
A study of the mechanisms of heredity at the level of cells, individuals, families and populations. Prerequisite: BIOS 213 or equivalent.

BIOS 301 Ecology
4 hrs.
An introduction to the relationships of organisms to their environment and to one another. Interrelationships of individuals and the physical environment, dynamics of populations, and structure and function in the community and ecosystem are considered. Prerequisite: At least three courses in biology to include both BIOS 101 and BIOS 102 (or equivalents).

BIOS 312 Microbiology
5 hrs. Fall, Winter
An introduction to the fundamental relationships among microbes with an emphasis on unifying principles. Laboratory work deals with techniques basic to bacteriology. Prerequisites: BIOS 213 and 250 and a course in organic chemistry, or consent of instructor.

BIOS 319 Plant Physiology
4 hrs.
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 structure of plant cells and tissues is observed, in order to provide an understanding of the locale of plant functions. The lab uses up-to-date techniques and equipment to investigate processes such as enzyme action, respiration and the movement of substances through membranes. Prerequisites: BIOS 212 and a course in organic chemistry.

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

BIOS 350 Human Physiology for Majors
5 hrs. Fall, Winter
An introduction to the function and interrelationships of the human body organ systems with description of various physiological malfunctions. The laboratory provides experience with some types of clinical measurements, laboratory instrumentation, data organization and scientific writing. Prerequisites: BIOS 250 and organic chemistry, anatomy is recommended.

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

BIOS 404 Problems in the Teaching of Biology
3 hrs.
Class discussions, laboratory experiences and field work concerned with the teaching of biology in high school. Required of all students who are following a secondary education curriculum and list biology as a major or minor. This course assumes a working knowledge of plants, animals, and body chemistry, and of ecology, physiology, as well as ecology and genetics. Limited to majors and minors enrolled in a secondary education curriculum.

BIOS 425 Genetics Laboratory
3 hrs. Winter (alternate years)
Students will acquire techniques currently used in the field of genetics. Prerequisite: BIOS 250 or equivalent.

BIOS 498 Readings in Biological Sciences
1.5 hrs. Fall (alternate years)
Approved application required.

BIOS 499 Independent Research in Biological Sciences
1.5 hrs. Winter
Approved application required.

The prerequisite for admission to 500 level Biological Sciences courses is Junior/Senior standing and at least 12 credits in Biology or permission of the instructor.

BIOS 507 Biology of Addictive Drugs
3 hrs.
The study of modes of action and effects of psychoactive drugs, such as alcohol, marijuana, cocaine, amphetamines, heroin, methadone, LSD, PCP, and nicotine. Prerequisites: An introductory physiology course or enrollment in SPADE (Specialty Program in Alcohol and Drug Abuse).

BIOS 511 Environment and Health Problems
3 hrs.
The impact of the environment on the health of the individual and of populations, the resulting physiological and anatomical difficulties, and the various means employed in meeting these challenges.

BIOS 515 Plants for Food and Industry
3 hrs.
Representative cereal, fiber and industrial plants of primary economic importance will be examined, such as wheat, rice, wood and its uses, soybeans and grains. 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. The course is enriched with several demonstrations and lab experiences that include diverse practical applications. Prerequisites: BIOS 102 and a course in organic chemistry.

BIOS 518 Endocrinology
3 hrs. Fall (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 520 Human Genetics
3 hrs. Winter (alternate years)
The principles of human heredity with particular emphasis on the clinical significance of biomechanical and chromosomal variation. Abnormalities of development and methods of risk analysis in genetic counseling are discussed. Prerequisite: BIOS 250; biochemistry is recommended.

BIOS 524 Microbial Genetics
3 hrs. (alternate years)
A molecular approach to microbial genetics, dealing primarily with bacterial and viral systems. Emphasis is placed on current literature and on the application of concepts to biomedical research. Prerequisites: BIOS 250 and 312 or consent of instructor, biochemistry is recommended.

BIOS 527 Systematic Botany
4 hrs.
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 will be expected to learn to recognize 100-150 plant species by common and scientific name. Prerequisite: BIOS 102 or equivalent.

BIOS 528 Biology of Non-Vascular Plants
4 hrs.
A detailed comparative study of the morphology, life cycles, and ecology of the algae, fungi, and protozoa. Laboratory study will be complemented by field investigations. An independent project may be required. Prerequisite: BIOS 102.

BIOS 529 Biology of Vascular Plants
4 hrs.
A detailed comparative study of the morphology, life cycles, and phylogeny of the vascular plants. Laboratory study will be complemented by field trips. An independent project may be required. Prerequisite: BIOS 102.

BIOS 530 Botany
3 hrs.
Mosses and liverworts will be studied in lecture, lab, field trips, and herbarium. Aspects of bryophyte ecology, systematics, and biogeography will be considered. Microscope and keying techniques will be developed. Each student will produce personal collections and keys. Prerequisites: BIOS 102 or consent of instructor.

BIOS 531 Biology of Aging
3 hrs.
This course is designed to provide students with an understanding of the aging process. The lectures will emphasize the anatomical, physiological and molecular changes which occur in cells and organs with aging. Clinical applications are introduced where they provide additional insight into the aging process. Prerequisites: An introductory physiology course.

BIOS 534 Virology
3 hrs. Winter
A study of the classification, structure and chemistry of viruses. Emphasis will be placed on the cell-virus interaction leading to the disease process or cellular alterations in mammalian systems. Prerequisite: BIOS 312; biochemistry is recommended.

BIOS 536 Immunology
3 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 537 Histology
3 hrs. Fall
A study of the function and microscopic anatomy of mammalian tissues. Prerequisite: BIOS 211.
BIOS 539 Animal Behavior
3 hrs.
Animal behavior is studied with regard to our understanding of the cause of behaviors, and the possible reasons for their existence. Particular emphasis is placed on how natural selection has affected individual and social behavior.

BIOS 541 Invertebrate Zoology
3 hrs.
A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: BIOS 101.

BIOS 542 Entomology
4 hrs.
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 101.

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: A course in ecology.

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. Prerequisites: BIOS 101 and 102, CHEM 101 recommended.

BIOS 555 Marine Biology
3 hrs.
A survey of marine biology topics including: the physical marine environment and general principles of marine ecology; marine plants and animals, with emphasis on their special roles and adaptations; major marine communities, and marine biotic resource conservation and utilization. Selected topics of current research are included.

BIOS 556 Tropical Biology
4 hrs.
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, Montane, 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 also be included. The course will be presented on one of the islands of the Caribbean and/or in Central America.

BIOS 557 Water Pollution Biology
3 hrs.
A comparison of organisms which 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. Prerequisites: BIOS 101 and 102.

BIOS 570 General Pathology
4 hrs. Fall (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 organic chemistry.

BIOS 574 Embryology
4 hrs. Fall
Embryology is the study of the development of an organism from a single fertilized cell to a complex multicellular fetus. This course will present all material from both a classical descriptive 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 in vitro and in vivo. Prerequisite: BIOS 213, 250 or equivalent.

BIOS 597 Topics in Biological Sciences
3-4 hrs.
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.

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

CHEMISTRY
Michael E. McCarville, Chair
Michael Barcelona
Donald C. Berndt
Donald J. Brown
Dean W. Cooke
Robert E. Harmon
Thomas Houser
James A. Howell
Joseph M. Kanamuelru
George G. Lowry
David S. Renhold
Donald R. Schreiber
Susan R. Stapleton
Ralph K. Steinhaus
H. Dale Warren

Students majoring in chemistry may prepare for a career in high school teaching, industrial laboratory work, or graduate work in departments of chemistry, biochemistry or medical colleges. The course offerings for the undergraduate attempt to give a broad but thorough grounding in the elements of chemistry. They should be fortified by a minor in physics, mathematics, or biology. Most students who intend to do advanced work in chemistry should plan to obtain a reading knowledge of a foreign language. At the present time German is preferred, but French or Russian might well be taken.

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 American Chemical Society immediately upon graduation. Students who plan to attend graduate school or work for the larger chemical companies should follow this degree program.

In order to complete an American Chemical Society Certified chemistry major, the following would be the expected minimum schedule of chemistry and prerequisite courses

Freshman Year:
CHEM 101 or 102, General Chemistry I
CHEM 101 or 102, General Chemistry II
MATH 122, Calculus I
MATH 123, Calculus II

Sophomore Year:
CHEM 222, Quantitative Analysis
CHEM 341, Physical Chemistry I
CHEM 341, Physical Chemistry II
CHEM 343 (2 hrs.), Physical Chemistry Laboratory

Junior Year:
CHEM 222, Quantitative Analysis
CHEM 430, Physical Chemistry I
CHEM 431, Physical Chemistry II
CHEM 436 (2 hrs.), Physical Chemistry Laboratory

Senior Year:
CHEM 520, Instrumental Methods
CHEM 510, Inorganic Chemistry

In addition two 3 or 4 hour advanced electives from 500 level chemistry or mathematics or physics as approved by the Chemistry advisor. Reading knowledge of a foreign language is required for ACS certification.

 Majors and Minors
To qualify as a major or minor in chemistry from Western Michigan University the student, including the transfer student, must complete a minimum of 14 credit hours or 7 credit
hours, respectively, in the Chemistry Department following the filing of a major or minor slip with the departmental advisor. The courses taken for credit must include at least one which contains a laboratory experience. Students who plan to attend graduate school in chemistry should take a minimum of five courses under the credit-no credit option.

Students who fail to earn a grade of “C” or better in CHEM 120, 360, and 430 must not enroll in courses requiring these classes as prerequisites.

The Arts and Sciences Curriculum Chemistry majors require 34 hours in chemistry including the basic sequence through Physical Chemistry as in the A.C.S. certified program and two or four hours courses at the 500 level, chosen from at least two areas of chemistry.

Secondary Education Chemistry Majors require 30 hours of chemistry courses as in the Arts and Sciences curriculum including a minimum of 4 hours of Physical Chemistry.

The Health Chemistry Major is designated to meet the needs of a chemistry background for the preprofessional degree leading to health science areas such as medicine, dentistry, veterinary medicine, nutrition, clinical chemistry, toxicology, pharmacology, etc. A minimum of 33 chemistry credit hours must be selected according to the following:

CHEM 101 or 102, General Chemistry I
CHEM 120, General Chemistry II
CHEM 360, Organic Chemistry I
CHEM 361, Organic Chemistry II
CHEM 222, Quantitative Analysis
CHEM 552 and 556, Biochem. I and II with Laboratory
CHEM 535, Introduction to Physical Chemistry or
CHEM 430, Physical Chemistry I
CHEM 436 (1 hr.), Physical Chemistry Laboratory
CHEM 506, Chemical Laboratory Safety or
CHEM 564, Drugs and Pesticides

and additional 500 level Chemistry electives if necessary to meet the minimum hour requirement.

The Business-Oriented Chemistry Major is available to provide chemical understanding to the level needed by students who intend to prepare for careers in non-laboratory functions of chemical industry and distribution of its products and technology, principally in the areas of management and sales, as well as for some aspects of government service. Those who elect this major are required to complete a minor in either Business—option I (21 hrs.), Management (21 hrs.), or Marketing—option II (21 hrs.) in the Haworth College of Business and must include BIS 142, 340 courses in writing and communication. This chemistry major must include a minimum of 30 chemistry credit hours as follows:

CHEM 101 or 102, General Chemistry I
CHEM 120, General Chemistry II
CHEM 360, Organic Chemistry I
CHEM 361, Organic Chemistry II
CHEM 222, Quantitative Analysis
CHEM 365, Introductory Biochemistry
CHEM 535, Introduction to Physical Chemistry or
CHEM 430 and 431, Physical Chemistry I and II
CHEM 506, Chemical Laboratory Safety
CHEM 520, Instrumental Methods

Other specialized chemistry programs can be developed through the undergraduate chemistry advisor.

A minimum chemistry minor will contain at least 18 hours. Chemistry minors in secondary education are required to take 20 hours of chemistry and to curricular require one year of physics before student teaching.

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.

Baccalaureate Writing Requirement

Students who have chosen the Chemistry major will satisfy the Baccalaureate Writing Requirement by successfully completing CHEM 436 Physical Chemistry Laboratory.

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 101 and 103. A high level passing score allows the student to enroll in CHEM 102. 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.

Chemistry Courses (CHEM)

(Courses described in italics are approved for General Education)

CHEM 100 Introduction to General Chemistry 4 hrs. Fall, Winter

A course for students with insufficient background in lower level chemistry which develops skills essential to a working understanding of the science of chemistry. Instruction and practice in the fundamental tools for solving chemical problems: chemical formulas, chemical equations, stoichiometry, measurement units, conversions. An introduction to the nature of matter is developed. Enrollment is restricted to students without high school chemistry or to those who demonstrate inadequate retention of their chemistry background. This course credit will not apply to curricular requirements of chemical science at this university and should be followed by CHEM 101 or CHEM 103. Prerequisite: MATH 110 or equivalent performance on the Math Placement Examination.

CHEM 101 General Chemistry I 4 hrs. Fall, Winter

The theory and fundamental principles of chemistry are emphasized in this foundation course which serves primarily those who intend to enroll for two or more additional courses in chemistry. Credit for 101 is equivalent to the level of completion of CHEM 102. This course includes lecture and laboratory. Students can receive credit for only one of CHEM 101, 102, 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 102 General Chemistry I 4 hrs. Fall, Winter

The theory and fundamental principles of chemistry are emphasized in this foundation course which serves primarily those who intend to enroll for more than two years of study in the teaching of chemistry. These well-prepared may earn credit by taking examination. This course includes lecture and laboratory. Students can receive credit for only one of CHEM 101, 102, 103. 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.

CHEM 103 General Chemistry I 4 hrs. Fall, Winter

A course primarily for students in Engineering and Applied Sciences curricula and others planning only a one or two semester terminal review of chemistry. This course surveys principles of chemistry with emphasis on calculations, descriptive and applied chemistry. May be used as a prerequisite for CHEM 120 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, 102, 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 107 Chemistry of Textiles and Design Media 4 hrs. Fall, Winter

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 of home economics who plan a career in merchandising, and 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; this course includes lecture and laboratory.

CHEM 119 General Chemistry Laboratory 1 hr.

A laboratory course designed to complement the lecture topics covered in General Chemistry. This course is intended for those students who have had a general chemistry course at another school which did not have a laboratory component. Prerequisite: a minimum of 3 hours of non-laboratory General Chemistry and permission of chemistry advisor.

CHEM 120 General Chemistry II 4 hrs. Fall, Winter

The properties of a number of the more representative elements and the compounds which they form are studied. The descriptive chemistry of some common cations and anions is studied using the hydrogen sulfide scheme of analysis in the laboratory. The chemical relationships in the periodic table, electrochemistry, and the equilibrium principle are also treated. Prerequisite: CHEM 101, 102 or 103.
CHEM 140 Introductory Environmental Chemistry
4 hrs. Fall, Winter
Purpose of course is to develop an appreciation of the chemical aspects of environmental problems and an acquaintance with the basic principles involved. This limited treatment considers elementary concepts of the nature of matter with application of tools of chemists important in exploration of environmental problems. Laboratory may entail field trips as well as experiments which relate to environmental problems. Credit does not apply for graduation if CHEM 101, 102 or 103 are used, or for major or minor in chemistry.

CHEM 200 Chemical Science in Elementary Education
4 hrs. Winter
This course is designed to help students understand the chemical nature of the world around them and how the behavior of things depends on chemical makeup and physical conditions. Demonstrations and experiments will show how these ideas can be made meaningful to students in the context of everyday experiences and commonly encountered materials. Credit does not apply for a major or minor in chemistry.

CHEM 222 Quantitative Analysis
4 hrs. Fall, Winter
This course includes the theory, techniques, and calculations of quantitative analysis. Instrumental techniques are used to supplement classical analytical procedures in the laboratory. Prerequisite: CHEM 120.

CHEM 306 Teaching of Physical Science
3 hrs. Winter
Problems of teaching high school chemistry, physics and physical science. The main emphasis is on effective methods of instruction. Practical methods of apparatus ordering, maintenance, and construction are also considered.

CHEM 350 Biochemistry for Physician's Assistant
3 hrs. Winter
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-carbon dioxide transport and some aspects of nutrition, disease and hormone action. Prerequisite: PA Curriculum and CHEM 365 or 361.

CHEM 355 Introductory Biochemistry
3 hrs. Winter
A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins and nucleic acids. Not applicable to American Chemical Society Certified or Arts and Sciences Curriculum Chemistry Majors. Prerequisite: CHEM 350 or 361.

CHEM 356 Introductory Biochemistry Laboratory
2 hrs. Winter
Basic biochemical laboratory techniques: isolation and properties of proteins, enzymes, carbohydrates, lipids and nucleic acids; studies of metabolism; determinations of clinical interest involving blood, urine, liver and brain. Prerequisite or corequisite: CHEM 355 or 550.

CHEM 360 Organic Chemistry I
4 hrs. Fall, Winter
The preparation and chemical properties of aliphatic and aromatic compounds are studied. Emphasis is placed upon the nature of covalent bonds and molecules and the general reactions of functional groups. The course includes lecture and laboratory. Prerequisite: CHEM 120.

CHEM 361 Organic Chemistry II
4 hrs. Fall, Winter
A continuation of CHEM 360. Prerequisite: CHEM 360.

CHEM 365 Introduction to Organic Chemistry
4 hrs. Fall, Winter
A one semester course which surveys the chemistry of aliphatic and aromatic carbon compounds, designed for those needing a working knowledge of organic chemistry without the theoretical detail of a full year course. Credit may not be received for both CHEM 365 and 360. This course, which includes laboratory, will not serve as a prerequisite for CHEM 361. Prerequisite: CHEM 120.

CHEM 369 Organic Chemistry Laboratory
1 hr.
A laboratory course designed to complement the lecture topics covered in Organic Chemistry. This course is intended for those students who have had an organic chemistry course at another school which did not have a laboratory as part of the course. Prerequisite: A minimum of 3 hours of non-laboratory Organic Chemistry and permission of chemistry advisor.

CHEM 390 Special Problems in Chemistry
2 hrs. Fall, Winter
This course is designed to give students that have completed basic chemistry an opportunity to receive credit for experience in chemical laboratory independent study in association with a faculty member. May be repeated once for credit. Prerequisite: 18 hours of chemistry, with approval of the department chairperson and a faculty director.

CHEM 430 Physical Chemistry I
3 hrs. Fall
Lectures on kinetic theory of gases, thermodynamics, phase rule, equilibria, electrochemistry, quantum theory, spectroscopy, statistical mechanics, chemical kinetics and mechanisms, transport properties, surface chemistry, macromolecules, crystal structure, etc. Prerequisites: PHYS 205, 206, 207, 208; MATH 272; CHEM 120.

CHEM 431 Physical Chemistry II
3 hrs. Winter
A continuation of CHEM 430. Prerequisite: CHEM 430.

CHEM 436 Physical Chemistry Laboratory
1 hr. Fall, Winter
Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 430 and 431, with consideration of the limitations of physical measurements and their quantitative interpretation. Can be multiply enrolled for a total of 2 credit hours. Prerequisites: CHEM 222 and 430 or 535; Repeatable for up to 2 credit hours.

Undergraduates with junior status and 12 hours of work in chemistry may enroll in 500-level courses with prior approval of the department chair.

CHEM 505 Chemical Literature
2 hrs. Fall
An introduction to the use of the various types of chemical literature such as journals, abstracts, monographs, government, and institutional publications and patents. Both manual and computer search techniques are employed in the course of completing assigned problems involving literature searches in analytical, inorganic, biological, organic, and physical chemistry fields. Prerequisite: 23 hours of chemistry.

CHEM 506 Chemical Laboratory Safety
1 hr. Fall, Winter
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: 24 hours of chemistry.

CHEM 509 Topics in Chemistry
3 hrs.
A topic is presented in greater depth or from a perspective different from that of a typical undergraduate course. Representative topics such as microprocessors, industrial chemistry, chemical pollution, etc. according to student interest and request. Prerequisite: 16 hours of chemistry.

CHEM 510 Inorganic Chemistry
4 hrs. Winter
The course includes descriptive and theoretical inorganic chemistry as well as preparation of different types of inorganic compounds. Prerequisite or corequisite: CHEM 431.

CHEM 520 Instrumental Methods in Inorganic Chemistry
3 hrs. Fall, Winter
An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. Prerequisite or corequisite: CHEM 431, 436.

CHEM 525 Techniques in Water Analysis
2 hrs.
Analytical techniques and methodology commonly used to determine water quality are presented. Modern instrumental methods are stressed with particular emphasis on spectroscopic and chromatographic measurements. Laboratory provides practical experience in application of principles discussed in lecture. Not available to Chemistry majors. Prerequisite: CHEM 361 or 365.

CHEM 528 Chemical Separations
3 hrs.
Principles and applications of chemical separations, including distillation, crystallization, extraction, electrophoresis and a variety of chromatographic techniques. Laboratory exercises illustrate typical applications of the methods. Prerequisite: CHEM 361.

CHEM 535 Introduction to Physical Chemistry
3 hrs. Fall
Theory and applications of chemical structure, energetics, and rates and mechanisms of processes as a basis for understanding the principles of chemistry. Laboratory credit is obtained by taking CHEM 436, Physical Chemistry Laboratory. This course may not be applied to a graduate curriculum in chemistry. Prerequisites: 16 hours chemistry. MATH 123, PHYS 115, 116 or (207, 208).

CHEM 550 Biochemistry I
3 hrs. Fall
The chemistry, properties, and molecular biology of proteins and nucleic acids includes discussions of amino acids, enzymes and biochemical energetics. Prerequisites: CHEM 361, and 430 or 535.

CHEM 552 Biochemistry I with Laboratory
4 hrs. Fall, Winter
This course consists of CHEM 550 plus laboratory. Experiments involve more advanced techniques and instrumentation than in CHEM 356. Emphasis will be on
This course traces the roots of chemistry from ancient technology through alchemy and chemistry, with approval of the department. The aspects of macromolecular chemistry involved in the synthesis of macromolecules, and the structure, composition, mechanical properties, and solution properties of polymers are studied in terms of the organic, physical, and analytical chemistry involved. Prerequisite: CHEM 361 or 365. CHEM 570 Polymer Chemistry 3 hrs. Winter. CHEM 580 History of Chemistry 3 hrs. Winter. 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 360 or 365. CHEM 590 Special Problems in Chemistry 2 hrs. Fall, Winter. 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**

James Gilchrist, Chair
Lynwood Bartley, Loren Crane
Richard Deker
Wendy Ford
Richard A. Gershon
James Jaksa
Richard Joyce
Steven Lipkin
Peter G. Northouse
Thomas F. Pagel
Steven C. Rhodes
George Robeck
Dale Shannon
Thomas Sili
Robert L. Smith
Shirley A. Van Hoeven
Earl Washington
Shirley C. Woodworth
Paul Yelsma

Communication is the principal mode for establishing and maintaining human relationships. It consists of those processes by which society is made possible, by which people develop exchange ideas, solve problems, and work cooperatively in attaining common objectives. Effective oral 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 in the areas of vocal expression, written communication, and research. The Department of Communication offers courses in Communication Studies (COS), Interpersonal Communication (IPC), Media Studies (MDS), Organizational Communication (OCM), Public Relations (PUR), and Telecommunication Management (TCM). These 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.

Two minors, Minor in Communication and Minor in Secondary Communication Education, are also offered. The study of communication is important to virtually every profession that involves working with people, making an excellent major, minor or cognate for communication-related jobs in education, business, government agencies, health care professions, social services, industry, and other public and private organizations. Communication is central to positions in public relations, corporate communication, public information management, employee communication, training and development, and radio, television, and film. Excellent production training facilities and professional curricular programs in radio, 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, WDR-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 departmental office at 387-3130 for advising hours. A Handbook for Majors and Minors in Communication, which describes career opportunities and suggested programs of study in COM, is available free of charge from the department office.

**Pre-Communication Major**

Students planning to major in any area of communication 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 following the completion of a minimum of 30 semester hours, 15 of which must be from Western Michigan University and the completion of COM 170 and COM 200.

Transfer students who present appropriate communication courses will be evaluated and may be admitted on an individual basis directly into the program. Transfer students with no communication courses will be required to take COM 170 and COM 200 the first semester, and will be acted upon at the completion of their first semester.

Admission to a major in communication is by application only, and will be based on the following factors:

1. Overall grade point average, with a minimum of 2.0
2. Grades earned in COM 170 and COM 200 must be "C" or better.

Deadlines for submitting applications are:

- February 15
- May 15
- October 15

Application forms and additional information can be obtained from the departmental office, 301 Spruance 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 will be considered by a departmental advisor following completion of the PCM requirements. Declaration of a minor in communication must be made with a departmental advisor before the completion of nine semester hours of communication credit.

2. Students must earn a grade of "C" or better in all communications course work applied toward a major/minor program.

3. Prerequisites for upper-level communication courses must be met. Prerequisites applicable to all 500-level courses in Communication include junior status and 15 credit hours of Communication or related courses and consent of advisor and/or instructor. Some 500-level courses may list specific prerequisite courses, and such specified courses can be counted in the 15-hour requirement.

4. Petition for exceptions to any departmental policies should be directed to the department chair.
Students who have chosen the Communication or Public Relations majors will be required to complete the following courses:

**Baccalaureate Writing Requirement**

Students must successfully complete one of the following courses:

- COM 332 Group Problem Solving
- COM 358 TV and Film Scripting
- COM 359 Broadcast Journalism
- COM 370 Interpersonal Communication II
- COM 372 Introduction to General Semantics
- COM 441 Documentary in Film and Television
- COM 458 Telecommunication Management

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.

**Writing Intensive Course Requirement.** These courses satisfy the upper-level writing requirement.

**Communication Studies (COS) Major**

**36 hours**

1. **Pre-Communication Requirements**
   - COM 170 Interpersonal Communication I
   - COM 200 Introduction to Communication Theory

2. **Communication Core Requirements**
   - COM 104 Public Speaking
   - COM 201 Communication Inquiry

3. **Upper-level Communication Studies Requirements**
   - Two courses from each of the following groups are required:
     - A. Select two of the following courses (6 hrs.):
       - COM 305 Special Topics in Communication
       - *COM 332 Group Problem Solving
       - COM 335 Leadership
       - COM 447 Organizational TV Production
       - COM 449 Public Relations in Organizations
       - COM 474 Intercultural Communication
     - B. Select two of the following courses (6 hrs.):
       - COM 355 Small Format Video
       - *COM 359 Broadcast Journalism
       - COM 357 TV Studio Production
       - COM 458 TV Performance

4. **Media Studies (MDS) Major**

36 hours

1. **Pre-Communication Requirements**
   - COM 170 Interpersonal Communication I
   - COM 200 Introduction to Communication Theory

2. **Communication Core Requirements**
   - COM 104 Public Speaking
   - COM 201 Communication Inquiry

3. **Upper-level Interpersonal Communication Requirements**
   - A. Both of these courses are required (6 hrs.)
     - *COM 332 Group Problem Solving
     - *COM 370 Interpersonal Communication II
   - B. Select three of the following courses (9 hrs.):
     - COM 305 Special Topics in Communication
     - COM 327 Introduction to General Semantics
     - COM 430 Studies in Attitude Change
     - COM 432 Mass Communication Theory
     - COM 472 Nonverbal Communication
     - COM 474 Intercultural Communication
     - COM 475 Family Communication
     - COM 479 Female/Male Interaction
     - COM 484 Health Communication

4. **Interpersonal Electives**
   - 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.

**Writing Intensive Course Requirement.** These courses satisfy the upper-level writing requirement.

**Interpersonal Communication (IPC) Major**

36 hours

1. **Pre-Communication Requirements**
   - COM 170 Interpersonal Communication I

2. **Communication Core Requirements**
   - COM 104 Public Speaking

3. **Upper-level Interpersonal Communication Requirements**
   - A. This course is required:
     - COM 240 Introduction to Telecommunication
   - B. Select one of the following courses (3 hrs.):
     - COM 104 Public Speaking
     - COM 106 Voice and Diction
     - COM 210 Performance of Literature
courses to be applied toward the major.

• Writing Intensive Course Requirement. These

COM 451 Methods of Film Analysis 3

COM 305 Special Topics in

COM 548 Telecommunication

COM 456 Broadcast/Cable

COM 443 Mass

COM 442 Mass Media and the Child .... 3

COM 454 Communication Technology... 3

*COM 358 TV/Film Scripting 3

3. Upper-level Media Studies

Emphasis Requirements 18 hrs.

A. Select two of the following courses (6 hrs.):

COM 257 Radio Production 3

COM 355 Small Format Video...

COM 356 Film Production 3

COM 357 TV Studio Production 3

*COM 358 TV/Film Scripting 3

B. Select two of the following courses (6 hrs.):

COM 305 Special Topics in

Communication (OCM)

• COM 541 Mass Communication Law.... 3

*COM 441 Documentary in Film/TV 3

COM 445 Television Criticism 3

COM 451 Methods of Film 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.

*Writing Intensive Course Requirement. These
courses satisfy the upper-level writing requirement.

Organizational Communication (OCM)

Major

36 hours

1. Pre-Communication

Requirements 6 hrs.

COM 170 Interpersonal

Communication I 3

COM 200 Introduction to

Communication Theory 3

2. Communication Core

Requirements 6 hrs.

COM 104 Public Speaking 3

COM 201 Communication Inquiry 3

3. Upper-level Organizational

Communication

Requirements 15 hrs.

A. Both of these courses are required (6 hrs.):

*COM 335 Leadership 3

COM 482 Communication Processes in Organizations

B. Select three of the following courses (9 hrs.):

COM 305 Special Topics in

Communication 1-4

*COM 332 Group Problems Solving 3

COM 334 Argumentation and Debate 3

COM 372 Introduction to General

Semantics

COM 430 Studies in Attitude Change 3

COM 432 Group Communication Theory 3

COM 474 Intercultural

Communication 3

COM 479 Female/Male Interaction 3

COM 483 Interviewing 3

COM 447 Organizational TV

Production 3

COM 449 Public Relations in

Organizations 3

COM 450 Public Relations Program Development 3

COM 477 Communication Ethics 3

4. Organizational Communication

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.

*Writing Intensive Course Requirement. These
courses satisfy the upper-level writing requirement.

Public Relations (PUR)

Major

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 (9 hrs.):

COM 449 Public Relations and Organizations 3

COM 450 Public Relations Program Development 3

COM 482 Communication Processes in the Organization 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 104 Public Speaking 3

COM 204 Advanced Public Speaking 3

D. Select one of the following (3 hrs.):

COM 332 Group Problems Solving 3

COM 335 Leadership 3

COM 483 Interviewing 3

E. Select two of the following (6 hrs.):

COM 256 Broadcast Operations 3

COM 257 Radio Programming and Production 3

COM 355 Small Format Video Production 3

COM 356 Film Production 3

COM 357 Television Studio Production 3

COM 458 Television Performance 3

F. Select two of the following (6 hrs.):

COM 240 Introduction to Telecommunication 3

COM 443 Mass Communication and Social Change 3

COM 444 Mass Communication, News and Public Affairs 3

COM 447 Organizational TV Production 3

3. Cognate Course

Requirements 14 hrs.

A. This course is required:

PAPR 150 Graphic Arts 3

B. Select one of the following (3 hrs.):

ED 548 Audio Visual Media I 3

ED 549 Audio Visual Media II 3

ED 550 Photography Workshop 3

C. Select two of the following (required courses in English can be used toward a journalism minor) (8 hrs.):

ENGL 264 News Writing 4

ENGL 265 News Editing 4

ENGL 363 Advanced Reporting 4

ENGL 364 Feature/Article Writing 4

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

All course prerequisites must be met to enroll

in upper-level courses. Grade requirement: A

minimum grade of "C" is required in all

courses to be applied toward the major.

*Writing Intensive Course Requirement. These
courses satisfy the upper-level writing requirement.
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COLLEGE OF ARTS AND SCIENCES

minimum grade of "C" is required in all courses to be applied toward the major.

Writing intensive course requirement. These courses satisfy the upper-level writing requirement.

Minors

Communication Minor

21 hours

A communication minor requires 21 semester hours of COM, including COM 170, COM 200 and 15 additional elective hours to be chosen in consultation with the appropriate advisors of the department. Nine of these hours must be taken at the 300-500 level.

Secondary Education Minor in Communication

21 hours

REQUIREMENTS

COM 104 Public Speaking

3 hrs.

COM 170 Interpersonal Communication I

3 hrs.

COM 200 Introduction to Communication Theory

3 hrs.

COM 204 Advanced Public Speaking

3 hrs.

COM 332 Group Problem Solving

3 hrs.

COM 334 Argumentation and Debate

3 hrs.

Elective 300-400 level

3 hrs.

Other courses may be required, based on the analysis of student's proficiencies, with a total of at least 21 hours in COM, nine of which must be at the 300-400 levels.

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.

Communication Courses (COM)

(Course described in italics is approved for General Education)

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.

COM 106 Voice and Diction

3 hrs.

Individual improvement program emphasizing voice production and diction.

COM 170 Interpersonal Communication I

3 hrs.

An introductory course in communication theory and practice in which students utilize their powers of speech to increase their effectiveness in interpersonal relationships through understanding of self and others.

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. Prerequisite: COM 200.

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 symbolic processes organize patterns of thinking that permit self-direction and regulation.

COM 210 Performance of Literature I

3 hrs.

Emphasis is placed on developing the student's appreciation of literature and his/her skill in analysis and performance of prose, poetry, and drama, including an introduction to group performance of literature.

COM 211 Performance of Literature II

3 hrs.

A continuation of COM 210. COM 211 includes drama and poetry, with a special emphasis on the adaptation and performance of narrative prose. Prerequisite: COM 210 or consent.

COM 240 Introduction to Telecommunication

3 hrs.

This course surveys the history and development of broadcasting, cable, and telephone communications. Also considered are current relationships, including management, operations and programming, as well as basic telecommunication regulation.

COM 241 Film Communication

3 hrs.

An introduction to the unique language and elements of the film medium through the study of outstanding examples of historical and contemporary experimental, documentary and feature films. $10 lab fee.

COM 256 Broadcast Operations

3 hrs.

Introduction to the electronic theory, equipment, operating procedures and personnel involved in radio and television production, storage and distribution.

COM 257 Radio Programming and Production

3 hrs.

Analysis of sound as a creative element in radio broadcasting and production. Studio experience in writing and producing radio formats, commercials, drama, documentary and other types of aural messages. $8 lab fee. Prerequisite: COM 256.

COM 305 Special Topics in Communication

1-4 hrs.

A group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the Departmental office. 301 Sprau Tower. Specific topic must be approved by an advisor. Six hours of COM 305 and COM 505 may be accumulated as credit toward a major or minor in communication.

COM 311 Group Performance of Literature

3 hrs.

Emphasis upon collaboration in group selection, arrangement, adaptation, preparation, and rehearsal of readers' theatre programs drawn from prose, poetry, and drama. Use of video recording and playback. Prerequisite: COM 210 or consent.

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. This course meets the University upper-level writing-intensive requirement. Prerequisites: COM 170, COM 200.

COM 334 Argumentation and Debate

3 hrs.

Theory and practice in argumentation and debate. Included are the analysis of propositions and the use of logic and evidence. Students will build, present, and defend cases. Debate is taught as a process of inquiry and advocacy.

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 meets the University upper-level writing-intensive requirement. Prerequisites: COM 170 and COM 200.

COM 342 The Film Industry

3 hrs.

The history and development of the American film industry and community cable television systems will be stressed. $20 lab fee. Prerequisite: COM 256.

COM 356 Film Production

3 hrs.

Production of short experimental films; scripting, planning, editing, directing and photography. Work in this course will be done within the limitations of 8 mm format. In addition to text materials, students must provide supplies averaging about $30.00 per student. $10 lab fee. Prerequisite: COM 241.

COM 357 TV Studio Production

3 hrs.

Explores the elements of television studio production and directing. Studio experience in equipment operation, crew roles, and producing and directing various types of television studio formats. In addition to the texts, students must provide supplies averaging about $10. $15 lab fee. Prerequisite: COM 256.

COM 358 TV and Film Scripting

3 hrs.

The styles and techniques of film and television scripting for broadcast formats, station continuity, commercials, dramatic scripts, small format video, and documentary. This course meets the University upper-level writing-intensive requirement.
This course meets the University upper-level writing-intensive requirement.

COM 359 Broadcast Journalism 3 hrs.
Radio and TV as news and information media. Studies and applies principles of news gathering and reporting, commentary, on-the-spot news coverage, features, and structure of the newscast. This course meets the University upper-level writing-intensive requirement.

COM 365 Oral Communication and the Elementary School Child 4 hrs.
This course focuses on the oral communication processes, particularly as they relate to personal and social development. Covers the role of oral communication in the teaching/learning environment and the relationship between oral language and reading. Deals with the child from birth through the age of twelve.

This course focuses on the oral communication processes, particularly as they relate to personal and social development. Particular attention is paid to the acquisition and development of oral communication by the young child; the role of oral communication in the teaching/learning environment; and the relationship between oral language and writing and reading. Deals with the child from birth through seven years. (This course is required for the integrated language arts minor.)

This course focuses on the oral communication processes, particularly as they relate to personal and social development. Particular attention is paid to the development of oral communication by the older child; the role of oral communication in the teaching/learning environment; and the relationship between oral language and writing and reading. Deals with the child from age seven through twelve years. (This course is required for the integrated language arts minor.)

COM 370 Interpersonal Communication II 3 hrs.
An analysis of relational communication with particular emphasis on the nature of transactional relationships. Prerequisite: COM 170 and COM 200 or consent of instructor. This course meets the University upper-level writing intensive requirements.

COM 372 Introduction to General Semantics 3 hrs.
A study of the function of language. The course deals with the nature and meaning of symbols and differences between the communication systems of the human animal and other species. Examines the assumptions held by Western man about the structure/function of his universe as reflected in language; the problem of "reality" as distinct from "meaning." The purpose of the course is to increase the student's awareness of his/her effectiveness as a thinker or symbol user. This course meets the University upper-level writing-intensive requirement.

COM 389 Independent Study Communication 1-6 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 400 Studies in Attitude Change: Variable Topics 3 hrs.
Selected areas of detailed study within the total range of rhetoric. Each of the courses listed below carries separate credit, and a student may take any or all of the offerings listed under COM 430. In addition to the topics listed, additional topics are offered from time to time and will be listed in the Schedule of Classes.

1. 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 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. $10 fee. This course meets the University upper-level writing-intensive requirement. 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 Mass Communication 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 Television Criticism 3 hrs.
Examines the various functions and writings of contemporary television critics and establishes criteria for evaluating television programs and program criticism. Students will view and analyze various television program types, including documentary, drama, visual essay and other entertaining and educational programs.

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 training, research, and educational, and social service organizations. Prerequisite: COM 370.

COM 449 Broadcast/Cable Programming 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 technologies 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 telecommunications services. Prerequisite: COM 240.

COM 450 Public Relations Program Development 3 hrs.
This is an advanced course in public relations emphasizing research methodology, developing planning objectives, and program evaluation for corporate, governmental, educational, and social service organizations. Prerequisite: COM 449.

COM 451 Methods of Film Analysis 3 hrs.
An investigation of the approaches to film analysis (authorship, intellectual, sociological, structural, historical, ideological, psychological) by intensive "reading" and shot sequence examination and evaluation of widely divergent works. Prerequisite: COM 241 or COM 356.

COM 452 Broadcast Sales 3 hrs.
This course examines the theory and process of buying and selling broadcast and cable time on the local and network levels. Prerequisite: COM 240.

COM 454 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 technologies 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 telecommunications services. Prerequisite: COM 240.

COM 456 Communicative Communication 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. $10 lab fee. Prerequisite: COM 357 or consent of instructor.

COM 458 Television Performance 3 hrs.
Exercises in television performance, stressing the special problems of the video performer. $10 lab fee. Prerequisite: Consent of instructor.

COM 470 Communication, Social Issues and Change 3 hrs.
A study and practical application of communication and rhetorical methodology in contemporary social problems.
COM 472 Nonverbal Communication 3 hrs.
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 human beings; individual differences in ability to interpret messages; the relationship of nonverbal communication to the concept of culture; extension of a person such as space, clothing, possessions; and specific messages related to the face and body.

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 communication patterns in family communications. Students analyze family interactions and identify communication patterns in marital family communication.

COM 477 Communication Ethics: Honesty and Deception 3 hrs.
Principles and perspective of ethical speech communication are studied and applied to a variety of private and public communication situations. The impact of honest versus deceptive communication on the individual and society is evaluated.

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 482 Communication Processes in the Organization 3 hrs.
This course is a systematic study of the communication processes in organizations at the individual, group, and organization-wide levels. Students will learn strategic communication planning, including methods of organizing and evaluating information, identifying and solving communication problems, and applying organizational communication skills in decision-making. This course meets the University upper-level writing-intensive requirement. Prerequisites: COM 170 and COM 200.

COM 483 Interviewing 3 hrs.
Theories and principles of interviewing, conducting, and evaluating interviews are studied and applied to specific interview types, including selection, performance appraisal, survey, and journalistic interviews. Emphasis is placed on the perspective of the interviewer rather than the interviewee.

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.

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 or 2232 Brown Hall, or from an undergraduate advisor. Prerequisites applicable to all 500-level courses in Communication include 15 credit hours of communication, or consent 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 305 and COM 505 approved by an advisor may be accumulated as credit toward a major or minor in communication.

Analysis in depth of continuing issues in mass communication. Topics vary from semester to semester and students may take one or all topics for credit.

COM 541 Mass Communication Law 3 hrs.
The laws, principles and issues of mass communication regulation. Includes media ownership and licensing, programming, political broadcasting, controversy, defamation, obscenity, advertising, and the roles of the FCC, FTC, and other regulatory agencies. This course meets the University upper-level writing-intensive requirement. Prerequisite: 15 hours of communication courses, including COM 200, or consent of instructor.

COM 548 Telecommunication Management 3 hrs.
The course examines broadcasting, telephone, cable, and other new communication technologies, with a primary emphasis on principles of telecommunication management, economics, and policy. The course is supplemented with a series of case studies and discussions pertaining to select management issues. Prerequisite: 15 hours of communication courses, including COM 200, COM 240), or consent of instructor.

COM 555 International Telecommunication Policy 3 hrs.
This course is designed to provide the student with an overview of the essential regulatory and policy issues governing the field of international telecommunications. Special attention is given to the major regulatory agencies and economic players responsible for the formation of international telecommunications policy at the national level. Prerequisite: 15 hours of communication courses, including COM 200, or consent of instructor.

COM 560 Studies in Communication Education: Variable Topics 3 hrs.
Selected studies in background, method, materials, and procedures in any one of the several speech areas. Topics include directing speech activities, communication behaviors of change agents, as well as others. Topics will vary from semester to semester and students may take one or all topics for credit.

COM 564 Creative Drama for Children 4 hrs.
Study of the principles, materials and techniques of using informal drama as a classroom activity in elementary grades. Emphasizes theoretical and practical application through the planning and teaching of drama experiences. $15 fee. Prerequisites: EED admission; ART, DANC, MUS, or THEA 148; ART 200; ED 230; DANC 290; and MUS 140, consent of instructor.

COM 570 Studies in Communication: Variable Topics 3 hrs.
Selected areas of study within the total range of communication. Each topic carries separate credit, and a student may take any or all of the different offerings under COM 570. Selected topics each semester will be listed in the Schedule of Classes.

COM 591 Introduction to Communication Research 3 hrs.
In this introductory course, students will acquire skills and knowledge of basic research design, data collection, data analysis, computer usage, and report writing needed for the completion of a research project.
COMPUTER SCIENCE

Donald Nelson, Chair
Fred Boals, Director of Graduate Programs
Elise de Doncker
Ajay Gupta
Donna Kaminski
John Kapenga
Mark Kerstetter, Director of Undergraduate Programs
Dionysios Kountanis
Dalai Motzkin
Ben Pinkowski
Naveed Sherwani
Robert Trinary
Kenneth Williams

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 a major or minor in computer science.

Students considering a major or minor in computer science should make an appointment for advising by contacting the Computer Science Office located in 3080 Friedmann Hall (phone 387-5645). This should be done as soon 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. The department offers three majors providing opportunities for students to pursue a variety of interests.

The minors in computer science are appropriate for students in a variety of fields. Graduates holding minors should be particularly qualified for applications programming positions.

ADDITIONAL INFORMATION

General information regarding counseling and types of degrees may be found under the beginning of the Arts and 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. The department reserves the right not to honor enrollment in a course if the student fails to attend the first two class meetings of the term, unless prior arrangements have been made with the instructor. Enrollment will not be honored if it is found that the proper prerequisites have not been met. Students whose enrollment is denied for whatever reason are responsible for processing drop slips with the Registration Office.

Baccalaureate Writing Requirement

Students who have chosen any of the majors offered in Computer Science will satisfy the Baccalaureate Writing Requirement by successfully completing CS 460 Software Systems Development.

Majors

Computer Science—Theory and Analysis in the Computer Science Curriculum

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 Arts and Sciences major (see below). The Theory and Analysis program 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.

COMPUTER SCIENCE COURSES (41 hrs.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</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 223</td>
<td>Computer Organization and Assembly Language</td>
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</tr>
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<td>CS 224</td>
<td>Systems Programming Concepts</td>
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<td>CS 311</td>
<td>Design and Analysis of Algorithms and Data Structures</td>
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<td>Software Systems Development</td>
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<td>Programming Languages</td>
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<tr>
<td>CS 498</td>
<td>The Computer Science Profession</td>
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<tr>
<td>CS 554</td>
<td>Operating Systems</td>
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</tr>
<tr>
<td>CS 580</td>
<td>Theory of Computation</td>
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</table>

Three approved non-language electives (See advisor) 9

REQUIRED MATHEMATICS COURSES (19 hrs.)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MATH 122</td>
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<td>MATH 145</td>
<td>Discrete Mathematical Structures</td>
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<td>MATH 230</td>
<td>Elementary Linear Algebra</td>
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</tr>
<tr>
<td>MATH 364</td>
<td>Statistical Methods</td>
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REQUIRED PHYSICS COURSES (10 hrs.)

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<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat</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>
<td>Electricity and Light</td>
<td>4</td>
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<tr>
<td>PHYS 208</td>
<td>Electricity and Light Laboratory</td>
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REQUIRED ELECTRICAL ENGINEERING COURSES (10 hrs.)

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<th>Course</th>
<th>Description</th>
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<tr>
<td>EE 250</td>
<td>Digital Logic I</td>
<td>3</td>
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<tr>
<td>EE 357</td>
<td>Computer Architecture</td>
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REQUIRED SCIENCE COURSES

Two approved science courses suitable for majors in their respective disciplines. See advisor.

REQUIRED COMMUNICATIONS AND ETHICS COURSES (7 hrs.)

<table>
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<tr>
<th>Course</th>
<th>Description</th>
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<td>COM 104</td>
<td>Public Speaking</td>
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</tr>
<tr>
<td>PHIL 410</td>
<td>Professional Ethics</td>
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</tr>
</tbody>
</table>

APPROVED ELECTIONS

Approved electives for the Computer Science—Theory and Analysis major can be:

CS 518, CS 520, CS 555, CS 558, CS 580, CS 595. Electives must be approved in advance by the student’s advisor.

GENERAL EDUCATION

In addition to meeting general education requirements of the University and the College of Arts and Sciences, students must exhibit a total of 23 hours of course work in the social sciences and humanities (excluding COM 104 and PHIL 410). See advisor.

Computer Science in the Arts and Sciences Curriculum

This major is designed to provide the student with the fundamental concepts of computer science and a broader selection of electives in liberal arts and other fields. The major requires a minor in mathematics. Students selecting this major are encouraged to consider completion of a second minor in some other field of interest.

COMPUTER SCIENCE COURSES (35 hrs.)

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<tr>
<td>CS 201</td>
<td>Programming in FORTRAN</td>
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<tr>
<td>CS 202</td>
<td>Programming in COBOL</td>
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<td>CS 223</td>
<td>Computer Organization and Assembly Language</td>
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<td>CS 554</td>
<td>Operating Systems</td>
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<tr>
<td>CS 595</td>
<td>Computer Science Elective (see advisor)</td>
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<tr>
<td>MATH 364</td>
<td>Statistical Methods</td>
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REQUIRED ELECTRICAL ENGINEERING COURSES (9 hrs.)

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<th>Description</th>
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<tbody>
<tr>
<td>EE 250</td>
<td>Digital Logic I</td>
<td>3</td>
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</tbody>
</table>

Electives approved can be CS 495, 518, 520, 525, 526, 527, 530, 543, 555, 580, 581, 582, 595, MATH 440, 506, 507, 574, PHIL 520. Electives should be approved in advance by the student’s advisor.

Secondary Teaching Major

The Secondary Teaching Major is designed for the student interested in teaching the computer science in the secondary school.

COMPUTER SCIENCE COURSES (31 hrs.)

<table>
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<td>Design and Analysis of Algorithms and Data Structures</td>
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<td>CS 443</td>
<td>Database Management Systems</td>
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<td>CS 498</td>
<td>The Computer Science Profession</td>
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<tr>
<td>CS 503</td>
<td>Programming the Microcomputer for Teachers</td>
<td>3</td>
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<tr>
<td>CS 595</td>
<td>Computer Science Elective (see advisor)</td>
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<tr>
<td>CS 598</td>
<td>Programming Languages</td>
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Approved Language Course (see advisor) 2
REQUIRED COMMUNICATIONS COURSE (3 hrs.)
COM 104 Public Speaking .................. 3

REQUIRED MATHEMATICS COURSES (11 hrs.)
MATH 122 Calculus I ......................... 4
MATH 145 Discrete Mathematical Structures ............................................. 3
MATH 230 Elementary Linear Algebra ........ 4

MINORS

General Option

COMPUTER SCIENCE COURSES
CS 111 Computer Science I .................. 4
CS 112 Computer Science II ................ 4
CS 201 Programming in FORTRAN or COBOL .... 2
CS 223 Computer Organization and Assembly Language .................................. 3
CS 331 Design and Analysis of Algorithms and Data Structures ....................... 3
CS 342 Analysis of File Systems and Structures .................................... 3
Approved elective (may be a language course) ..................................... 2-3

REQUIRED MATHEMATICS COURSES
MATH 122 Calculus I ......................... 4
MATH 200 Application and Analysis .......... 4

Sciences Option

COMPUTER SCIENCE COURSES
CS 111 Computer Science I .................. 4
CS 112 Computer Science II ................ 4
CS 201 Programming in FORTRAN or COBOL .... 2
CS 223 Computer Organization and Assembly Language .................................. 3
CS 331 Design and Analysis of Algorithms and Data Structures ....................... 3
Two approved CS electives, only one of which may be a language course .......... 5-6

REQUIRED MATHEMATICS COURSES
MATH 122 Calculus I ......................... 4
MATH 230 Elementary Linear Algebra ......................................................... 4
MATH 374 Introduction to Linear Algebra and Differential Equations ............. 4

Teaching Minor

CS 111 Computer Science I .................. 4
CS 112 Computer Science II ................ 4
CS 223 Computer Organization and Assembly Language .................................. 3
CS 331 Design and Analysis of Algorithms and Data Structures ....................... 3
CS 503 Programming the Microcomputer for Teachers ................................ 3
MATH 122 Calculus I ......................... 4
MATH 145 Discrete Mathematical Structures ............................................. 3
Approved Computer Science Elective (see advisor) .................................... 3
Approved Language Course (see advisor) .............................................. 2

CS 302 Teaching of Computer Science does not carry credit toward the major but is a required course for those in secondary education.

Computer Science Courses (CS)

(Courses described in italics are approved for General Education.)

CS 105 Introduction to Computers 3 hrs.
The BASIC programming language is used to acquaint students with the computer facility and with the abilities of computers. The course consists of one hour of lecture and two hours in recitation sections each week. Computer terminology and capabilities are explored. Student-written computer programs are executed and related to a variety of computer applications. Illustrations of programming techniques and the significance of computers in contemporary society will be given. A student may not receive credit for both BIS 102 and CS 105. A student may not receive credit for CS 105 after the completion of any other CS course except CS 306.

CS 106 BASIC for Engineers 1 hr.
This course provides an introduction to programming in the BASIC language and an introduction to the WMU computer system. It is designed primarily to give students in certain engineering programs enough background so that they can use BASIC in further coursework. (Occasionally offered.) 1 1/2 years of high school algebra or MATH 111.

CS 110 Introduction to Computer Programming Using BASIC 3 hrs.
This course is designed for those with little previous programming experience beyond computer literacy. The emphasis is on non-numeric problem solving. Students learn about system commands necessary to create and execute computer programs written in a high-level programming language and are introduced to problem solving, program design, coding, and debugging using the BASIC programming language. Programming assignments are given to build technical skill. These general language concepts will be discussed program syntax, declaration and basic data types, constants and variables, arrays, executable instructions, statements and expressions, statement types (i.e., assignments, decision, looping, subprogram definition and use, functions with parameters). This course cannot be used for a major or minor in computer science nor can it be taken for any credit after completing CS 111 or a higher level CS course. Prerequisite: Computer Literacy.

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 algebraic solutions to problems in a structured computer language. Applications will involve the use of the Pascal language to solve numerical and non-numerical problems on the computer. Prerequisite: Prior programming experience. Co-requisite: MATH 118.

CS 112 Computer Science II 3 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. The Pascal language will be used, and advanced features of the language such as recursion, pointers, sets, and variable records will be discussed. Data structures and their various implementations are introduced. Discussion and analysis of searching and sorting techniques will be presented. Elementary file processing using sequential and random input and output will be demonstrated. A team project will be assigned. Prerequisite: CS 111. Co-requisite: MATH 122 or 200.

CS 200 Programming Language Experience 2 hrs.
Details of a specific computer programming language are presented. The name of the specific language discussed will appear in the student’s transcript. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. It is suitable for anyone wishing to learn the specific language being taught. Course can be repeated once in a different language. Prerequisite: CS 110 or CS 111 and 1+1/2+1 years of high school algebra or MATH 111.

CS 201 Programming in FORTRAN 2 hrs.
Details of the FORTRAN computer programming language are presented. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. Credit will not be given for both CS 201 and CS 306. Prerequisite: CS 110 or CS 111 and one and one-half 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. Prerequisite: CS 110 or CS 111 and one and one-half years of high school algebra or MATH 111.

CS 223 Computer Organization and Assembly Language 3 hrs.
The structure and internal organization of digital computers will be emphasized. Additional topics include addressing techniques; internal machine representation of numbers, characters, and programs; program control; arithmetic and logical operations; input-output; subroutines and linkage; system control programs in timesharing and batch environments. An introduction to assembly languages will be given. Prerequisite: CS 111.

CS 224 Systems Programming Concepts 3 hrs.
This course introduces concepts and examples of systems software: assemblers, linkers, loaders, macroprocessors, compilers, and language run time systems. An introduction to operating systems concepts including device drivers, time sliced and interrupt driven processes, interprocess communication, reentrant and shareable code, and data and instruction space will also be provided. A discussion of the structure of a single user operating system will take place. Prerequisite: CS 112 and CS 223.

CS 299 Professional Concerns for Computer Scientists I 2 hr.
This writing-intensive course explains the different things computer scientists do and how it affects the world around them.
This course deals with the problems and current trends of teaching high school computer science. The main emphasis is on effective methods of instruction. Practical methods of selection, organization, and maintenance of hardware and software are also considered. Topics such as computer literacy, the computer as a problem-solving tool, issues in computing, and related computer applications will be considered and discussed. This course does not carry credit towards a Computer Science Major or Minor; however, it is required course for those in Secondary Education. Prerequisites: CS 105, CS 112, and junior status.

CS 306 Introductory Programming FORTRAN 2.5 hrs. An introduction to computer programming using the FORTRAN language (FORmula TRAnslation). Prerequisite: One and one-half years of high school algebra or MATH 111. Credit will not be given for both CS 201 and CS 306. This course will not be used towards a major or minor in Computer Science.

CS 331 Design and Analysis of Algorithms and Data Structures 3 hrs. This course is a continuation of the study of data structures and algorithms. The design of algorithms using paradigms such as divide and conquer, greedy method, dynamic programming, backtracking, and branch and bound is covered. Binary search trees and 2-3 trees are discussed along with their applications to algorithm implementation. Design and implementation of graph based algorithms are covered. Algorithms will be analyzed for their complexity. Prerequisites: CS 112, CS 223 or EE 251.

CS 342 Analysis of File Systems and Structures 3 hrs. Programming projects will be assigned to give students experience in systems programming and file processing. Topics will include: records, file blocking, data base management systems, characteristics of storage media, algorithms to process direct access devices, inverted lists, multilists, indexed sequential and hierarchical structures. Prerequisites: CS 331.

CS 443 Data Base Management Systems (DBMS) 3 hrs. This course presents the fundamental concepts and practices of data base management systems. The data base environment and administration are defined along with the roles of the data base administrator and the data dictionary. Conceptual and logical models are discussed. The three approaches—relational, hierarchical and network—are briefly described. Data access techniques such as sequential and multi-level sequential indexes, linked lists, inverted files and hashing are briefly reviewed. A few commercial systems will be studied for their security, reliability and integrity. Students will acquire experience with 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 BS 362. A student may not receive credit for both CS 443 and CS 543.

CS 460 Software Systems Development 3 hrs. Advanced computer programming techniques used in the specification, design, and implementation of large software systems. Testing and maintenance of software systems. Modular programming, top down structural design, composite design, HIP0, project management. Emphasis is placed on the solution of large software system problems using a team approach. Prerequisite: CS 331. This course satisfies the baccalaureate writing requirements for computer science majors.

CS 485 Programming Languages 3 hrs. Properties of various programming languages including scope of declarations, storage allocation, control structures and formal parameters will be studied, as well as run time representation of programs and data structures. A study of compilers and interpreters will be made. This will include loading, execution, storage allocation, symbol tables, lexical scan, parsing and object code generation. The relation of automata to formal languages and grammars will be discussed. Prerequisites: CS 331, MATH 145.

CS 495 Topics in Computer and Information Science 3 hrs. The content of this course varies. It is intended to introduce the student to significant topics which are not normally offered as separate courses. This course may be taken more than once with the approval of the student’s advisor. Prerequisite: Approval of Department.

CS 498 The Computer Science Profession 1 hr. This course examines the role of the computer scientist in society. Topics covered are designed to promote awareness of professional, ethical, and societal issues in the field of computer science. Prerequisite: Senior status.

CS 499 Professional Concerns for Computer Scientists II 2 hr. This course discusses the role of the computer scientist in society. It prepares students for their next step in their career as a computer scientist. The second major theme of the course promotes awareness of professional issues such as ethics and current events. Oral and written communication will be stressed. Students are required to become involved with the profession outside of class. Prerequisite: Senior status.

500-level Computer Science courses are open to juniors and seniors who have met the specific course prerequisites or have the permission of the instructor.

CS 502 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 will be learned as well as the significance of computers in contemporary society. Students will write a number of programs and will receive an introduction to the use of standard system software. Flowcharting is introduced. Examples of Computer Assisted Instruction will be given. Not for Computer Science Majors and minors (except teaching). Prerequisite: MATH 150 or equivalent.

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 502 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 exponential frames is discussed. General purpose simulation languages (e.g., Simscript, GPSS, CSM, Simula) and the formalisms they support are presented. An introduction to random variables and elementary frequency distributions is provided. Simulation as a tool for exploring ill-defined systems will also be discussed. Several small projects and a simulation project will be assigned the student. Prerequisite: CS 331 and a course in probability or statistics.

CS 520 Algorithms for VLSI Design 3 hrs. Students will be expected to learn the basics of VLSI technology. The course will include a project involving the design of VLSI systems. Different phases of the physical design algorithms for logic partitioning, placement, global routing, channel generation and local routing will be covered. Additional topics may include algorithms for circuit compaction, circuit extraction, and design rule checking. Prerequisites: EE 250 and CS 331.

CS 525 Computer Architecture 3 hrs. General topics in computer architecture, memory designs, design and evaluation, pipeline design techniques, RISC architectures, vector computers, VLSI systems architecture. Prerequisite: EE 250, CS 223, 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 which have a prototype treatment on current systems. These algorithms may include parallel sorting, combinational search, graph search and traversal, applications in graphics, 2-d finite differences, 2-d finite element techniques, matrix algorithms and the Fast Fourier Transform. Prerequisite: CS 331.

CS 527 Theory of Computer Graphics 3 hrs. A first course in the design of interactive computer graphics systems. Currently available hardware and software systems are described. Emphasis is on theoretical considerations in the design of interactive computer graphics software systems. Prerequisites: MATH 230 and CS 331.
functions and cardinality are covered.

CS 580 Theory of Computation
3 hrs.

computation in the framework of

relations, functions, induction operations on

programming languages. Basic definitions

of popular networks are presented. Layered

software are explained. Various types of

computer buses, local area networks, and

networks using current hardware and

network models are studied. There is lab

work with local area and long haul networks.

CS 555 Computer Networks and Distributed
Systems
3 hrs.

The design and evaluation of computer
networks using current hardware and
software are explained. Various types of
computer buses, local area networks, and
long haul networks are defined. Case studies
of popular networks are presented. Layered
network models are studied. There is lab
work with local area and long haul networks.
Prerequisite: CS 324 and CS 331.

CS 580 Theory of Computation
3 hrs.

Provides an introduction to the theory of
computation in the framework of
programming languages. Basic definitions
and concepts dealing with algorithms, sets,
relations, functions, induction operations on
functions and cardinality are covered.

Primitive and partial recursive functions are
defined and their properties treated with

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 A. I. techniques
and concepts, e.g., production systems,
heuristic searching techniques, knowledge
representation, predicate calculus, and
pattern recognition. It introduces A. I.
application areas such as game playing,
expert systems, vision, natural language
processing, and learning.

Prerequisite: CS 331.

CS 595 Advanced Topics in Computer and
Information Science
1-3 hrs.

The content of this course varies. It is
intended to introduce the student to
advanced topics which are normally offered
as separate courses. The course may be
taken more than once with approval of the
student’s advisor. Prerequisite: Approval of
Department.

CS 599 Independent Study in Computer
Science
1-3 hrs.

Advanced students with good scholastic
records may elect to pursue independently
the study of some topic of special interest.
Topics are chosen and arrangements are
made to suit the needs of each particular
student. Prerequisite: Written approval of
instructor.

CRIMINAL JUSTICE
PROGRAM
See Sociology Department in the College of
Arts and Sciences

ECONOMICS
Werner Sichel, Chair
Donald Alexander
Issay Aseta
Nancy S. Barrett
William Bosshardt
Philip Caruso
Wayland Gardner
Bassam E. Hank
Saim E. Hank
Emily Hoffman
Kevin Hollenbeck
Wei-Chiao Huang
Timothy L. Hunt
William S. Kern
Jean Kimmel
Donald Meyer
John Neill
Christopher O'Leary
Susan Pozo
Charles Sull
Thomas Taylor
Paul Thistle
Mark Wheeler
Raymond E. Zelder
Huazhong 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
economy.

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.

A minor in economics consists of a
minimum of 15 hours in the department.

A major in economics consists of a
minimum of 30 hours of work in the
department. The following are required
courses for majors: Principles of Economics
(201, 202), Income Analysis and Policy (306),
Price Theory (303), and Statistics (402).

In addition majors should choose the
remainder of their courses in consultation with
the undergraduate advisor, with careful attention
paid to achieving a proper spread.

A major in economics who intends to do
degree work in economics is advised to
take MATH 122 and 123 at least, and ECON
509.

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.
GROUP SOCIAL SCIENCE
Students in the secondary education curriculum who major in economics must also complete a minor in group social science and HIST 490 or GEOG 460. Refer to the "Interdisciplinary Programs" section of this catalog for a description of the minor requirements.

Baccalaureate Writing Requirement
Students who have chosen the Economics major must satisfy the Baccalaureate Writing Requirement by successfully completing ECON 484 Comparative Economic Systems.

Courses By Topic

**PRINCIPLES AND GENERAL THEORY**

- Contemporary Economic Problems
- Principles of Economics (micro)
- Principles of Economics (macro)
- Price Theory
- Income Analysis and Policy
- Managerial Economics
- Introductory Economic Statistics
- Studies in Economic Problems: Variable Topics
- Economic Statistics
- Introduction to Mathematical Economics
- History of Economic Thought
- Econometrics

**LABOR AND RESOURCE ECONOMICS**

- Women and the Economy
- Poverty and Economic Security
- The Economics of Medical Care
- Environmental Economics
- Labor Problems
- Economics of Human Resources

**MONEY, CREDIT AND FINANCE**

- Money and Credit
- Federal Government Finance
- Monetary Theory and Policy
- State and Local Government Finance

**INDUSTRIAL ORGANIZATION AND PUBLIC CONTROL**

- The Organization of Industries
- Business, Government and Society

**INTERNATIONAL ECONOMICS**

- International Economics
- Comparative Economic Systems
- Studies in Asian Economics
- Economic Development

**SPECIAL STUDIES**

- Guest Economist Seminar
- Readings in Economics

**Economics Courses (ECON)**

Courses described in italics are approved for General Education.

**ECON 101 Principles of Economics**

- The study of microeconomics, the study of the price system, resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system.
- 3 hrs. Fall, Winter, Spring, Summer

**ECON 202 Principles of Economics**

- An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and the role of government in regulating and supplementing the price system.
- 3 hrs. Fall, Winter, Spring, Summer

**ECON 303 Price Theory**

- An introduction to microeconomics, the study of the price system, resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system.
- 3 hrs. Fall, Winter, Spring, Summer

**ECON 306 Income Analysis and Policy**

- An examination of microeconomic theory with particular emphasis on business cycles, economic growth, and price level instability. The interplay between theory and policy analysis. Prerequisites: ECON 201 and 202.
- 3 hrs. Fall, Winter, Spring, Summer

**ECON 309 Women and the Economy**

- The study 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. Prerequisites: ECON 100 or 201 and 202.
- 3 hrs. Fall or Winter

**ECON 310 Poverty and Economic Security**

- The study of poverty and economic security. Topics covered include poverty, income distribution and poverty in the United States. The welfare and social security systems are compared to proposed alternatives such as a negative income tax or guaranteed income. Prerequisites: ECON 100 or 201 and 202.
- 3 hrs. Fall or Winter

**ECON 314 The Economics of Medical Care**

- The study of the economics of medical care. Topics covered include medical finance, 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. Prerequisites: ECON 201 and 202, or permission of instructor.
- 3 hrs. Fall, Winter, Spring, and/or Summer

**ECON 316 Environmental Economics**

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

**ECON 400 Managerial Economics**

- An introductory analysis of the application of tools of economic analysis to management problems and decision making. The basic concepts include microeconomics and cost analysis, demand pricing, capital budgeting, and selected optimization models. Prerequisites: ECON 201 and 202, MATH 116, and MATH 216, or equivalent.
- 3 hrs. Fall, Winter, Spring, Summer

**ECON 401 International Economic Statistics**

- An introduction to elementary statistical methods used in the analysis of economic data. Topics include descriptive statistics, probability theory, hypothesis testing and simple regression analysis. Prerequisites: ECON 201, ECON 202, MATH 116 or equivalent.
- 3 hrs. Winter

**ECON 404 The Organization of Industries**

- The study of industries and the economic problems confronting the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisites: ECON 201 and 202.
- 3 hrs. Fall, Winter, Spring, or Summer

**ECON 410 Labor Problems**

- 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 202.
- 3 hrs. Fall, Winter, Spring or Summer

**ECON 424 Federal Government Finance**

- An analysis of the role of government in 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 202.
- 3 hrs. Fall, Winter, Spring or Summer

**ECON 445 Business, Government and Society**

- Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation. Prerequisites: ECON 201 and 202.
- 3 hrs. Fall, Winter, Spring or Summer

**ECON 480 International Economics**

- The study of economic aspects of international policies of the United States both for the economy and for the firm. Prerequisites: ECON 201 and 202.
- 3 hrs. Fall, Winter, Spring or Summer

**ECON 484 Comparative Economic Systems**

- An introductory analysis of the application of tools of economic analysis to management problems and decision making. The basic concepts include microeconomics and cost analysis, demand pricing, capital budgeting, and selected optimization models. Prerequisites: ECON 201 and 202, MATH 116, and MATH 216, or equivalent.
- 3 hrs. Fall, Winter, Spring, Summer

**ECON 487 Studies in Asian Economics**

- The course concentrates on the study of the Japanese, Chinese and Indian economic systems. These models are then applied as a basis of comparison to the other Asian

**ECONOMICS 101**

- 3 hrs. Fall, Winter, Spring, Summer
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 588 Economic Development 3 hrs. Fall An analysis of the economic factors such as population, resources, innovation and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural patterns and economic reasons for lack of development and the steps necessary to promote economic progress. Prerequisites: ECON 201 and 202.

ECON 591, 592 Guest Economist Seminar 1 hr. Fall, Winter 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, Winter An independent program of study for qualified students to be arranged in consultation with the instructor. Prerequisite: Twelve credit hours of economics and the consent of instructor and department chairperson.

ENGLISH

Shirley Clay Scott, Chair
JoNina Abron
Thomas Bailey
Miriam Bat-Ami
Ellen Brinkley
Allen Carey-Webb
Norman Carlson
William Comstock
John Cooley
Seamus Cooney
Nancy Cutbirth
Clifford Davidson
Rolin Douma
Stuart Dybek
Philip Egan
Nancy Eimers
Gwendolyn Etter-Lewis
C.J. Gianakaris
Jamy Gordon
Maryellen Hains
Bradley Hayden
Robert Hinkel
Edward Jayne
Paul Johnston
W. Arnold Johnston
Elise B. Jorgens
Katharine Joslin
Jill Larson
Tom Minehart
John Murphy
William Olsen
Gwen Rasterg
Mark Richardson
Stephanie Richardson
Herbert Scott
Thomas Seller
Robert Shafzer
Thomas Small
John Stoupe
Larry Syndergaard
Larry tenHarmsel
Craig Thomas
Daneen Wardrop
Constance Weaver

The Department of English serves students in two principal ways: In developing their power to communicate and express themselves and in enhancing their ability to participate in and understand the experiences of other people, real and imaginary, past and present. Courses and programs offered by our department—in writing, English language, and literature (including film)—enable students to concentrate in English, complement their other studies, or simply explore and sample the disciplines of language and literature. As a department we are traditionally engaged in training teachers and preparing students for graduate study. We are equally concerned with serving those students preparing for the many professions in which humane perceptions and the skills of communication, especially writing, are important.

Special Note to Non-Majors

The Department of English offers many courses, including a variety of writing courses, suitable for students not majoring in English: 105 Thought and Writing, 107 Good Books, 110 Literary Interpretation, 111 Contemporary Topics in Literature, 112 Literary Classics, 150 Literature and Other Arts, 210 Film Interpretation, 223 Black American Literature, 252 Shakespeare, 264 News Writing, 286 Writing Fiction and Poetry, 286 Children's Literature, 350 Practical Writing, 370 Good Books II, 311 Perspectives Through Literature, 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. English advisors will help any student select courses in writing, English language, or literature which will be useful in General Education or as background for a career. Advisors’ offices are on the sixth floor of Sprau Tower (phone 387-2575).

**Majors and Minors**

1. **The requirements for the English majors (listed below)** are flexible enough to allow students to follow individualized 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. Students should see the advisor early enough to leave at least 12 credits to complete after declaring the major. Minor slips are required for all majors. Students minoring in English should see the advisor as soon as possible after they begin work on the minor.

2. A minimum of 30 hours is required for a major in English, and 20 hours are required for a minor. Students are urged, however, to take as many additional hours as they can. In particular, students planning to teach or attend graduate school should consider taking additional work in preparation.

3. No more than four hours of “D/C” or “D” credit may be applied to an English major or minor.

4. **Foreign Language Requirement:** English majors must have at least one college year of a foreign language or its equivalent (at least two years of the same language in high school). 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 study at least two languages. French and German are most frequently required in graduate school.

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 from other colleges. An early conference will enable students to avoid duplication of courses and possible loss of transfer credit and may enable them to bypass some of the department’s basic requirements as listed below. It is departmental policy to accept no more than 20 hours of transferred credit toward a major and no more than 12 hours of transferred credit toward a minor.

### Baccalaureate Writing Requirement

Students who have chosen an English major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- **ENGL 310 Literary History and Criticism**
- **ENGL 322 American Literature: Major Writers**
- **ENGL 340 Development of English Verse**
- **ENGL 371 The English Language**
- **ENGL 372 Development of Modern English**
- **ENGL 452 Shakespeare Seminar**
- **ENGL 461 Form in Non-Fiction**

### Majors

#### 30 hours required

**Arts and Sciences, Liberal Arts, Other Non-Teaching Curricula**

**110 Literary Interpretation:** Entry to the program. Prerequisite to all required literature courses but does not count toward this major (may be counted in AREA I of the General Education Program).

1. Either **ENGL 310 Literary History and Criticism** or **ENGL 340 Development of English Verse**.
2. **ENGL 322 Major American Writers**.
4. Two courses chosen from those indicated with an * (courses which emphasize literature written before 1950).
5. Plus electives to complete the 30 hours.

#### Secondary Education Curriculum

**ENGL 110 Literary Interpretation:** Entry to the program. Prerequisite to all required literature courses but does not count toward this major (may be counted in AREA I of the General Education Program).

1. Either **ENGL 310 Literary History and Criticism** or **ENGL 340 Development of English Verse**.
2. **ENGL 322 Major American Writers**.
3. An *English language course* (either 371 Structures of Modern English or 372 Development of Modern English or 472 American Dialects or 574 Grammar for Teachers).
4. **ENGL 379 Writing for the Secondary Teacher**.
5. Two courses from those indicated with an * (courses which emphasize literature written before 1950).
6. **ENGL 390 Teaching of Literature in the Secondary Schools** is required. It is required for certification but does not count toward the 30 credits in English required for the major. ED 302 Teaching and Learning-Secondary is the prerequisite for this course.

Twenty of the thirty hours must be in 300, 400, or 500 level courses; for instance, the two * courses. ENGL 380 may not count toward this total.

#### English Major With Writing Emphasis

Major slips required. Transfer students who wish to enter these programs should see an advisor as soon as possible after admission.

### English Major With Creative Writing Emphasis

**ENGL 110 Literary Interpretation:** Entry to the program. Prerequisite to all literature courses but does not count toward the major (may be counted in AREA I of the General Education Program).

1. **ENGL 266 Writing Fiction and Poetry** (prerequisite to all other writing courses);
2. 12 hours from the following courses: **ENGL 360 Advanced Fiction Writing**, **ENGL 367 Advanced Poetry Writing**, **ENGL 368 Playwriting**, **ENGL 566 Creative Writing Workshop** (ENGL 366, ENGL 367, and ENGL 368 may be taken concurrently. The prerequisite for ENGL 566 is 6 hours of creative writing courses);
3. 16 hours (four courses at the 300-500 level) chosen from the core requirements (No. 1-4) of the Arts and Sciences English Major. See above;
4. Electives to make 30 hours.

### English Major With Practical Writing Emphasis

**ENGL 110 Literary Interpretation:** Entry to the program. Prerequisite to all literature courses but does not count toward the major (may be counted in AREA I of the General Education Program).

1. **ENGL 264 News Writing** or any option of 305 Practical Writing. (One of these courses is prerequisite to all other writing courses in this major);
2. **ENGL 364 Feature and Article Writing** (may be taken concurrently with 462, below);
3. **ENGL 462 Advanced Writing** (may be taken concurrently with 364, above);
4. **ENGL 464 Professional Writing** (Prerequisite: 2 upper level writing classes);
5. **ENGL 461 Form in Non-Fiction**;
6. 12 hours (three courses at the 300-500 level) chosen from the core requirements (No. 1-4) of the Arts and Sciences Major. See above;
7. Electives to make 30 hours.

The English Major with Practical Writing Emphasis may be expanded from 30 to 44-46
Required: one course in English language or literature, to be taken early in the sequence from those courses which presently count toward an English minor or major, approved by an English advisor prior to enrollment, plus at least twelve hours to be selected from ENGL 305 Professional Writing, ENGL 305 Research and Report Writing, ENGL 305 other topic listed in schedule (e.g., Analytical Writing), ENGL 364 Feature and Article Writing, ENGL 462 Advanced Writing (recommended as a capstone), plus one other course in the department, including any of the above not already taken, to be selected in consultation with an English advisor. Minor slips are required for the practical writing minor.

Journalism Minor
This minor, which can include key courses outside the department, is useful preparation not only for prospective reporters and editors but also for people who plan careers in broadcasting and the media, advertising, marketing, public relations, business, industry, and government. Courses within the program may also be good choices for anyone who wants to understand a vital subject: the ways we communicate in our society.

The minor allows great flexibility in course selection so that students can combine the journalistic skills and insights of their minor with any of a wide variety of major programs, political science, engineering, economics, business, and history, for example. Some of the courses listed in Groups I, II, and III below have prerequisites. See course listings.

No more than one of the following courses may be counted toward the 20 credits required for the practical writing minor.

Minor slips are required: see an English advisor (387-2575).

BASIC REQUIREMENTS

1. ENGL 264 News Writing.
2. ENGL 265 News Editing.
3. ENGL 363 Reporting.
4. Electives to complete the 20 hours, selected in consultation with the advisor, from at least two of the following three groups.

GROUP I: SPECIALIZED COURSES IN JOURNALISTIC WRITING
ENGL 364 Feature and Article Writing
ENGL 365 Reviewing for the Press
ENGL 463 Reporting Community Affairs
COM 359 Broadcast Journalism

GROUP II: RELATED COURSES IN WRITING
ENGL 282 Writing Fiction and Poetry
ENGL 325 Practical Writing (any option)
ENGL 462 Advanced Writing
ENGL 464 Professional Writing
COM 358 TV and Film Scripting

GROUP III: RELATED COURSES IN MEDIA AND COMMUNICATIONS
COM 240 Introduction to Telecommunication
COM 540 Studies in Mass Communication (where topic is applicable and with permission of advisor)

World Literature Minor
The Department of English and the Department of Languages and Linguistics 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. Combs, 721 Sprau (387-2603).

Integrated Language Arts Minor
The Department of English is one of several participating departments in the integrated
English Courses (ENGL)

(Courses described in italics are approved for General Education.)

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 a credit towards English major or minor. Fulfills the University Intellectual Skills college level writing requirement.

ENGL 107 Good Books 4 hrs.
An exploration of good literature, selected from all times and countries experienced in a variety of ways—as fantasy and adventure, as imaginative response to fundamental human experience such as death or evil, as social criticism and analysis, as revelation of character and psychology, as experience of unfamiliar customs and cultures. A course for the general student rather than the student who plans to specialize in the study of literature. Credit towards English major or minor by permission of the department only.

ENGL 110 Literary Interpretation 4 hrs.
An introduction to the study of literature, aimed at developing sensitivity and skill in the critical interpretation of poetry, drama, and prose fiction. Designed for entry to any English major program. Does not count toward the 30 hours required in a major but may be counted in AREA I of the General Education Program.

ENGL 111 Contemporary Topics in Literature 4 hrs.
Exploration of fiction, poetry, drama, and film related to current concerns. Topics are: A Myth and Folk Literature, B Man, Woman and Marriage in Literature. An exploratory course for the general student rather than the student who plans to specialize in the study of literature. Credit towards English major or minor by permission of the department only.

ENGL 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, stones, poems, or plays to their representation in other media and forms, particularly film (including TV), music and song, dramatic representation, and painting.

ENGL 205 Intermediate Writing 4 hrs.
A practical course for freshman 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.

ENGL 210 Film Interpretation 4 hrs.
Studies in the motion picture as art form.

ENGL 222 American Literature and Culture 4 hrs.
A study of some of the recurrent themes in American life as seen in American literature.

ENGL 223 Black American Literature 4 hrs.
A survey of important black American writers and the historical development of the black image and experience in American literature and culture.

ENGL 252 Shakespeare 4 hrs.
A survey of Shakespeare's art through study of selected tragedies, histories, and comedies.

ENGL 264 News Writing 4 hrs.
Introduction to journalistic principles with an emphasis on writing news stories and learning news style. Students should be able to type.

ENGL 265 News Editing 4 hrs.
Instruction and extensive practical experience in copy editing, rewrite, typography, headline writing, handling wire copy and photographs, and layout. Prerequisite: ENGL 264 News Writing.

ENGL 266 Writing Fiction and Poetry 4 hrs.
Study and practice in writing of fiction and poetry, intended to develop the student's understanding of formal techniques and skill in the use of these techniques.

ENGL 282 Children's Literature 4 hrs.
An exploration of the human and literary values in the best of children's books. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature—folktales and fantasy, fiction and non-fiction, myth and poetry. If this course is counted toward the English major or minor, 283 Literature for Adolescents may not be counted, except by middle school and junior high school education English majors.

ENGL 283 Literature for Adolescents 4 hrs.
Critical analysis of those genres read by youth from twelve to eighteen in fiction (especially that of maturation, adventure, history, and fantasy), drama, poetry, myth and legend, biography, and other non-fiction. If this course is counted toward the English major or minor, 282 Children's Literature may not be counted, except by middle school and junior high school education English majors.

ENGL 305 Practical Writing 4 hrs.
A practical course for juniors and seniors who wish to develop their skills in writing. Emphasis is on understanding the writing forms of non-fictional prose such as research papers and reports, personal writing, and pre-professional writing (for students planning careers in business, social service, industry, law, the arts, or other professions). Topics vary and will be announced each year. May be repeated for credit. May be counted only once toward fulfillment of General Education requirements, and counted only once for a major/minor credit, except for the practical writing minor.

ENGL 307 Good Books II 4 hrs.
An advanced version of ENGL 107 Good Books; more challenging books for more experienced readers. No prerequisites. Does not count toward English major or minor.

ENGL 310 Literary History and Criticism 4 hrs.
Discussion of important topics and problems, both historical and critical, involved in the systematic study of literature. Emphasis includes study in the chronology of English literature, its development and continuity, and an introduction to the nature and uses of formal literary criticism. Prerequisite: ENGL 110.

ENGL 311 Perspectives Through Literature 4 hrs.
Exploration of an important realm of human nature and action through the special perspective provided by literature. The literary perspectives may be supplemented by materials from other arts or disciplines. Topics are A The Quest for the Self, B Science Fiction and Fantasy, C Man's Place in Nature. 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 4 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. Approved for General Education under Area I.

ENGL 313 Asian Literature 4 hrs.
Study of works selected from the great literature of Asia, especially the Chinese, Japanese, and Indian traditions. Works will be studied in English. Approved for General Education under Area IV (Non-Western World).

ENGL 314 African Literature 4 hrs.
Study of works selected from the great literature of Africa, including both traditional and contemporary material. Works will be studied in English. Approved for General Education under Area IV (Non-Western World).

ENGL 315 The English Bible as Literature 4 hrs.
Study of selections from the Old and New Testaments and the Apocrypha. Some attention will be given to the influence of the English Bible on a few representative writers.
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 relationship between the development of reading and writing ability. Emphasizes the application of current research in the elementary classroom.

ENGL 375 Acquisition of Literacy and the Early Elementary Child 4 hrs.
This course focuses on the psycholinguistic nature of the reading and writing process, emphasizing how literacy builds upon oracy. Particular attention is paid to literacy for the young child and to how children's literature can further the acquisition of literacy. Deals with the child from birth through seven years. (This course is required for the integrated language arts minor.)

ENGL 376 Acquisition of Literacy and the Later Elementary Child 4 hrs.
This course focuses on the psycholinguistic nature of the reading and writing processes, emphasizing how children can be helped to develop their reading and writing abilities. Particular attention is paid to literature for children and how that literature can further not only their reading and writing but also their development of artistic and human values. Deals with the child from seven through twelve years. (This course is required for the integrated language arts minor.)

ENGL 379 Writing for the Secondary Teacher 4 hrs.
A course developing the abilities of prospective teachers to control language in the writing process and exploring means by which the writing ability of secondary students can be encouraged, developed, and evaluated.

ENGL 380 Teaching of Literature in the Secondary Schools 4 hrs.
A study of techniques and theories of teaching literature to young adults. Prerequisite: ED 302 Teaching and Learning—Secondary. Students in the elementary education curriculum must obtain permission from a department advisor before enrolling in this course. Does not count as credit toward the major or minor.

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 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 442 Modern Drama 4 hrs.
Studies in the major styles and forms of modern drama from Ibsen to the present. Prerequisite: ENGL 110.

ENGL 444 The British Novel* 4 hrs.
A study of the novel as a literary form reflecting, in its development and diversity, changes in human consciousness. Emphasis will be on development of the British novel from the eighteenth to the early twentieth century. Prerequisite: ENGL 110.

ENGL 452 Shakespeare Seminar* 4 hrs.
Intensive study of selected aspects of Shakespeare's poetic and dramatic art. Prerequisite: ENGL 110 or 252.

ENGL 461 Form in Non-Fiction 4 hrs.
A literary analysis of the form and development of non-fiction. Prerequisite: ENGL 110.

ENGL 462 Advanced Writing 4 hrs.
Practice in writing articles, essays, biographical and critical prose, with emphasis on development of the student's individual style and elimination of obstacles to clear and vital expression.

ENGL 463 Reporting Community Affairs 4 hrs.
Practice in the covering and reporting of the police, the courts, and other governmental units. Some stress on investigative and in-depth reporting. Prerequisites: ENGL 264 and 363.

ENGL 464 Professional Writing 4 hrs.
Practice in developing the forms and techniques of writing, editing, and researching required in business, industry, and government. Students should take this course as their capstone experience in practical writing. Prerequisite: two writing courses.

ENGL 472 American Dialects 4 hrs.
A study of regional and social varieties of American English from sociolinguistic perspectives, focusing on the forces which influence different types of language variation. Examines issues of linguistic bias, and offers a multi-cultural perspective on the role of language in daily life.

ENGL 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: ENGL 110 and have completed at least sixteen hours of lower-division English courses, including at least two from the 300 or 400 level, second semester Junior, exemption.

musicians, and artists, but emphasis will be on the poetic, philosophical, and narrative elements of the Bible itself.

ENGL 322 American Literature: Major Writers 4 hrs.
Intensive reading of representative works of major American writers. Prerequisite: ENGL 110.

ENGL 340 Development of English Verse 4 hrs.
A historical study of English poetry, from its beginning to the present, emphasizing the development of poetic techniques, major verse forms and styles, and their relation to theories of poetry. Prerequisite: ENGL 110.

ENGL 350 Development of English 4 hrs.
A study of the novel as a literary form reflecting, in its development and diversity, changes in human consciousness. Emphasis will be on development of the British novel from the eighteenth to the early twentieth century. Prerequisite: ENGL 110.

ENGL 364 Feature and Article Writing 4 hrs.
Study and practice in writing feature and magazine articles; attention to contemporary techniques and styles in documentary and personal reportage. Prerequisite: A previous college-level writing course.

ENGL 365 Reviewing for the Press 4 hrs.
Theory and practice in writing reviews of books, dramas, films, television, concerts, and exhibitions for various kinds of mass-audience publications. Prerequisite: Previous course work in journalism, creative writing, literature, or media.

ENGL 366 Advanced Fiction Writing 4 hrs.
An advanced course in the writing of fiction, with emphasis on class discussion and criticism of each student's writing. Prerequisite: ENGL 266 or permission of the department.

ENGL 367 Advanced Poetry Writing 4 hrs.
An advanced course in the writing of poetry, with emphasis on class discussion and criticism of each student's writing. Prerequisite: ENGL 266 or permission of the department.

ENGL 368 Playwriting 4 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. Prerequisite: ENGL 266 or permission of the department.

ENGL 369 Writing for Elementary Teachers 4 hrs.
A course intended to develop the writing skills of prospective teachers and to explore the means by which the writing ability of elementary school children can be encouraged, developed, and evaluated.

ENGL 371 Structures of Modern English 4 hrs.
Examines the structures of the English language and surveys major grammatical theories. Emphasizes syntactic analysis of oral and written English to develop an understanding of the diversity of forms, meanings, and stylistic choices available in the language.

ENGL 372 Development of Modern English 4 hrs.
Traces the development of modern English from its beginnings to the present, examining historic and linguistic influences on change in both spoken and written English. Explores
only by permission of Director of Undergraduate Studies.

ENGL 530 Medieval Literature* 4 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* 4 hrs.
Readings in representative writers of the period 1500-1660.

ENGL 534 Restoration and 18th Century Literature* 4 hrs.
(British literature 1660-1800) Readings in representative writers of the period, focusing on the diversity of literary forms in the period.

ENGL 536 Nineteenth Century British Literature* 4 hrs.
Readings in representative writers focusing on one or more principal movements of the century.

ENGL 538 Modern Literature* 4 hrs.
Readings in representative writers in the period 1890-1945, not exclusively in British and American literature.

ENGL 540 Contemporary Literature 4 hrs.
Readings in representative writers who have come to prominence chiefly since 1945.

ENGL 555 Studies in Major Writers* 4 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 for Teachers 4 hrs.
Focuses on that aspect of linguistics known as "grammar". The grammar that we know intuitively, the descriptive grammars devised by modern linguists, and the "traditional" grammar which prescribes the rules of usage and mechanics. Emphasizes practical applications of these varied concepts in secondary and elementary English classrooms.

ENGL 582 Studies in Children's Literature 4 hrs.
A study in depth of significant themes, movements, types in children's literature. Prerequisites: ENGL 282 or permission of the department.

Only one of the three courses 282, 283, 582 may be counted toward the elementary education English minor, and only two of these three courses may be counted toward the middle school and junior high school education English major.

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.

ENVIRONMENTAL STUDIES PROGRAM
See "Science Studies" in the College of Arts and Sciences.

FRENCH
See "Languages and Linguistics" in the College of Arts and Sciences.

GEography

Eldor C. Quandt, Chair
Elen M. C. Cutrim
David G. Dickason
Mary E. Dillworth
Joseph R. Ehrt
Charles F. Keller
Eugene C. Kirchherr
Philip P. Micklin
Henry A. Rapu
Hans J. Stolle
Joseph P. Stoltman

These programs are designed to provide students with an improved understanding of humanity's physical and cultural surroundings and the interrelations of all these. Students are prepared through geography as a physical and social science for careers in such diverse fields as urban and regional planning, cartography, environmental analysis, teaching in elementary and secondary schools, and tourism and travel. A program is also available for those who desire to continue in graduate studies.

A core of four courses (GEOG 105, 205, 265, 303) are required of majors. A non-teaching major in geography with specialization provides for a minimum of 32 hours. It is recommended that 6 additional hours of work from the complementary disciplines be taken in support of the area of specialization. An internship for variable credit (GEOG 412) may be arranged in this program. For those who intend to pursue graduate work, it is recommended that courses in mathematics and foreign languages be considered as electives.

The department will accept toward the major or minor, credits earned at community and junior colleges which correspond to the 100-, 200-, 300-level offered by this department. However, transfer students should meet with the undergraduate advisor as soon as possible in order to finalize their program and avoid the danger of duplication of course work. Courses taken on a Credit/No Credit basis may not be counted toward the major except with the approval of the department chairperson. An honors program is available for students so recommended by members of the faculty of the Department of Geography.

Prerequisites applicable to all 500-level courses in Geography include junior status and 14 credit hours of Geography or related courses and consent of advisor and/or instructor.

Students are invited to call at Room 317, Wood Hall (phone 387-3410) for information concerning the departmental major, minor, honors program, or financial assistance.

Baccalaureate Writing Requirement
Students who have chosen either the Geography or Tourism and Travel major will satisfy the Baccalaureate Writing Requirement by successfully completing GEOG 303, Geographic Inquiry.

Geography Major

32 hours credit

105 Physical Geography .. 4 hrs.
205 Human Geography .. 3 hrs.
265 Map, Chart and Air Photo Reading .. 3 hrs.
303 Geographic Inquiry .. 4 hrs.
Two courses from Group I at 200 level or above
One course from Group II
One course from Group III
Geography Minor

20 hours credit
105. Physical Geography .................. 4 hrs.
205. Human Geography .................. 3 hrs.
265. Map, Chart and Air Photo Reading ........ 3 hrs.

Remaining courses to be selected with consent of advisor.

Geography Major Specialization

32 hours credit
The areas of specialization are: urban and regional planning, geographic information processing, environmental and resource management, and regional geography. A program of courses is provided for each of these areas.

This major is focused upon courses designed to meet a student's particular needs. An internship (GEOG 412) is available for those who wish to gain practical experience. This can be done by either assisting faculty in research or by working in an approved off-campus agency. It is recommended that 6 additional hours of work from complementary disciplines be taken in support of the area of specialization.

105. Physical Geography .................. 4 hrs.
205. Human Geography .................. 3 hrs.
265. Map, Chart and Air Photo Reading ........ 3 hrs.
303. Geographic Inquiry .................. 4 hrs.

Remaining courses must be selected with consent of advisor.

Secondary Education—Geography Major

32 credit hours
105. Physical Geography .................. 4 hrs.
205. Human Geography .................. 3 hrs.
265. Map, Chart and Air Photo Reading ........ 3 hrs.
303. Geographic Inquiry .................. 4 hrs.

Electives .................. 12 hrs.

The choice of a physical or social science emphasis within the major, and selection of all remaining courses and the minor will be made with the consent of a departmental advisor.

Secondary Education—Geography Minor

22 credit hours
105. Physical Geography .................. 4 hrs.
205. Human Geography .................. 3 hrs.
265. Map, Chart, and Air Photo Reading ........ 3 hrs.
303. Geographic Inquiry .................. 4 hrs.
and 2 additional hours

Group Social Science

Students in the secondary education curriculum who major in geography and choose a social science emphasis must also complete a minor in group social science. Refer to the "Interdisciplinary Programs" section of this catalog for a description of the minor requirements.

Tourism and Travel Major

32 credit hours
The tourism and travel major is designed for students planning to pursue careers in the tourism and travel industry. Application is required for acceptance to this major. An application form is available from the Undergraduate Advisor, Department of Geography, Room 321 Wood Hall, Western Michigan University, Kalamazoo, Michigan 49008

Required
105. Physical Geography .................. 4 hrs.
205. Human Geography .................. 3 hrs.
265. Map, Chart and Air Photo Reading ........ 3 hrs.
303. Geographic Inquiry .................. 4 hrs.
310. Research and Regulations/ Tourism .................. 4 hrs.
408. Geography of Travel and Tourism .................. 4 hrs.

At least two of the following regional courses:
311. Geography of Michigan .................. 3 hrs.
380. United States and Canada .................. 3 hrs.
381. South America .................. 3 hrs.
382. Mexico and the Caribbean .................. 3 hrs.
383. Western and Southern Europe .................. 3 hrs.
384. The Post-Soviet States .................. 3 hrs.
385. The Pacific Realm .................. 3 hrs.
386. Sub-Saharan Africa .................. 3 hrs.
389. Monsoon Asia .................. 3 hrs.

Electives: In consultation and with the approval of the program advisor, Tourism and Travel Majors are to select two additional courses in geography. Professional Practice (GEOG 412) is recommended as one of the two.

The tourism major is required to take a minor from the Haworth College of Business or Department of Languages and Linguistics (Modern and Classical Languages). Geography Courses (GEOG)

(Courses described in italics are approved for General Education.)

GEOG 100 World Ecological Problems and Man ...... 4 hrs.

(Geography credit) Geographers have long been concerned with studying the interactions between human beings and the environment. The major focus of these investigations today is concerned with misuse of the environment, which has led to the present day environmental crisis. The introductory course combines scientific and non-technical appraisals of processes and problems dealing with the question of environmental quality. Therefore, humanity will be studied in the physical as well as the social setting. Though major issues may vary for developing and developed nations, topics concerned with population pressure, pollution, and urbanization will be among those considered.

GEOG 102 World Geography Through Media and Maps ....... 3 hrs.

This course presents an introduction to the geography of the earth. This includes the earth as the home of humans, major urban concentrations, descriptive physical characteristics of continents and countries, political subdivision, and general man-land relationships which reflect cultural preferences. Information delivery will be through textual material with a major
concentration of carefully selected audiovisual and map study activities to enhance investigating the character of distant places.

GEOG 105 Physical Geography 4 hrs.
(Science credit) A study of the physical environmental systems of our earth. The course examines the seasonal and latitudinal distribution of solar energy; analyzes the many elements of weather, climate, vegetation, and soils; and finally considers the earth’s major landforms and the processes which shape them. Though each topic is treated separately, this course demonstrates the basic relationships among these topics and points out the human implications in all physical earth systems. Map use and laboratory work is an integral part of this course.

GEOG 204 National Park Landscapes 3 hrs.
(Science credit) Introduction to the physical and human landscapes of the national park system. Consideration of those natural and human processes which have produced the distinctive features of 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 occupancy of the earth, and the origin and dispersal of cultural elements among the various world regions.

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. Emphasis is placed upon the human impact on weather processes and the physical laws affecting the elements of the atmosphere.

GEOG 244 Economic Geography 3 hrs.
This course reviews the spatial processes and patterns for primary production, transportation, manufacturing and energy, service functions, trade and economic development.

GEOG 265 Map, Chart and Air Photo Training 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; color, black and white, and color infrared 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 representation. The emphasis throughout will be on the application of inquiry models to geographic problems. For Geography majors and minors in and Travel majors. Course meets University Baccalaureate Writing Requirement. Prerequisite: CS 105 or equivalent.

GEOG 306 Atmospheric Environment and Society 3 hrs.
(Science credit) The study of the atmospheric environment as it interacts with humans and society. Special emphasis is given to the following: the role of weather and climate in affecting the successful outcome of plans and economic decisions; the dynamics of changing climates and their role in affecting the course of history; human physiological and psychological responses to weather and climate; weather forecasting and its value to society; and the hazards to life, health, and property posed by severe weather. Students should expect to achieve a sufficient understanding of the atmospheric environment so that they may make informed decisions involving weather topics.

GEOG 309 Studies in Regional Geography 2-3 hrs.
An investigation of topics in physical and human geography of selected areas within major world regions. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment. Prerequisite: consent of department advisor and instructor.

GEOG 310 Research and Regulation in Tourism 4 hrs.
This course introduces the research methods and data sources for the analysis of tourism and travel. The use of flow patterns and the predictive modeling of spatial interaction as well as geographic theories related to diffusion and effects of regulations 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. Examines the evolution from traditional physical land-use planning to the comprehensive planning process which incorporates physical, social, and economic concepts and other remote-sensed and other remotely-sensed images and their application are also introduced.

Population distribution and settlement patterns are examined. 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 Principles of Cartography 4 hrs.
(Science credit) Introduction to map construction with primary emphasis on planning and designing maps as communication medium. Lectures and laboratory assignments familiarize the student with layout and design of maps, computer assisted mapping, the computation of map projections, procedures of map compilation, and the basics of map reproduction. Prerequisite: GEOG 266 or equivalent.

GEOG 380 United States and Canada 3 hrs.
A study of the physical environment north of the Rio Grande followed by an analysis of the spatial structure of the area’s population and economy. The basis for the regional differentiation of the USA and Canada is considered, followed by a region-by-region analysis of each of these unique integrations of physical and cultural phenomena.

GEOG 381 South America 3 hrs.
Regional study of the nations of South America with attention to the interactions 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 Western 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 Europe.

GEOG 384 The Post-Soviet States 3 hrs.
A geographical appraisal of the newly independent republics. Topics covered include location and geographical setting, the physical environment, population, ethnic and nationality issues, economic development, and problems of environmental deterioration.

GEOG 385 The Pacific Realm 3 hrs.
Selected studies of the relationships between human beings and the environment in Australia, New Zealand, Melanesia, and Polynesia.

GEOG 386 Sub-Saharan Africa: Man, Environments, Resources 3 hrs.
Survey of the principal physical and political patterns of Africa south of the Sahara, followed by a study of the physical elements of the major realms and states, e.g., population distribution, patterns of subsistence and commercial agriculture, status of mineral and water 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 408 Geography of Travel and Tourism 4 hrs.
The student studies global environments and transportation systems to analyze tourism and travel trends and opportunities. An examination of resort areas, tourist frequency patterns to various resorts, cultural opportunities, and perception of places through travel brochures and literature are included in the course. Theoretical assumptions underlying perceptions of place and mental maps of tourism and travel preferences are examined. For Tourism and Travel majors only.

GEOG 412 Professional Practice 2-6 hrs.
Provision for an advanced student to benefit by supplementary practical experiences in a particular branch of geography, either by assisting faculty engaged in research or by working in a departmentally-approved off-campus agency. Specific assignments are arranged in consultation with departmental advisors during the semester preceding that in which the student expects to enroll in 412. The student may enroll for one additional semester, but no student will be allowed more than six hours total credit for 412. For Geography majors and minors, and Tourism and Travel majors only. Prerequisite: Junior standing and consent of Department Chair.

GEOG 460 Concepts and Strategies in the Teaching of Geography 3 hrs.
Study of objectives, tools, organization and presentation of material, methods of evaluation, and scrutiny of textual material in the field of geography. This course is intended for students in the Elementary and Secondary Education Curriculum who are Geography, Social Science, and Group Social Science majors and minors. Prerequisites: GEOG 100, 180, 210, 240, 250, and 265, or consent of department.

GEOG 521 Studies in Climatology and Meteorology 3 hrs.
(Science credit) Studies at an advanced level in meteorology and climatology. Topics of current interest in atmospheric sciences 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 upon one of these three economic sectors.

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, and economic problems related to resource management, and individual studies of local environmental problems. Prerequisite: GEOG 350 or consent.

GEOG 556 Studies in Urban and Regional Planning 3 hrs.
Each of the courses listed under this number focuses on a major aspect of planning, including a review of the objectives of the planning process, legislation relating to planning operations, and methods of field and library investigation required for analysis and policy formulation in matters related to planning.

1. Urban Planning and Zoning. A survey of American planning thought and practice: the background of planning and zoning in American municipalities, traditional and contemporary approaches to the comprehensive plan; elements of land use and transportation planning, the legal foundations of zoning, and the organization of the planning agency.

2. Regional Planning. Organization and plans of regional development programs.

3. Public Lands and Parks. Specific programs and policies relating to the preservation and development of government-controlled lands.

Prerequisite: GEOG 350 or consent of department.

GEOG 557 Environmental Impact Assessment 3 hrs.
A survey of the natural and human environment, perception of economic and social values, pollution, and adverse consequences. A student project in an area of interest may be arranged in consultation with department.

GEOG 558 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 alternative...
methods of model formation and the analysis of spatial problems. Prerequisite: GEOG 567 or the consent of department.

GEOG 569 Geographic Information Systems 4 hrs.
This course focuses on the fundamental concepts and procedures of Geographic Information Systems (GIS), geographically-referenced information systems capable of assisting decision-making in a variety of situations. Course components include entering both spatial and non-spatial data into computerized form, examining alternative ways of organizing data for GIS computing, then integrating and analyzing mapped and non-mapped data using GIS software systems.

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 or urbanized regions, (2) factors in city growth (or decline), (3) the sizes, functions, and geographical distribution of cities, and (4) population patterns in contemporary cities. Activities are designed to provide the student with experience in the use of source materials and methods of analysis utilized in urban geography.

GEOG 580 Advanced Cartography 4 hrs.
(Science credit) A review of current trends and philosophies of cartography. A combination of lectures, demonstrations, and independent projects provide the advanced cartography student with opportunities to practice state-of-the-art map design, multicolor production, photoreproduction, and computer-assisted mapping. It is recommended that GEOG 567 be taken before 580. Prerequisite: GEOG 375 or equivalent.

GEOG 582 Remote Sensing of the Environment 3 hrs.
(Science credit) The fundamental techniques and skills of photogrammetry and photointerpretation will be introduced in the first half of the semester. The remainder of the semester will be spent interpreting photos and satellite images dealing with such topics as geomorphology, 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 265 or consent of the instructor.

GEOG 587 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.

GEOLOGY

W Thomas Straw, Chair
Estella Atekwana
Michael Barcenas
David Barnes
Ronald B. Chase
John D. Grace
William B. Harrison, III
Duane Hampton
Alan Kehew
R. V. Krishnamurthy
Richard N. Passero
William A. Sauck
Christopher J. Schmidt
Marian Smith
William A. Smith

Geology Major

Minimum 35 Hours

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 130</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 131</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 335</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 336</td>
<td>Optical Mineralogy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 430</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 433</td>
<td>Invertebrate Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 440</td>
<td>Petrology and Petrography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 432</td>
<td>Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 435</td>
<td>Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 560</td>
<td>Introduction to Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

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:

- GEOL 32: Geomorphology
- GEOL 43: Sedimentation and Stratigraphy

Cognate Required Courses

CHEM 101 or 102, PHYS 113, 114 and 115, 116 or 205, 206 and 207, 208; BIOS 101 or as arranged by advisor; and MATH 123 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. A student may design a geology minor for his/her specific need.

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 physics minor relationship. A student may design a geology minor for his/her specific need.

Required Courses

<table>
<thead>
<tr>
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<td>4</td>
</tr>
<tr>
<td>GEOL 335</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 336</td>
<td>Optical Mineralogy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 440</td>
<td>Petrology/Petrography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 301</td>
<td>Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 433</td>
<td>Invertebrate Paleontology</td>
<td>4</td>
</tr>
</tbody>
</table>

Additional hours in geology . . . 6

Course substitution from other geology offerings can be made with the consent of counselor (e.g., a geography major minoring in geology might elect Geomorphology and/or Glacial Geology).

Geophysics Major

The Geology 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 Geology Department as early as possible for advising.

Total Major Hours: 46-51

Geology (GEOL) (17 hours)

<table>
<thead>
<tr>
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</thead>
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</tr>
<tr>
<td>GEOL 131</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 301</td>
<td>Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 430</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 560</td>
<td>Introduction to Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

Physics (PHYS) (17-18 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs.</th>
</tr>
</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 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 212</td>
<td>Introductory Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 342</td>
<td>Electronics</td>
<td>3-4</td>
</tr>
</tbody>
</table>

EOL 111
One of the following (3-4 hours)

**PHYS** 330 Thermodynamics and Kinetic Theory 3
**PHYS** 352 Optics 4
**PHYS** 540 Electricity and Magnetism I 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).

**MATHEMATICS MINOR (Required)**

**MATH** (21 hours)
**MATH** 122 Calculus I 4
**MATH** 123 Calculus II 4
**MATH** 277 Vector and Multivariate Calculus 4
**CS** 306 Introduction to Programming FORTRAN 2

**MATH 374 Linear Algebra and Differential Equations 4**

**MATH /CS 506 Scientific Programming 3**

**BACCALAUREATE WRITING REQUIREMENT**
Students who have chosen the Geophysics major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:  
- **GEOL** 432 Geomorphology 4
- **GEOL** 435 Sedimentation and Stratigraphy 4
- **ENGL** 305 Practical Writing 3

**MAJOR (30 hours)**

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHYS</strong> 104 Introductory Astronomy</td>
<td>3</td>
</tr>
<tr>
<td><strong>GEOS</strong> 225 Introduction to Meteorology and Climatology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 130 Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 131 Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 300 Oceanography</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 301 Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 307 Teaching of Earth Science</td>
<td>2</td>
</tr>
<tr>
<td><strong>GEOL</strong> 393 Field Studies in Geology</td>
<td>3</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td></td>
</tr>
</tbody>
</table>

**MINOR (20 hours)**

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHYS</strong> 104 Introductory Astronomy</td>
<td>3</td>
</tr>
<tr>
<td><strong>GEOS</strong> 225 Introduction to Meteorology and Climatology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 130 Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 131 Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 300 Oceanography</td>
<td>3</td>
</tr>
<tr>
<td><strong>GEOL</strong> 307 Teaching of Earth Science</td>
<td>2</td>
</tr>
</tbody>
</table>

**Earth Science: Non-Teaching Major and Minor**

The non-teaching earth science major and minor program is a broad and flexible course of instruction for students anticipating careers in conservation and related professions, state and federal parks and planning agencies. The program is interdisciplinary in nature and offers students the opportunity to select earth science and related courses from the Departments of Geology, Engineering, Biological Sciences, Geography, Chemistry, Physics, and others. Courses are selected in consultation with the earth science advisor in order to design programs that will satisfy students' needs and professional objectives. A complete list of approved courses is available from the Department of Geology.  

**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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIOLOGICAL SCIENCES</strong> (4 hours)</td>
<td></td>
</tr>
<tr>
<td><strong>BIOS</strong> 101 Animal Biology</td>
<td>4</td>
</tr>
<tr>
<td><strong>CHEM</strong> 101 OR 102 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td><strong>CHEM</strong> 101 OR 102 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td><strong>CHEM</strong> 120 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td><strong>PHYSICS</strong> 110 General Physics I</td>
<td>4</td>
</tr>
<tr>
<td><strong>PHYS</strong> 113 General Physics II</td>
<td>4</td>
</tr>
<tr>
<td><strong>PHYS</strong> 114 General Physics I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td><strong>PHYS</strong> 115 General Physics II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td><strong>PHYS</strong> 116 General Physics II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td><strong>PHYS</strong> 205 Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td><strong>PHYS</strong> 206 Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
<tr>
<td><strong>PHYS</strong> 207 Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td><strong>PHYS</strong> 208 Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td></td>
</tr>
</tbody>
</table>

At least 4 credit hours selected from the physical or biological sciences with approval of student's advisor.

**Earth Science: Teaching Major and Minor**

The earth science teaching 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.

**Cognate requirements** include a college level chemistry course (101, 102, or 103) and a college level physics course (107/108 or 113/114).

**BACCALAUREATE WRITING REQUIREMENT**
Students who have chosen the Earth Science Teaching Major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- **GEOL** 432 Geomorphology 4
- **GEOL** 435 Sedimentation and Stratigraphy 4
- **ENGL** 305 Practical Writing 3

**Hydrogeology Major**

Core: 39-40 hrs., Total: 74-75

The hydrogeology major is designed to give individuals at the bachelor's level a strong background in geology, hydrology, and federal parks and planning agencies. The program will prepare students to enter graduate programs and the job market as hydrogeologists.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GEOL</strong> 130 Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 131 Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 301 Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 432 Geomorphology</td>
<td>4</td>
</tr>
<tr>
<td><strong>GEOL</strong> 435 Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td><strong>ENGL</strong> 309 Field Studies in Geology</td>
<td>3</td>
</tr>
<tr>
<td><strong>ENGL</strong> 544 Environmental Geology</td>
<td>3</td>
</tr>
<tr>
<td><strong>ENGL</strong> 560 Introduction to Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Students must elect two (2) of the following courses:**

- **GEOL** 536 Glacial Geology 3
- **GEOL** 563 Electrical Methods 2
- **GEOL** 562 Shallow Exploration Geophysics 3
- **GEOL** 564 Field Geophysics 2
- **GEOL** 567 Computerized Geodata Handling and Mapping 3
- **GEOL** 582 Remote Sensing of the Environment 3

**Capstone Course**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GEOL</strong> 529 Surface Geophysics</td>
<td>1</td>
</tr>
<tr>
<td><strong>GEOL</strong> 526 Principles and Practices of Aquifer Testing</td>
<td>1</td>
</tr>
<tr>
<td><strong>GEOL</strong> 527 Principles of Well Drilling and Installation</td>
<td>1</td>
</tr>
<tr>
<td><strong>GEOL</strong> 528 Principles and Practices of Ground-Water Sampling</td>
<td>1</td>
</tr>
</tbody>
</table>

**Required Supporting Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MATH</strong> 122 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td><strong>MATH</strong> 123 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td><strong>PHYS</strong> 205 Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
<tr>
<td><strong>PHYS</strong> 206 Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
<tr>
<td><strong>PHYS</strong> 207 Electricity and Light Laboratory</td>
<td>1</td>
</tr>
<tr>
<td><strong>PHYS</strong> 208 Electricity and Light Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

Students who have taken Physics 113, 114 and 115, 116 or their equivalent will be required to take Physics 214 (1 hr.) and Physics 215 (1 hr.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHEM</strong> 101 OR 102 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td><strong>CHEM</strong> 120 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td><strong>CHEM</strong> 365 Introduction to Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td><strong>CS</strong> 111 Computer Programming I</td>
<td>3</td>
</tr>
</tbody>
</table>

**MINORS**

Students must elect one of the following minors: Biology, Computer Science, Chemistry, Mathematics, Geography, or Group Science for Geology Majors.

**RECOMMENDED ADDITIONAL COURSES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHEM 222</strong> Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td><strong>CHEM 225</strong> Techniques in Water Analysis</td>
<td>3</td>
</tr>
<tr>
<td><strong>MATH 274</strong> Introduction to Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td><strong>MATH 364</strong> Statistical Methods</td>
<td>4</td>
</tr>
<tr>
<td><strong>CS 201</strong> Programming in FORTRAN</td>
<td>2</td>
</tr>
<tr>
<td><strong>COM 104</strong> Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td><strong>COM 170</strong> Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td><strong>ENGL 305</strong> Practical Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

A minimum of a "C" is required in each of the required Geology courses, and a "C" average in all cognate courses.
Students who have chosen the Hydrogeology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- GEOL 432 Geomorphology
- GEOL 435 Sedimentation and Stratigraphy

**Field Hydrogeology Major**

Core: 37-39 hrs., Total: 53-54 hrs. The Field Hydrogeology program is designed to educate individuals in a cluster of skills that are required to gather and process hydrogeological information. The program is designed so graduates may enter first-level positions in a wide range of engineering firms and governmental agencies. No grade below a "C" will be accepted in the required courses.

**Required Courses**

<table>
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<tr>
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<td>GEOL 131</td>
<td>Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 133</td>
<td>Geology, Rocks, and Minerals</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 301</td>
<td>Sedimentation and Stratigraphy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 375</td>
<td>Principles of Cartography</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 412</td>
<td>Introduction to Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 566</td>
<td>Field Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 582</td>
<td>Remote Sensing of the Environment</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 525</td>
<td>Principles of Geophysics</td>
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<tr>
<td>GEOL 526</td>
<td>Principles and Practices of Aquifer Testing</td>
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<td>GEOL 527</td>
<td>Principles of Well Drilling and Installation</td>
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<tr>
<td>GEOL 528</td>
<td>Principles and Practices of Ground-Water Sampling</td>
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**Elective Courses**

1. From the following pairs of courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>GEOG 557</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>GEOL 344</td>
<td>Introduction to Environmental Geology</td>
</tr>
<tr>
<td>CRT 361</td>
<td>Introduction to Soils</td>
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<tr>
<td>GEOL 536</td>
<td>Glacial Geology</td>
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<tr>
<td>GEOL 560</td>
<td>Introduction to Geophysics</td>
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<tr>
<td>GEOL 564</td>
<td>Field Geophysics</td>
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<tr>
<td>PAPR 350</td>
<td>Water Quality and Microbiology</td>
</tr>
<tr>
<td>PAPR 353</td>
<td>Wastewater Treatment Systems</td>
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</tbody>
</table>

**Required Supporting Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CS 105</td>
<td>Introduction to Computer Programming Using BASIC</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 107</td>
<td>100 and 108 Elementary Physics</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 113</td>
<td>114 General Physics</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>102 or 103 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 122</td>
<td>Calculus I or</td>
<td></td>
</tr>
<tr>
<td>MATH 200</td>
<td>Calculus with Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 260</td>
<td>Elementary Statistic</td>
<td>4</td>
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</tbody>
</table>

**Recommended Courses**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CS 306</td>
<td>Introductory Programming</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 305</td>
<td>Practical Writing</td>
<td>4</td>
</tr>
<tr>
<td>COM 104</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>COM 170</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>ET 121</td>
<td>Automotive Chassis</td>
<td>3</td>
</tr>
<tr>
<td>ET 124</td>
<td>Automotive Engines</td>
<td>3</td>
</tr>
</tbody>
</table>

**GEOL 312 Geology of the National Parks and Monuments**

2-3 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. Lecture 2 hours per week (2 credits).

**GEOL 335 Mineralogy**

4 hrs. Fall

Introduction to crystallography, crystal chemistry, and determinative mineralogy. Physical and chemical properties, occurrence, uses and determination of about 100 minerals. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 100 or 130 and General Chemistry or consent of instructor.

**GEOL 336 Optical Mineralogy**

3 hrs. Fall

Principles and methods of optical crystallography. Study of minerals in crushed grains and in thin sections. Lecture 2 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 335 (may be taken concurrently).

**GEOL 344 Introduction of Environmental Geology**

3 hrs.

An introduction to geology of the environment. Emphasis is placed on the geology of natural hazards, waste disposal systems, earthquakes, floods, erosion and sedimentation, volcanic processes related to human occupation of land, and aspects of urban geology. Prerequisite: GEOL 131 and junior standing, or consent of instructor.

**GEOL 412 Introduction to Hydrogeology**

3 hrs.

A general survey course in hydrogeology for students with minimal background in mathematics and chemistry. The course is an introduction to the occurrence, movement, and contamination of ground and surfacial water. Prerequisite: Senior standing or permission of instructor.

**GEOL 430 Structural Geology**

3 hrs. Fall

Development of rock structures and mechanics of rock deformation. Structural interpretation of geologic maps, cross-sections, and aerial photographs. Lecture 2 hours a week. Laboratory 2 hours a week. Prerequisites: GEOL 131 or consent of instructor.

**GEOL 432 Geomorphology**

3 hrs.

Detailed consideration of the earth's surficial processes including transformation of fluvial, glacial, mass-wasting, eolian, and coastal landforms. Laboratory exercises involve interpretation of topographic maps, geologic maps, and air photographs. Prerequisite: GEOL 130.

**GEOL 433 Invertebrate Paleontology**

4 hrs. Winter

Morphology, classification, evolution, and stratigraphic distribution of major invertebrate fossil groups. Three lectures and a three-hour laboratory. Prerequisite: GEOL 131 or consent of instructor.

**GEOL 434 Problems in Geology**

1-3 hrs.

Intensive reading and research on a topic in geology under the direction of a member of the geology faculty. Prerequisite: 16 hours in Geology and permission of the department.
GEOL 435 Sedimentation and Stratigraphy 4 hrs. Fall
Processes, characteristics, and relationships among fluvial, deltaic, strand plain, lagoon, shelf, and slope terrigenous depositional systems. Laboratory includes textural analysis, sedimentary structures, paleocean current analysis, electric logs, subsurface maps, and application of statistical and computer methods to the solution of sedimentologic problems and basin analysis. Course includes a 3-day field trip. Three lectures and one three-hour laboratory per week. Prerequisite: GEOL 131.

GEOL 440 Petrology and Petrography 3 hrs. Winter
Classification, origin, and description of igneous, sedimentary, and metamorphic rocks. Laboratory study of rocks and thin sections. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 306.

The prerequisites to 500 level courses are:

GEOL 502 Problems in Geology and Earth Science 1-3 hrs. Fall, Winter
Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisite: GEOL 130, GEOL 300, GEOL 301, GEOL 440, and consent of department.

GEOL 509 Surface Water Hydrology 3 hrs.
Hydrology describes the waters of the earth, their occurrence, circulation and distribution, and their reaction with the environment. Emphasis is on quantitative aspects of surface water. Topics include: stream flow precipitation, evapotranspiration, hydrographs, runoff, probability analysis and modeling.

GEOL 512 Principles of Hydrogeology 3 hrs.
The study of surface and groundwater with special emphasis on its chemistry, movement, and relation to the geologic environment. Prerequisite: MATH 122.

GEOL 515 Applied Hydrology 3 hrs.
Application of hydrogeologic theory to water supply networks. Topics include: well installation, well testing, aquifer testing, and distribution systems. Prerequisite: GEOL 512.

GEOL 520 Economic Geology 3 hrs.
Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Lecture 3 hours a week. Prerequisite: GEOL 301 or GEOL 440.

GEOL 525 Surface Geophysics 1 hr.
An introduction to the use of those surface geophysical methods used in the investigation of ground water. Includes shallow seismic electrical methods, and ground-penetrating radar. Prerequisite: GEOL 512.

GEOL 526 Principles and Practices of Aquifer Testing 1 hr.
Introduction to the methods of aquifer testing with emphasis on step drawdown pump-tests, forty-hour pumping test with recovery, slug tests and bail tests, data processing, using computer software, water level recorders, data loggers, and water level measuring equipment. Prerequisite: GEOL 512.

GEOL 527 Principles of Well Drilling and Installation 1 hr.
An introduction to hollow-stem auger drilling and well installation, rotary drilling with mud and air, cable tool drilling, monitoring well design, sample collection and dissection, cuttings, split spoon, and Shelby tube, borehole geophysics, and installation and development of wells. Prerequisite: GEOL 512.

GEOL 528 Principles and Practices of Ground-water Sampling and Monitoring 1 hr.
An introduction to state-of-the-art techniques for sampling, monitoring, and evaluating groundwater systems and surface water interactions. Includes quality control and assurance procedures, ground-water sampling equipment and procedures, field hydrochemical equipment and procedures, and vadose zone sampling of water and gas. Prerequisite: GEOL 512.

GEOL 530 Plate Tectonics and Earth Structure 3 hrs. Fall
Major tectonic features and internal structure of the earth in relation to plate tectonics, critical examination of the tenants of plate tectonics. Prerequisites: GEOL 301 or GEOL 440.

GEOL 536 Glacial Geology 3 hrs. Spring
A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial geology of the Great Lakes area. Prerequisites: GEOL 301, GEOL 440.

GEOL 539 Field Studies in Geology 1-6 hrs.
Field study of specific subjects in Geology. Subject offered will be announced in advance and selected from field mapping, stratigraphy and sedimentation, and regional geology. GEOL 539 is required in the Earth Science teaching major and is normally taught the two weeks of summer prior to the fall semester. Students planning to take this course should consult the Earth Science advisor in the Department of Geology. Prerequisite: GEOL 301 or GEOL 440, or consent of instructor.

GEOL 544 Environmental Geology 3 hrs. Fall
Geology related to human affairs and land use planning. Includes engineering properties of earth materials, waste disposal systems, slope stability, erosion and sedimentation, land subsidence, volcanic hazards, earthquakes, and urban geology. Field trips required. Prerequisite: GEOL 131.

GEOL 560 Introduction to Geophysics 3 hrs. Winter
Seismology, gravity, geomagnetism, electrical resistivity, and heat measurements applied to the determination of the internal structure of the earth. Two lectures and 3 hrs. practical laboratory-introduction to geophysical instrumentation. Prerequisites: GEOL 301 or GEOL 440, MATH 122, two semesters of college physics.

GEOL 561 Reflection Seismology 3 hrs.
Reflection seismology and related techniques as applied to petroleum exploration and deep crustal exploration. Theoretical background, data collection, data processing and interpretation will be discussed. Prerequisites: GEOL 560, CS 306, and MATH 123.

GEOL 562 Gravity and Magnetic Exploration 3 hrs.
Gravity and Magnetic methods applied to tectonic, mineral exploration, hydrogeologic and crustal studies. Theoretical background, instrumentation, surveying techniques, data reduction, processing, and computer modeling and interpretation will be discussed. Two lectures and three hours of laboratory, problem solving, and field exercises. Prerequisites: GEOL 560, MATH 123.

GEOL 563 Electrical Methods 3 hrs.
Resistivity sounding and profiling, induced polarization, spontaneous potential, electromagnetic methods using natural and artificial fields. Two lectures and 3 hr. laboratory with field studies and laboratory modeling. Prerequisites: GEOL 560, CS 306, MATH 123, and PHYS 540 (recommended).

GEOL 564 Field Geophysics 3 hrs.
Field studies demonstrating the use of seismic refraction, gravity, and electrical resistivity methods for glacial geology and ground-water problems in the Kalamazoo area. Prerequisite: GEOL 560.
The Department of History offers several academic and professional programs with varying requirements. Students intending to major in history should consult the department's undergraduate adviser regularly. HIST 190 is an orientation course to the historical professions and should be taken as early as possible.

Major courses lead to the degree of Bachelor of Arts. A maximum of 9 hours of 100/200-level course work 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 or minor. Course work in science, and in allied social sciences and humanities, is specified by curriculum. Consult the Department of History Undergraduate Handbook.

History majors who complete the degree of Bachelor of Arts with a GPA of at least 3.5, in the major and overall, and who complete a Senior Thesis (HIST 499-499) are designated by the department as having graduated with Honors in History.

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.

Majors

Ronald Davis, Undergraduate Adviser
4075 Friedmann Hall (387-4650)

History Major

This program is designed to prepare students for entry-level positions in fields of public history such as museum and archival administration, preservation/restoration work, interpretation, consulting, and applied research.

Major requirements:
1. HIST 190, 390, 404, 406, 408, 410 16
2. United States history, including 315 or 318 and at least two courses at the 400-level 12
3. Electives in history 12
4. ANTH 210 and 250 7
5. Approved electives in other disciplines 12
6. Internship (HIST 495) 6

Minimum total of 65 hrs. in the major. The Public History curriculum does not require a minor. History majors in the Public History curriculum also must complete a foreign language through the 101-level by course work or examination.

History Major

SECONDARY EDUCATION CURRICULUM (SED)

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, 396 7
2. United States history including at least 6 hrs. at the 400-level 10
3. Non-Western history including at least 3 hrs. at the 400-level 6
4. European and/or General history including at least 3 hrs. at the 400-level 6
5. Minimum of 36 hrs. in history including at least 15 hrs. at the 400-level 6

In addition to the history major, students must complete the following:
1. A group social science (SOS) minor of at least 28 hrs. including ANTH 120 or 220 or 240 3
2. One approved course in Native American history or culture 3
3. Approved Electives from above disciplines, 300-level or above 6-7
4. One approved literature course in the Department of English at the 200-level or above 3
5. One approved course in philosophy or religion, or in the history of political thought, or, in the 200-level or above 3
6. A foreign language through the 101-level by course work or by examination.

You may apply for graduation with Honors in History.

NOTE: All course work at the 300-level or above in the History major must be completed within ten years of the directed teaching experience. History majors must have completed at least six hours of History in course work numbered 420-489 with grades of "B" or better to be approved by the department for directed teaching.

History Minor

COLLEGE OF EDUCATION CURRICULA

Minor requirements:
1. HIST 390 3
2. At least four courses in United States history including 6 hrs. at the 400-level 12
3. Total of 21 hrs. in history including 9 hrs. at the 400-level 12

Cognate requirements:
1. One approved course in American literature at the 200-level or above 4
2. One approved course in the social sciences or humanities (other than History) at the 200-level or above dealing with American culture or institutions 3
3. Students whose teaching major is outside the College of Arts and Sciences must also complete HIST 390 (Secondary Methods SED) 3

NOTE: All course work at the 300-level or above in the minor and required cognates must be completed within ten years of the directed teaching experience. Minors must have completed at least six hours of History in course work numbered 420-489 with grades of "B" or better to be approved by the department for directed teaching.

History Minor

COLLEGE OF ARTS AND SCIENCES AND OTHER CURRICULA

1. HIST 390 3
2. Minimum of 24 hrs. of course work at least 18 hrs. in history, with two courses in historical studies outside the department in disciplines such as archaeology, art history, music or theater history, period literature, etc. may be applied toward minor requirements in lieu of 100/200-level courses in history.
Courses By Topic

BASIC COURSES

100 Western Civilization: Ancient/Medieval
101 Western Civilization: Age of Expansion
102 Western Civilization: The Modern Era
103 History and Current Events
106 Historical Writing
110 Outline of World History
145 Heroes and Villains in the Middle Ages
190 Historians in the Modern World
204 Business History
210 American History to 1890
211 American History since 1890
230 Introduction to Canadian Studies
250 Michigan History
260 Emerging Nations
298 Directed Reading in History

NORTH AMERICA

312 American Culture
313 American Diplomatic History
314 American Minorities
315 Popular Art and Architecture in America
316 Women in American History
318 Environment and the American Experience
320 American Military History
322 American West
330 History of Canada
416 Topics in Michigan History
420 Colonial America
421 Era of the American Revolution, 1763-1789
422 United States, 1789-1848
424 The Civil War and Reconstruction
425 Emergence of Modern America, 1877-1919
426 United States 1914-1933
427 United States 1933-1963
428 United States since 1963
429 Topics in United States History
530 Studies in Early American History
535 Studies in Recent American History

EUROPE

336 Women in European History
349 Ancient Near East
350 Ancient Greece and the Hellenistic World
351 Ancient Rome
362 History of England
363 Britain and the British Empire
364 The Soviet Union
368 History of European Nations
440 Imperial Rome
441 Early Christianity
442 Byzantine Civilization
444 Early Medieval History
445 Later Medieval History
446 Renaissance Europe
447 The Reformation
450 Europe in the 17th and 18th Centuries
452 French Revolution and Napoleon
456 Europe 1815-1871
457 Europe 1871-1919
458 Europe 1919-1945
460 Europe since 1945
462 Great Ages in English History
465 Russia to 1855
466 Russia since 1855
468 Topics in European History
550 Studies in Medieval History
565 Studies in Modern European History

NON-WESTERN

370 History of Latin America
376 Modern East Asia
386 Modern Middle East
388 Introduction to African Civilization
471 History of Latin American Nations
476 Traditional China
477 Modern China
479 Modern Japan
485 Early Islam
486 History of West Africa
489 Topics in Asian and African History
585 Studies in Asian and African History

GENERAL

300 Arts and Ideas: Ancient/Medieval
301 Arts and Ideas: Renaissance to Modern Times
302 Arts and Ideas: Twentieth Century
306 Technology and Culture
308 History of Medicine and Medical Care
332 Global History 1885-1945
333 The World since 1945
400 Topics in History
414 Topics in Military History
418 Topics in Legal and Constitutional History
517 Topics in Economic and Social History
519 Topics in Intellectual and Cultural History

THEORY AND PRACTICE

390 Introduction to the Study of History
396 Teaching Methods for Secondary Schools
404 Introduction to Public History
406 Archives Administration
408 Museum Studies
410 Historic Preservation
412 Local History Techniques
496 Senior Seminar
499 Senior Thesis
515 Topics in Public History
591 Topics in Theory and Practice
592 Computers in Historical Research
595 History Writing Workshop
596 Local History Workshop

OTHER COURSES

495 Internship
498 Directed Research
500 Studies in History
510 Colloquia
590 Proseminar

History Courses (HIST)

(Courses described in italics are approved for General Education)

HIST 100 Western Civilization: Ancient/Medieval
3 hrs. Survey of major developments in European civilization from ancient Greece and Rome to approximately 1500.

HIST 101 Western Civilization: Age of Expansion
3 hrs. Survey of major developments in European civilization from the Renaissance to the beginning of the twentieth century.

HIST 102 Western Civilization: The Modern Era
3 hrs. Survey of 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 106 Historical Writing
3 hrs. Writing assignments based on the study of selected historical material. Fulfills University Intellectual Skills college-level writing course requirement.

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. Cross listed with MOV 145.

HIST 190 Historians in the Modern World
1 hr. A survey of the historical professions and the academic preparation needed to enter them.

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 1890
3 hrs. General survey of United States history from colonial times to the late nineteenth century.

HIST 211 American History since 1890
3 hrs. General survey of United States history with emphasis on the twentieth century American experience.

HIST 230 Introduction to Canadian Studies
3 hrs. Interdisciplinary survey of contemporary Canada taught by a faculty team from various departments.

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 280 Emerging Nations
3 hrs. Conflicts of tradition and change in nations and regions of Asia, Africa, and Latin America as seen through history. Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 298 Directed Reading in History
1-3 hrs. Registration requires approval of the supervising faculty member and the Department Chair. May be repeated to a maximum of three semester hours.

HIST 300 Arts and Ideas: Ancient/Medieval
3 hrs. Survey of the history and interplay of intellectual and artistic developments in the West from ancient through medieval times.

HIST 301 Arts and Ideas: Renaissance to Modern Times
3 hrs. Survey of the history and interplay of intellectual and artistic developments in the West from the Renaissance to the beginning of the twentieth century.

HIST 302 Arts and Ideas: Twentieth Century
3 hrs. Survey of the history and interplay of intellectual and artistic developments in the West in the twentieth century.

HIST 306 Technology and Culture
3 hrs. Major technological developments throughout history, and interaction between technological change and culture. Survey of ancient and medieval technology, the industrial revolution, and the twentieth century, including aspects of technology and culture outside the Western tradition.

HIST 308 History of Medicine and Medical Care
3 hrs. Survey of the development of medicine as a science, a healing agency, and a social institution. Includes medical achievements from ancient to modern times, overview of the changing role of medical experts in various cultures, medical education, medical social work, and evolution of the nursing profession.
HIST 312 American Culture
3 hrs.
Major concepts in American life as seen from the perspectives of literature, the arts, and social and political developments.

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 Classes. May be repeated under different topics. Topics may be cross-listed with BAS 300 or BAS 301.

HIST 315 Popular Art and Architecture in America
3 hrs.
Popular themes in American history as shown in paintings, buildings, cartoons, and commercial art. Exeusive use of local illustrations adaptable to elementary and secondary teaching.

HIST 316 Women in American History
3 hrs.
Evolution of women’s status and work within and outside the family, and the participation of women in the major events of United States history. Influences of class, region, race, ethnicity, and religion on women’s historical experience. Study of institutions, associations, and activities of women as well as formal legal status. Ideology, and social norms.

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 330 History of Canada
3 hrs.
A survey of Canada from the sixteenth century to the present. Special attention to the sources of Anglo-French discord and Canada’s changing relationship with the United States.

HIST 332 Global History 1885-1945
3 hrs.
Themes in global history and global interdependence from the late nineteenth century to the cataclysm of World War II. Topics include globalization of technology, commerce, communication and human expectations, economic integration and international cooperation; the dichotomy of nationalism and ethnicity and the emergence of a world culture; the world at war.

HIST 333 The World since 1945
3 hrs.
Examination of the major developments of the second half of the twentieth century and the dichotomies of continuity and revolutionary change they present.

HIST 336 Women in European History
3 hrs.
Examination of the condition of women in various periods of European history, with particular attention to women's changing status and experiences in the family and workplace. Study of various institutions, associations, and activities in which women expressed themselves becomes the basis for conclusions about women's contributions to European history and culture.

HIST 349 Ancient Near East
3 hrs.
Ancient history of Near Eastern lands which also figure prominently in biblical accounts. Prehistory; and the cradles of civilization in Mesopotamia and the Nile Valley. Survey of ancient Sumerian, Babylonian, Egyptian, Hittite, Phoenician, and Hebrew cultures, as well as the emergence of the Assyrian, Neo-Babylonian, and Persian empires.

HIST 350 Ancient Greece and the Hellenistic World
3 hrs.
Origins of the ancient Greeks and their role in the Aegean civilizations of Crete, Troy, and Mycenae; the Homeric age, and development of the polis. Examination of the contrasting city-states of Athens and Sparta, as well as the unique cultural achievements and legacy of Hellenism. Alexander the Great and the Hellenistic world.

HIST 351 Ancient Rome
3 hrs.
Roman history from earliest beginnings to the decline and fall of the Roman empire. The early Italic, Etruscan, and Greek cultures of ancient Italy prior to the emergence of Rome. Rise of the Roman republic and conquest of the Mediterranean; civil wars, development of the empire and its ultimate collapse; cultural achievements of the age.

HIST 362 History of England
3 hrs.
Development of national culture in England and the British Isles to approximately the end of the eighteenth century. Evolution of constitutional and legal structure; emergence of England as a competitor for European and world hegemony.

HIST 363 Britain and the British Empire
3 hrs.
Britain in the nineteenth and twentieth centuries: development and subsequent loss of economic hegemony and consequences for British society, elaboration of parliamentary government; the British Empire from the loss of North America to the conquest of India and establishment of naval dominance; the British search for new roles in the twentieth century.

HIST 366 The Soviet Union
3 hrs.
Survey of the history of the Union of Soviet Socialist Republics from 1917 to the present: Soviet ideology and government system; the planned economy; health and education; contemporary art, music and literature are discussed. Examines sweeping changes in the USSR in the late twentieth century, and the influence of the USSR as a superpower.

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 Classes. 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; the response of Latin Americans to the challenges of the twentieth century.

HIST 376 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 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 386 Introduction to African Civilization
3 hrs.
Overview of major aspects of African history and civilization from earliest times to the present. Emphasis upon elements which contribute to the uniqueness of the African experience.

HIST 390 Introduction to the Study of History
3 hrs.
Major themes and developments in historiography and historical thought. Ideas and interpretations of history from different periods are studied in their historical context.

HIST 396 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 400 Topics in History
1-3 hrs.
Selected topics in historical studies. Topics announced in Schedule of Classes. 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 historic sites, registration procedures; preservation law; 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 Classes. 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 Classes. May be repeated under different topics.

HIST 416 Topics in Michigan History
1-3 hrs.
Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 418 Topics in Legal and Constitutional History
1-3 hrs.
Major developments in the history of constitutions, legal traditions and processes, such as the history of the United States constitution, English constitutional history, sacred and canon law, great decisions and precedents, non-European legal systems, etc. Topics listed in Schedule of Classes. Course maybe 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 Era of the American Revolution, 1763-1789
3 hrs.
Causes, characteristics and consequences of the American Revolution. Emphasis on factors which induced the British to alter existing relationships with the American colonies, and the nature of American responses. Efforts by both British and American leaders to preserve the imperial connection are studied along with the American movement to independence. The course also covers military and diplomatic aspects of the Revolution, and societal changes brought by American independence.

HIST 422 United States, 1789-1848
3 hrs.
Examines the struggle to create a federal union out of a growing number of states and territories with conflicting interests; establishment of the political party system; causes and consequences of the War of 1812; territorial expansion, the westward movement and the Mexican War of 1846-48; increasing sectional conflict between North and South.

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, 1914-1933
3 hrs.
American participation in World War I and the Paris Peace Conference; social, political and economic character of the 1920s; economic collapse and onset of the Great Depression; arts and culture of the era.

HIST 427 United States, 1933-1953
3 hrs.
The Roosevelt New Deal; the United States in World War II; America as postwar superpower and the Korean conflict. Consideration of domestic social and economic problems and the challenges of depression, a war time economy and peace time readjustment; arts and culture of the era.

HIST 428 United States since 1953
3 hrs.
America in the 1960s and the challenge of superpower rivalry, the Kennedy phenomenon; the impact of Vietnam on American history, politics and culture; economic and political crisis of the early 1970s; the civil rights struggle, social and intellectual developments.

HIST 429 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 Classes. 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 in a unique Byzantine phenomenon. Coverage from Constantine the Great to the capture of Constantinople by the Ottoman Turks in 1453.

HIST 444 Early Medieval History
3 hrs.
Evolution of medieval institutions and culture from the collapse of Rome to approximately the twelfth century.

HIST 445 Later Medieval History
3 hrs.
The maturation and flourishing of medieval civilization from approximately the twelfth century to the disintegration of medieval unity in the Renaissance. Emphasis on social and political institutions and intellectual developments.

HIST 446 Renaissance Europe
3 hrs.
Polish, 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 alliances 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 Classes. 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 468 Topics in European History
1-3 hrs.
Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 471 History of Latin American Nations
3 hrs.
History of various Latin American nations and regions, such as Mexico and the Caribbean, Brazil, Argentina, and the Andean states. Topics listed in Schedule of Classes. May be repeated under different topics.
HIST 476 Traditional China
3 hrs.
History of China from the earliest beginnings of Chinese civilization to the collapse of the Ming Dynasty in the seventeenth century.

HIST 477 Modern China
3 hrs.
Last of the great traditional Chinese dynasties and its response to the challenge of outside forces and ideas; early industrialization and sociopolitical change in the nineteenth century; the revolution of 1912 and the struggle for dominance ending in Communist victory in 1949. China's struggle to modernize and define its place in the twentieth century.

HIST 479 Modern Japan
3 hrs.
Survey of Japanese history and traditional society; the Japanese response to outside forces in the nineteenth century; development of the Japanese empire and its destruction in World War II; emergence of Japan as an economic world power.

HIST 485 Early Islam
3 hrs.
The rise of Islam and the Arab conquests, the fusion of Muslim, Hellenistic, and Indic-Persian cultural influences in classical Islamic civilization, political, social, religious, and intellectual development from the seventh century to the Mongol conquests in the thirteenth century.

HIST 488 History of West Africa
3 hrs.
Major themes of West African history from medieval times to the present, including development of states and empires, regional, Saharan and trans-Atlantic trade, economic transformations, the influence of Islam and other religious institutions, and the dynamics of traditional West African civilization.

HIST 489 Topics in Asian and African History
1-3 hrs.
Topics listed in Schedule of Classes. May be repeated under different topics.

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. 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 Classes. Prerequisite: 24 hours of course work in history. 496 Directed Research 3 hrs. Individualized research and production of a written project supervised by a faculty member. Registration requires a research proposal approved by a faculty member and the Department Chair. Prerequisite: 18 hours of history at the 300-level and above.

HIST 499 Senior Thesis
3-6 hrs.
Research, preparation and defense of a supervised research project. Registration requires approval by two faculty supervising the project and the Department Chair. Honors students may substitute HNRS 499 (Honors College Thesis) with appropriate approval. Graded on a credit/no credit basis. Undergraduates with junior status and 12 hours of work in history may enroll in 500-level courses with prior approval of the department chair.

HIST 500 Studies in History
1-3 hrs.
Topics announced in Schedule of Classes. 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 Classes. 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 Classes. 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 Classes. 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 Classes. May be repeated under different topics.

HIST 530 Studies in Early American History
3 hrs.
Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 535 Studies in Recent American History
3 hrs.
Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 550 Studies in Medieval History
3 hrs.
May be crosslisted with MDVL 500. Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 555 Studies in Modern European History
3 hrs.
Selected approaches to European history since the Renaissance. Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 565 Studies in Asian and African History
3 hrs.
Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 569 Proseminar
3 hrs.
Research and writing on selected themes. Topics may be listed in Schedule of Classes. 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 including oral tradition, genealogy, and interdisciplinary method. May be repeated to a maximum of six semester hours.

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.

INTEGRATED LANGUAGE ARTS MINOR
See “Interdisciplinary Programs” in the College of Arts and Sciences.

INTERNATIONAL AND AREA STUDIES PROGRAM
See “Interdisciplinary Programs” in the College of Arts and Sciences.
Modern and Classical Languages

For students majoring or minoring in a modern foreign language a course in modern European history is desirable. For Latin majors and minors a course in Roman history is recommended. A student in the Arts and Sciences curriculum (ASC) may apply eight (8) credits toward a Latin major by taking both GREK 100 and 101. A student in the Secondary Education curriculum (SED) may apply four (4) credits toward a Latin major by taking both GREK 100 and 101. English majors are encouraged to take as much foreign language as they can.

All students (either entering or advanced) who wish to continue in a language they have studied in high school must take a placement evaluation. It may be used as a qualifying examination to exempt students from specific language requirements. The evaluation is given during each registration period and scores are posted in time for registration. Students must register according to their placement score.

The department considers one year of high school foreign language study equivalent to one semester of University work. Students who place above the expected level may be eligible for some retroactive credit, depending on the level at which they place in a particular language. Questions about this matter should be referred to the Placement Director.

Students entering in Fall 1993 and after who will graduate from the College of Arts and Sciences must fulfill that college’s foreign language requirement. Other colleges or specific departments may also have a foreign language requirement. Students who have questions about this matter should consult their advisor.

Native speakers of a given language must consult with a departmental advisor before registering for courses up through the 300 level. A student planning a language major should consult with a departmental advisor as early as possible and obtain a recommendation form to insure proper planning and avoid subsequent difficulties. The undergraduate major consists of a minimum of 30 credit hours (minimum 20 credit hours for an undergraduate minor) beyond the 100-level (basic) courses.

For further information, contact Dr. Peter W. Krawutschke, director, Translation Center, Sprau Tower, 387-3026.

Foreign Credits

Credits for language study at a foreign university may be granted on official proof that the student has completed the coursework 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.

LATVIAN MAJOR
Thirty-seven hours beyond LATV 200 competency, to include LATV 201, 316, 317, 320, 322, 325, 452, 560, and 597, and PSCI 549.

LATVIAN MINOR
Twenty-five hours beyond LATV 200 competency, to include LATV 201, 316, 317, 320, 322, 325, and 597, and PSCI 549.

RUSSIAN MAJOR
Twenty hours including 100-level (basic) courses or equivalent; remaining hours from RUSS 200-500 series.

SPANISH MAJOR
Thirty hours beyond the 100-level to include SPAN 322 or 323, 325, and three 400 or 500 level courses (to include 3 hrs. from SPAN 526, 527, 528, 529, or 560). Students in the education curriculum are required to take LANG 558, Modern Language Instruction, which will be accepted in place of one 400 or 500-level non-literature course.

SPANISH MINOR
Twenty hours beyond 100-level to include 6 hrs. from SPAN 322, 323 or 325. Students in the education curriculum are required to take LANG 558, Modern Language Instruction, but this course does not count toward the minor in Spanish.

WORLD LITERATURE MINOR
The Department of Languages and Linguistics and the Department of English offer jointly a world literature minor (20 hours). For description and requirements, see the “Interdisciplinary Programs” listing in the College of Arts and Sciences section of this catalog, or consult Dr. Felkel, 515 Sprau, 387-3018.

Translation Center

The Translation Center offers applied foreign language assistance to business and industry, the WMU community, professionals, and private individuals. The center serves its clients by arranging translations for information and publication, notarized translations of legal documents, interpretation, terminology searches, and assessment of translation quality, and by providing information, advice, referral, and research in the field of applied foreign language.

LATIN MAJOR
Thirty hours beyond the 100-level to include GER 316, 317, 322, 325, and at least two 400- or 500-level courses other than LANG 556 (GER 400 or 401 counted toward major). Students in education curriculum are required to take LANG 558 Modern Language Instruction, which counts toward the German major but not toward the minor.

GERMAN MAJOR
Thirty hours beyond the 100-level to include GER 316, 317, and 322 or 325, and at least two 400- or 500-level courses other than LANG 556 (GER 400 or 401 not counted toward major). Students in education curriculum are required to take LANG 558 Modern Language Instruction, which counts toward the German major but not toward the minor.

GERMAN MINOR
Twenty hours beyond the 100-level to include GER 316, 317, and 322 or 325, and at least two 400- or 500-level courses other than LANG 556 (GER 400 or 401 not counted toward the minor). Students in the education curriculum are required to take LANG 558 Modern Language Instruction, which counts toward the German major but not toward the minor.

JAPANESE MINOR
Twenty-three hours including 100-level (basic) courses or equivalent.

LATIN MINOR
Thirty hours including 100-level (basic) courses or equivalent, remaining hours from 200-500 series which may include LANG 375, 450, and GREK 100 and 101. Teaching majors must include LAT 200, 201, 324, 550, 557, and 560.

LATIN MINOR
Twenty hours including 100-level (basic) courses or equivalent, remaining hours from 200-500 series which may include LANG 375 and 450. Teaching minors must include LAT 200, 201, and 557.
Language Courses (LANG)

Foreign Literature in English Translation

(Courses described in italics are approved for General Education)

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
3 hrs.
The content of the course will stress the observation and experience of another society and culture as depicted in some of the great writings of foreign literature through reading in English. Universal themes about the human condition and insight into their treatment by representative native writers will be presented. The course will consider the differences in treatment of individuals and society and will offer a comparison to contemporary life through various literary works and the social-historical background for each of the selections.

This course does not apply toward a major or minor in French, German, or Spanish, but it may apply toward a major or minor in Latin or a minor in Russian. LANG 375 fulfills the University baccalaureate-level writing requirement for foreign language majors. The course may be taken in more than one language area. Representative topics which may be treated in this course include:

- Classical Literature in English Translation
- Themes and genres of classical literature in English translation. Possible themes include: Women in Greek Drama, Invention in Ovid’s Metamorphoses, the Tragic Outlook; Ancient Epic, the Philosophico-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 great Russian prose in its historical and cultural context. The course will include but not be restricted to works by Pushkin, Gogol, Turgeniev, Dostoevski, Tolstoy, Gorki, Sholokhov, Pasternak, and Solzhenitsy.

Spanish-American Literature in English Translation
Selected prose and poetry from late 19th century (Ruben Dario and Modernismo) to the contemporary writers of Hispanoamerica.

Spanish Literature in English Translation
Selected Spanish prose and poetry from the Middle Ages to the twentieth century. The course will include, but will not be restricted to, works by Lope de Vega, Cervantes, St. Teresa, Calderon de la Barca, Unamuno, and Garcia Lorca, as well as the Anonymous Poem of the Cid and Lazarillo de Tormes.

Classics in English

(Courses described in italics are approved for General Education.) All courses listed below will be taught entirely in English, have no foreign language requirement, and are open to any student.

LANG 450 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 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.

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.

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 (but the hours may not be counted toward the minor). 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 writing skills, as well as the culture component. Students must complete this course before beginning directed teaching. Prerequisite: Minimum of four courses including LANG 316 and 317, or equivalent, or permission of instructor.

This course will be offered regularly. The comparable methods course for Latin is LATV 557, Teaching of Latin; for Latvian, LATV 515, Methods of Teaching Latvian.

Classics

See Greek, Latin, and Classics Courses in English.

French (FREN)

(Courses described in italics are approved for General Education.)

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 316 French Composition
4 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 difficulties encountered by students of French with Anglo-American patterns of pronunciation; also to study the teaching of French patterns. Prerequisite: FREN 200 or equivalent. (FREN 320 may be taken concurrently with FREN 201.)

FREN 322 French Civilization
3 hrs.
This course will emphasize the contributions of France to the Western World from the medieval period to the present day and will explore both historical and artistic accomplishments. Prerequisite: FREN 201 or permission of Department.

FREN 323 Contemporary Francophone Society
3 hrs.
An introduction to today's multifaceted French-speaking world. Geographical locations may range from continental France to francophone Africa. Particular emphasis will be placed on societal structures, such as the family, religion, and education. Prerequisite: French 201 or permission of Department.

FREN 325 Close Reading In French
4 hrs.
Prose and verse readings of intrinsic literary and cultural merit, with emphasis on strategies for literary analysis. Prerequisites: FREN 316, 317, or permission of Department.

FREN 344 Summer Study in France
4 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.

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
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 prerequisites.

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: FREN 316 or equivalent.

FREN 559 History of the German Language
1-3 hrs.
Survey of the development. Prerequisites: GER 316, 317; 322 or 325 or equivalent.

GER 100 Basic German I
4 hrs.
Fundamentals of German with audiolingual emphasis. German cultural readings. Does not count toward a major or a minor.

GER 101 Basic German II
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.

GER 402 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 452 Advanced German Composition
3 hrs.
Intensive practice in composition and stylistics directed towards appreciation of literary and other written expression in German with work in free composition at an advanced level. Prerequisites: GER 316 and 317.

GER 453 Advanced German Conversation
3 hrs.
Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: GER 316 and 317.

GER 477 Foreign Study
1-16 hrs. Fall-Winter; 1-8 hrs. Spring-Summer
Student participation in 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 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 or 325 or equivalent.

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 or 325 or equivalent.

GER 550 Independent Study in German
1-3 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, 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 or 325 or equivalent. Representative topics which may be treated in this area include:

- The Novel—Survey of the development with representative selections.
- Lyric Poetry—Survey of the development with significant selections.
- Nineteenth Century Drama—Primarily Kleist, Grillparzer, Hebbel, and Hauptmann.
- Twentieth Century Drama—Representative selections.

Greek (GREK)
(Courses described in italics are approved for General Education.)

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.
Japanese (JPNS)

(Courses described in italics are approved for General Education.)

JPNS 100 Basic Japanese I
4 hrs.
Fundamentals of Japanese with audio-lingual emphasis. Cultural aspects are reinforced by visual aids.

JPNS 101 Basic Japanese II
4 hrs.
Continuation of 100. Japanese cultural readings. Prerequisite: JPNS 100 or equivalent.

JPNS 200 Intermediate Japanese I
4 hrs.
The development of spoken and written Japanese with emphasis on grammatical structures. Introduction of 160 KANJI characters. Prerequisite: JPNS 101 or equivalent.

JPNS 201 Intermediate Japanese II
4 hrs.
The continuation of 200 with more complex structures and the addition of 160 more KANJI characters. Prerequisite: JPNS 200 or equivalent.

JPNS 316 Japanese Composition
3 hrs.
Emphasis is upon increasing the student's command of written Japanese. KANJI competency is reinforced. Prerequisite: JPNS 201 or equivalent.

JPNS 317 Japanese Conversation
4 hrs.
Students practice spoken Japanese through role-playing, the viewing of films, discussion, and other oral activities. Prerequisite: JPNS 201 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 major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

LATV 100 Basic Latvian I
4 hrs.

LATV 101 Basic Latvian II
4 hrs.
Continuation of 100. Prerequisite: LATV 100 or equivalent.

LATV 200 Intermediate Latvian I
4 hrs.
Continuation of 101, with greater attention to achieving self-reliance in conversation and to increasing reading and writing skills with the help of a dictionary. Analysis of the structure of Latvian, vocabulary building and uses of idioms; exercises in spoken and written Latvian; reading selections in various topics; short compositions in Latvian. Prerequisite: LATV 101 or equivalent.

LATV 201 Intermediate Latvian II
4 hrs.
Co-requirement of 200. Individualized assistance at all levels of the language structure. Development of more advanced reading and writing skills. Oral and written reports on various topics. Prerequisite: LATV 200 or equivalent.

LATV 316 Latvian Composition
4 hrs.
Directed, individual study of a specific topic in Latvian literature or linguistics. Departmental approval required for admission. Repeatable for credit. Prerequisite: A minimum grade point average of 3.0 in the major.

LATV 320 Latvian Phonology
1 hr.
Study of selected aspects of Latvian life and culture. Required of Latvian teaching majors and minors. Prerequisite: Completion of four courses, or equivalent, in Latvian, or permission of instructor.

LATV 322 Latvian Life and Culture
3 hrs.
Study of selected aspects of Latvian life and culture and their historical settings. Prerequisite: LATV 200 or equivalent, or instructor's permission.

LATV 325 Introduction to the Study of Latvian Literature
4 hrs.

LATV 452 Advanced Latvian Grammar and Composition
3 hrs.
Intensive review of Latvian structure and practice in composition. Prerequisite: Minimum of four courses including LATV 316.
and 317, or equivalent, or permission of instructor.

LATV 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 major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

LATV 515 Methods of Teaching Latvian
2 hrs.
Examination of different Latvian language teaching methods; principles, problems, current practice. Opportunities to tutor beginning Latvian students, engage in student teaching in the Kalamazoo Latvian School and/or work on language-teaching materials. Prerequisite: Minimum of four courses including LATV 316 and 317, or equivalent; or permission of instructor.

LATV 550 Independent Study in Latvian
1-3 hrs.
Directed individual study of a specific topic in a Latvian language, literature, or culture area. Department approval required for admission. Repeatable for credit. Prerequisite: One 500-level course in major, minimum of 3.0 grade point average in major; instructor’s approval required.

LATV 560 Studies in Latvian Literature
3 hrs.
Topics vary according to genre, author, or period and will be announced. May be repeated for credit under different topics. Prerequisite: Minimum of four courses including LATV 316 and 317, or equivalent; or permission of instructor.

LATV 597 Seminar in Latvian Linguistics
2-4 hrs.
Each seminar will deal with a selected topic in Latvian linguistics, e.g., the development of the Latvian literary language—from folklore to literature to the present-day idiom. May be repeated for credit with a different topic. Prerequisite: Minimum of four courses including LATV 316 and 317, or equivalent; or permission of instructor.

LATV 598 Readings in Latvian
1-4 hrs.
Individual reading project available to advanced students with good scholastic records to study in depth an author or materials not being covered currently in the schedule. Repeatable for credit. Prerequisite: Minimum of four courses including LATV 316 and 317, or equivalent; or permission of instructor.

Russian (RUSS)
(Courses described in italics are approved for General Education.)

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: RUSS 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; 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 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.

Spanish (SPAN)
(Courses described in italics are approved for General Education.)

SPAN 100 Basic Spanish I
4 hrs.
Fundamentals of Spanish with audiolingual emphasis.

SPAN 101 Basic Spanish II
4 hrs.
Continuation of 100. Prerequisite: SPAN 100 or equivalent.

SPAN 200 Intermediate Spanish I
4 hrs.
The development of spoken and written expression in the Spanish language with an emphasis on grammar review. Prerequisite: SPAN 101 or two years of high school Spanish, or equivalent.

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

SPAN 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 322 Life and Culture of Spain
3 hrs.
A study of Spanish civilization in terms of its geography, history and art, and how these factors illuminate the character and tradition of the Spanish people. Prerequisite: SPAN 316 and 317 or equivalent (316 and 317 may be taken concurrently with 322 with permission of Spanish advisor).

SPAN 323 Life and Culture of Latin America
3 hrs.
A study of Latin-American life and culture based on ethnic, historical, social, religious and literary considerations. Prerequisites: SPAN 316 and 317 or equivalent (316 and 317 may be taken concurrently with 323 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 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. At least 3 hours from 526, 527, 528, or 529 are recommended.

SPAN 453 Advanced Spanish Conversation
3 hrs.
Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression. Prerequisites: SPAN 316, 317, and one additional 300-level course. At least
SPAN 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 major or minor in any one language. Each course, however, may have more specific and/or additional prerequisites.

SPAN 510 Survey of Spanish Literature to the Present
3 hrs. A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 316, 317, and 325.

SPAN 526 Survey of Spanish Literature to the 18th Century
3 hrs. A survey of Spanish literature from its origin to, and including, the eighteenth century. Prerequisites: SPAN 316, 317, either 322 or 323, plus one additional course at the 300 level or above.

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. Prerequisites: SPAN 316, 317, and 325.

SPAN 529 Survey of Spanish American Literature from Modernismo to Present
3 hrs. A survey of Spanish American literature from the era of Modernismo 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 its area include:
Cervantes—Don Quixote 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 Ibáñez.
Generation of 98—Thought and works of typical representatives such as Unamuno, Azorin, Baroja, and A. Machado.
Contemporary Theater—Evolution and analysis of the characteristics.
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.

Linguistics and Critical Languages
Linguistics is the scientific study of language—its diversified structures and their dialectal variants, its acquisition by children and non-native speakers, its systems of writing and transcription, its cultural role in the speech community, and its application to other areas of human knowledge.

Linguistics Courses (LING)
(Courses described in italics are approved for General Education.)

LING 100 Basic Critical Languages I
4 hrs. Study of a critical language at the elementary level with emphasis on conversation. The writing system will be introduced at an appropriate time, depending on the nature of the individual language.

LING 101 Basic Critical Languages II
4 hrs. Continuation of 100. Prerequisite: LING 100 or equivalent.

LING 105 The Nature of Language
4 hrs. A broad introduction to the nature and development of language in human society and to the interdisciplinary aspects of current studies of language and language behavior.

LING 111 Standard American English: Intermediate
4 hrs. Intermediate-level instruction in oral and written Standard American English for speakers of other languages. An attempt will be made to provide individual tutoring where necessary. Credit/No Credit only.

LING 112 Standard American English: Advanced
4 hrs. Advanced-level instruction in oral and written Standard American English for speakers of other languages. A continuation of LING 111, with emphasis on advanced reading and writing skills. Prerequisite: LING 111 or equivalent. Credit/No Credit only.

LING 200 Intermediate Critical Languages I
4 hrs. Continuation of LING 101, with greater attention to achieving self-reliance in conversation and to increasing reading and writing skills with the help of a dictionary. Prerequisite: LING 101 or equivalent.

LING 201 Intermediate Critical Languages II
4 hrs. Continuation of 200. Prerequisite: LING 200 or equivalent.

LING 300 Introduction to Linguistics
4 hrs. An introduction to modern linguistic theory and to the application of that theory to linguistically-related disciplines.

LING 551 Psycholinguistics
4 hrs. A study of linguistic systems as they connect language and thought—and relate competence to performance—in the acquisition, production, and perception of language.

LING 552 Sociolinguistics
4 hrs. A systematic study of the linguistic correlates of social behavior and the influence of society on the nature of language.

LING 598 Readings in Linguistics
1-4 hrs. An opportunity for advanced students with good scholastic records to pursue the independent study of a linguistic subject not specifically covered by any of the courses in the Linguistics program. Repeatable for credit. Prerequisite: Permission of instructor and chairperson.

Translation Program
Minor in Translation

ADMISSION TO THE PROGRAM AND PREREQUISITES
1. The minor in translation requires the completion of the courses or their equivalents in one of the following languages as prerequisites at specific levels of the program:

   In French:
   316 French Composition
   317 French Conversation
   325 Close Reading in French
   452 Advanced French Grammar and Composition

   In German:
   316 German Composition
   317 German Conversation
   325 Introduction to the Study of German Literature
   452 Advanced German Composition

   In Latin:
   316 Latinian Composition
   317 Italian Conversation
   325 Introduction to the Study of Latin Literature
   452 Advanced Latvian Grammar and Composition

   In Spanish:
   316 Spanish Composition
   317 Spanish Conversation
   325 Introduction to the Study of Spanish Literature
   452 Advanced Spanish Grammar and Composition

2. The prerequisite Language courses must have been completed with a "C" average prior to enrolling in the program.

3. Translation courses (TRNS) may not be counted toward a major or minor in Foreign Languages.

4. Students with a strong background in one foreign language will be encouraged to begin study of a second foreign language.

5. Students will be expected to demonstrate the ability to type at a reasonable speed.

Required Courses (21 hours)

LING 105 The Nature of Language
4 hrs.

LING 111 Standard American English: Intermediate
4 hrs.

LING 200 Intermediate Critical Languages I
4 hrs.

LING 201 Intermediate Critical Languages II
4 hrs.

LING 300 Introduction to Linguistics
4 hrs.
Translation Courses (TRNS)

TRNS 310 Introduction to Translation 3 hrs.
Survey of the history and theories of translation. Discussion of the importance of translation in international commerce, international political organizations, scientific research, and the transfer of technology and culture. Other topics include the tools of the trade, institutions for advanced training, employment opportunities, free-lance work, and rate of compensation.

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.

TRNS 510 Translation Seminar 4 hrs.
Intensive practice in translation, primarily of non-literary documents, into English. The course will also include some practical work in lexicography, error analysis, translation quality assessment, and general problem solving. Prerequisites: LING 105, ENGL 305, TRNS 310, FREN 316, 317, 325, 452, or GER 316, 317, 325, 452, or LATV 316, 317, 325, 452, or SPAN 316, 317, 325, 452.

TRNS 590 Translation Practicum 3-6 hrs.
Under the direction of a faculty advisor, a student will serve an internship in the translation department of a major company, work under the supervision of a professional translator or in a translation agency, complete a substantial and useful translation project on campus, or attend a series of translation workshops. Off-campus work will be evaluated jointly by institutions or individuals supervising the internship and the faculty advisor. On-campus projects will be evaluated by a panel of faculty members. Specific assignments will be arranged in consultation with the advisor during the semester preceding the one in which the student expects to enroll in 590. TRNS 590 may be taken in two consecutive semesters (16 contact hours per week, 3 credit hours per semester; total of 6 credit hours) or in a single semester (32 contact hours per week, 6 credit hours). Prerequisite: TRNS 510.

MATHEMATICS AND STATISTICS

Ruth Ann Meyer, Chair
Yousef Alavi
Robert Blefko
Christine Browning
Joseph T. Buckley
Dwayne Channell
Gary Cherntand
John Crowell
Cifton Ealy
Paul Epenenburg
James Flanders
Anthony Gioia
Christian Hirsch
Philip Hsieh
S. F. Kapoor
Robert Laing
Joseph McKean
Daniel Minalko
Joshua Naranjo
Dennis Pence
John W. Pennell
Thomas Richardson
James Riley
Allen Schenken
Charleene Sheets
Gerald Severns
Arthur Stoddart
Michael Stolke
Jay Teiman
Walter Turner
Junh Chao Wang
Arthur White
Kung-Wei Yang

The Mathematics and Statistics Department offers a wide variety of courses and programs in both theoretical and applied areas. There are four majors available: Mathematics, Computer Science, Statistics, and the Science and Mathematics Teaching Minor. These majors and minor programs incorporate emphasis on computer methods, mathematical modeling, and problem solving.

The various mathematics and statistics majors all require two semesters of calculus as well as introductory computer science courses. Students may begin coursework in these areas while deciding on a branch of mathematics in which to specialize.

During the first year interested students should contact Barbara McKinney, student advisor or a faculty advisor, to begin planning the curriculum. Students should consult the advisor or the contact hours per semester (total of 6 credit hours) or in a single semester (32 contact hours per week, 6 credit hours). Prerequisite: TRNS 510.

The intent of the Applied Mathematics Option is to provide a broad range of computational and analytical skills, practice in mathematical modeling and some fundamental knowledge of a scientific discipline. Computational and applied mathematicians are employed in a variety of positions in industry, business, and government. Students must complete a minor in one of Biomedical Sciences, Chemistry, Computer Science, Physics, or Statistics. Students should select their minor in the area in which they intend to apply their mathematical talents, and then they should select electives that are particularly suited to the problems in that area.

MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 145 Discrete Mathematical Structures 3
MATH 314 Mathematical Proofs 3
VMATH 230 Elementary Linear Algebra 4
MATH 272 Vector and Multivariate Calculus 4
MATH 274 Introduction to Differential Equations 3
MATH 364 Statistical Methods 4
MATH 402 Mathematical Modeling 3
Three of MATH 330, 362, 408, 440, 445, 490, 507 (510 or 530), 567, 568, 570, 572, 574 9-12

COGNATE SCIENCE REQUIREMENTS:

CS 111 Computer Science I 4
CS 201 Programming in FORTRAN 2
MATH 506 Scientific Programming 3
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

OR
CHEM 101 or 102 General Chemistry 5
The Physics/Chemistry courses will satisfy the Area III General Education requirements in the Distribution Program. MATH 507 may be substituted for MATH 506 in the above "Cognate Science Requirements" and better prepared students are encouraged to do so. However, MATH 507 cannot be counted both as a mathematics elective and as a cognate science requirement.

Students must complete a minor in one of the following areas: Biomedical Sciences, Chemistry, Computer Science, Physics, or Statistics. The courses listed above under "Cognate Science Requirements" may also be used to fulfill requirements for the minor where applicable.

It is strongly suggested that Biomedical Sciences minors elect MATH 362 and MATH 567 and CHEM 101 or CHEM 102. Computer Science minors should select MATH 145 and either MATH 440 or MATH 445. Physics minors should select MATH 314 and MATH 570. Students in the Applied Mathematics Option who elect the Statistics minor should take the CS 201 course in the cognate science requirements and would be exempt from CS 306 in the Statistics minor.

NOTE: Graduate study in mathematics typically requires MATH 314, MATH 330, 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.
General Mathematics Option

The General Mathematics Option is a flexible program that may be combined with minors in diverse areas such as physics in the natural sciences, economics in the social sciences, or even be used as a base for law school. This option also serves as excellent preparation for graduate study in mathematics. A student in this program should develop, in addition to a broad background in mathematics, an ability for communicating mathematics and for rigorous logical thinking.

MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 230 Elementary Linear Algebra 4
MATH 272 Vector and Multivariate Calculus 4
MATH 314 Mathematical Proofs 3
MATH 330 Modern Algebra 4
MATH 440 Graphs and Mathematical Models 3
OR
MATH 445 Algorithmic and Applied Combinatorics 3
MATH 570 Advanced Calculus 3
Three of MATH 274, 362, 364, 402, 408, 490, 506, 510, 530, 572, 574, 580 (at least one at 400 level or above) 9
Plus CS 111

Baccalaureate Writing Requirement

Students who have chosen the General Mathematics option will satisfy the Baccalaureate Writing Requirement by successfully completing MATH 314 Mathematical Proofs.

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.

MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 145 Discrete Mathematical Structures 3
MATH 230 Elementary Linear Algebra 4
MATH 250 Computing Technology in Secondary School Mathematics 4
MATH 314 Mathematical Proofs 3
MATH 330 Modern Algebra 4
MATH 340 Fundamental Concepts of Geometry 3
MATH 350 Teaching of Junior High School Mathematics 2
MATH 364 Statistical Methods 4
MATH 550 Linear Algebra 3
Three of MATH 402, 406, 440, 445, 570, 580 3

Baccalaureate Writing Requirement

Students who have chosen the Secondary Teaching Option will satisfy the Baccalaureate Writing Requirement by successfully completing MATH 314 Mathematical Proofs.

Statistics Minor Option

Students who have chosen the Statistics Minor Option will satisfy the Baccalaureate Writing Requirement by successfully completing MATH 314 Mathematical Proofs.

Mathematics Minor Options

General Mathematics Minor Option

Students interested in the General Mathematics Minor Option may plan their program using the information below. An advisor's approval is not necessary unless a change in the requirements is requested.

MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 230 Elementary Linear Algebra 4
MATH 374 Introduction to Linear Algebra and Differential Equations 4

Electives 8-10
Two of the following: MATH 272, MATH 274 (not if 374 is elected); MATH 145, MATH 314; MATH 330, MATH 340, MATH 362 or 364, MATH 402, MATH 406, MATH 440 or 445, MATH 506, MATH 507.

Substitutions or exceptions require approval of departmental advisor. Some electives have other prerequisites.

Secondary Teaching Minor Option

Mathematics Minor Options

Statistics Minor Option

Applied Statistics Minor Option

Elementary and Middle School Teaching Minor Option

Students in an Elementary School and Middle School curriculum must contact a mathematics advisor for information on available mathematics programs.

MATH 150 Number Concepts for Elementary/Middle School Teachers 4
MATH 151 Geometry for Elementary/Middle School Teachers 3
MATH 265 Probability and Statistics for Elementary/Middle School Teachers 4
MATH 352 Teaching of Elementary/Middle School Mathematics 3
MATH 554 Algebra in the Elementary/Middle School Classroom 3
MATH 555 Mathematical Problem Solving in the Elementary/Middle School Curriculum 3

Science and Mathematics Teaching Minor

The Department of Mathematics and Statistics 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: 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)
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 participate in the William Lowell Putnam national collegiate mathematics competition.

Mathematics and Statistics 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.

(Courses described in italics are approved for General Education.)

MATH 109 Computational Skills
A mastery-based remedial course designed to sharpen computational skills involving whole numbers, fractions, decimals, percents, signed numbers and simple geometric figures. These skills are used in solving word problems. All entering students must take an exam on this material unless exempted on the basis of ACT Mathematics score. Students who do not pass the exam are required to take this course and enrollment in this course is restricted to these students. Credit for the course will not apply to the number of credits needed for graduation.

MATH 110 Algebra I
3 hrs.
A course in algebra at the level usually covered in high school. Review and practice with basic algebraic skills. Topics include arithmetic foundations of algebra, properties of real numbers, 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 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, one year of high school algebra and satisfactory score on placement test.

MATH 116 Finite Mathematics with Applications
3 hrs.
This course is designed to give the student a background in the elements of finite mathematics. Included will be a discussion of sets, relations and functions; systems of linear equations and inequalities; vectors and matrices; concepts of probability; random variables and distribution functions; applications of linear algebra and probability. Prerequisite: MATH 110, or 2 years of college preparatory mathematics and satisfactory score on placement test.

MATH 118 Precalculus Mathematics
4 hrs.
This course is designed to provide the student with basic algebraic and trigonometric concepts necessary for calculus. Topics include: real numbers, inequalities, coordinate systems, functions, polynomials, solutions of polynomial equations, exponential and logarithmic functions, trigonometry and trigonometric functions. Prerequisite: MATH 111, or at least 3 years of college preparatory mathematics and satisfactory score on placement test.

MATH 122 Calculus I
4 hrs.
The first of a two-semester sequence in differential and integral calculus. Functions, limits, continuity, techniques and applications of differentiation, integration, trigonometric, logarithmic and exponential functions. Prerequisite: MATH 118, or at least 3½ years of college preparatory mathematics including trigonometry and satisfactory score on placement test. Students cannot receive full credit for MATH 122 and 200.

MATH 123 Calculus II
4 hrs.
A continuation of Calculus I. Techniques and applications of integration, trigonometric functions, sequences and series, indeterminate forms, improper integrals, applications to elementary differential equations. Prerequisite: MATH 122, (CS 105 or 106 recommended). Students will not receive full credit for MATH 123 and 200.

MATH 145 Discrete Mathematical Structures
3 hrs.
Sets, functions, relations, graphs, digraphs, trees, recursion, mathematical induction and other proof techniques, counting techniques, Boolean Algebra and asymptotic analysis of algorithms. The relationship of these concepts with computer science will be emphasized. Coverage includes MATH 122, and an introductory programming course.

MATH 150 Number Concepts for Elementary/Middle School Teachers
4 hrs.
This course provides a foundation in number concepts appropriate for elementary and middle school teachers. Topics include numeration systems, number theory, rational numbers, and integers. Emphasis is placed on conceptual understanding, problem solving, mental arithmetic, computational estimation, and calculator use. This course may only be applied toward the requirements of a program leading to elementary teacher certification or the Elementary/Middle School Mathematics Teaching Minor. Prerequisite: MATH 110 with a grade of "C" or better or a satisfactory score on placement test.

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, consequence, and similarity; and an overview of measurement. The course also includes an introduction to the use of computers in solving problems. Prerequisite: MATH 150 with a grade of "C" or better.

MATH 190 Survey of Mathematical Ideas
4 hrs.
A survey of significant, active areas of mathematics with the emphasis on concepts rather than calculations. The historical development of certain mathematical ideas will be included. The areas of mathematics investigated will include topics from set theory, probability, number theory, computer mathematics, and graph theory. This course will not satisfy any program requirements in mathematics.

MATH 200 Calculus With Applications
1 hr.
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 1½ years high school algebra and 1 year high school geometry and satisfactory score on placement test. Students will not receive full credit for MATH 200 and 122 or 123.

MATH 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 MATH 216, 260, 364, or 366. Prerequisite: MATH 116, BIS 102.

MATH 230 Elementary Linear Algebra
4 hrs.
Vectors and geometry in two and three dimensions, systems of linear equations, matrix algebra, linear transformations in R² and R³, generalizations to the vector spaces Rⁿ, inner products, determinants. Some emphasis on proofs. Prerequisite: MATH 122 (MATH 123 recommended).

MATH 250 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 7-12. Emphasis is placed on the use of technology in problem solving and concept development. This course is open only to students pursuing a program leading to secondary mathematics teacher certification. Prerequisite: Prior computing experience and MATH 123.

MATH 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, Poisson, chi-square, F distributions, interval estimates; tests of hypotheses. Students can receive credit for only one of MATH 216, 260, 364, or 366. Prerequisite: MATH 200 or 122.

MATH 261 Engineering Statistics
4 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 123 and a course in the use of computers. Cross listed with IE 261.


MATH 265 Probability and Statistics for Elementary/Middle School Teachers 4 hrs. This course covers basic concepts of statistics and probability appropriate for elementary and middle school teachers. Topics include statistical techniques for organizing, summarizing, presenting, and interpreting data sampling techniques, simulation methods, counting techniques, and analytic methods in probability. Computers are used to reinforce major course ideas. Prerequisite: MATH 150 with a grade of "C" or better.

MATH 272 Vector and Multivariate Calculus 4 hrs. Vector calculus, functions of several variables, partial differentiation, multiple integration. Prerequisite: MATH 123

MATH 274 Introduction to Differential Equations 3 hrs. Techniques of solving differential equations. Prerequisite: MATH 123.

MATH 314 Mathematical Proofs 3 hrs. The prime objective of this course is to involve the students in the writing and presenting of mathematical proofs. The topics in this course will include logic, types of proof, sets, functions, relations, mathematical induction, proofs in an algebraic setting such as divisibility properties of the integers, proofs in an analytic setting such as limits and continuity of functions of one variable. Additional topics may include elementary cardinal number theory, paradoxes and simple geometric axiom systems. Prerequisite: MATH 123, and 230 or 374.

MATH 330 Modern Algebra 4 hrs. Introduction to groups, rings, integral domains, fields. Emphasis will be placed on the integers and polynomial rings over a field. Prerequisite: MATH 314 or consent of instructor.

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 Junior High School Mathematics 2 hrs. This course considers curriculum issues and trends in junior high school mathematics focusing on methods and materials for teaching mathematics effectively to junior high school students. Activity and laboratory approaches for teaching mathematics are emphasized. Prerequisite: MATH 314 or consent of instructor.

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.

MATH 362 Probability 4 hrs. Discrete probability spaces, conditional probability, discrete and continuous random variables, expectations, joint distributions, special distributions. Prerequisite: MATH 123.

MATH 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 MATH 216, 260, 364, or 366. Prerequisite: MATH 123.

MATH 366 Introduction to Statistics 4 hrs. An introductory course in statistics for upper level students possessing a limited mathematics background. The emphasis is on the use of statistical tools rather than on their theoretical development. Topics will include probability distributions, means and variances, interval estimates, tests of hypotheses, correlation and regression. This course will not count toward a mathematics major. Students can receive credit for only one of MATH 216, 260, 364, or 366.

MATH 374 Introduction to Linear Algebra and Differential Equations 4 hrs. This course covers elementary linear algebra and differential equations, applying techniques of linear algebra to the solution of differential equations. Topics chosen from: first order equations and applications, matrices, vector spaces, linear transformations, linear differential equations, systems of differential equations, and series solutions. Students may receive credit for no more than two of the following three courses: MATH 230, 274, and 374. Prerequisite: MATH 123.

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 391 Statistical Consulting 1 hr. Provides undergraduates with the opportunity to observe and participate with statistical consultants on real projects. Students are exposed to the statistical consulting experiences from data manipulation and analysis to the design of the statistical aspects of a study and data collection, data analysis, and effective communication with a client to the production of a final written report on the statistical aspects of the project. May be taken for credit at most three times. Prerequisites: At least one of MATH 563, 566, 567, or 568.

MATH 395 Practicum in Mathematics 1 hr. Students enrolled in this course will normally work in the modular math program. The course may be repeated. Prerequisite: consent of instructor.

MATH 402 Mathematical Modeling 3 hrs. An introduction to the methods of mathematical modeling. The major aim of this course is to teach the formulation of mathematical problems from real world practical situations. The representation of a practical or scientific problem in mathematical terms may give a more precise understanding of its significant properties, and may allow prediction of future events. Case studies considered will involve many areas of application and several different mathematical techniques. The computer will be used as a tool in pursuing some of these problems. Prerequisite: MATH 272, 374 or (230 and 274), and a computer programming course.

MATH 408 Linear Programming 3 hrs. Linear inequalities, convex geometry, optimization in linear systems, zero-sum games. Applications. Prerequisites: MATH 230 or 374.

MATH 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 problem 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 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 330 or MATH 340.

MATH 460 Introduction to Mathematical Statistics 3 hrs. Topics to be included are multivariate probability distributions, sampling distributions, asymptotic theory, theory of estimation, and likelihood ratio tests. Prerequisites: MATH 230, 272, 362, and 364.

MATH 464 Introduction to Statistical Computing 3 hrs. This course provides an introduction to the use of statistical computer software in the MINITAB, SAS, SPSSX, and BMDP packages with particular emphasis on SAS and MINITAB. The statistical graphics capabilities of SASGRAPH and MINITAB will also be included. The following topics may be emphasized: data entry; editing; production of statistical summaries in the form of tables, graphs, charts, and plots for report writing purposes; data management methods for large survey-type data sets. The latter topic may include: subset analysis, updating, and missing data methods. Attention may also be given to the statistical topics of: correlation and regression analysis, one and two sample problems, and analysis of variance. Prerequisites: Western Michigan University’s computer literacy requirement and an introductory statistics course.

MATH 490 Topics in Mathematics 3 hrs. The content of this course varies with the semester offered and with the instructor. The course is intended to introduce students to significant topics not ordinarily encountered and to present more variety in their
undergraduate programs. May be taken more than once with the approval of the student’s advisor. Prerequisite: Approval of Department.

Undergraduates with junior status and 12 hours of work in mathematics and statistics may enroll with the approval of the department chair.

MATH 506 Scientific Programming
3 hrs.
An introduction to solving scientific and engineering problems on computers. The topics include: sorting, finding, numerical integration and the numerical solution of differential equations. The FORTRAN language and various library software packages will be used. Prerequisite: MATH 230 or MATH 374, and CS 201 or CS 306.

MATH 507 Numerical Analysis I
3 hrs.
The analysis and use of numerical algorithms for the solution of nonlinear equations, systems of linear equations, interpolation, numerical differentiation and integration. Prerequisites: MATH 230, MATH 272 and MATH 274 or MATH 374 and MATH 506.

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 include the algebra of real and complex matrices with particular emphasis on LU-decompositions, QR-decompositions, singular value decompositions, generalizes 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 530 Linear Algebra
3 hrs.
Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 337.

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 grade of “C” or better. Prerequisite: MATH 150 with at least a “C” or better or a course equivalent to MATH 150.

MATH 554 Algebra in the Elementary/Middle School Curriculum
3 hrs.
This course is devoted to the teaching and learning of algebra in elementary and middle grades. Concepts and skills are developed and reinforced using a variety of approaches and materials. Calculators and computers are used throughout the course to develop concepts, to model numerical methods, and to explore the connections between symbolic and graphic representations of mathematical ideas. Prerequisite: MATH 352 or 552 with a grade of “C” or better or consent of instructor.

MATH 555 Mathematical Problem Solving in the Elementary/Middle School Curriculum
3 hrs.
This course provides experiences in mathematical problem solving for elementary/middle teachers. Content for the problems is selected from number theory, algebra, geometry, probability, and statistics. Emphasis is placed upon teaching problem solving. Computers are used extensively to solve problems. Topics include: MATH 352 or MATH 552 with a grade of “C” or better or consent of instructor.

MATH 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.

MATH 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. Prerequisites: an introductory course in statistics and a course in linear algebra.

MATH 562 Statistical Analysis I
4 hrs.
The first course in the sequence 562, 662 or 564. This is a comprehensive introduction to the analysis and contains a minimum of theory. Topics include: estimation of parameters, confidence intervals, tests of hypotheses, analysis of variance, and chi-square tests. Emphasis will be on data analysis. Prerequisite: either MATH 230 or MATH 362.

MATH 563 Sample Survey Methods
3 hrs.
The first course in the sequence 562, 662 or 564. This is a comprehensive introduction to the analysis and contains a minimum of theory. Topics include: estimation of parameters, confidence intervals, tests of hypotheses, analysis of variance, and chi-square tests. Emphasis will be on data analysis. Prerequisite: MATH 150 with at least a “C” or better or a course equivalent to MATH 150.

MATH 565 Design of Experiments of Quality Improvement
4 hrs.
This course covers 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; and fractional replication. The course is modeled around the complete analysis of good applied problems. Prerequisite: An introductory statistics course.

MATH 567 Statistical Design and Analysis of Experiments
4 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.

MATH 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.

MATH 569 Quality Improvement Concepts and Methods
4 hrs.
This course is an introduction to quality technology for application in business and industry. Concepts and methods from Statistics, Management and Psychology and how they 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.

MATH 570 Advanced Calculus
3 hrs.
Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Prerequisites: MATH 272 and 314 (330 recommended).

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. Prerequisites: MATH 230, 272 and 274 or 374.

MATH 574 Advanced Differential Equations
3 hrs.
Series solutions at ordinary and singular points of linear ordinary equations, Bessel and Legendre functions, self-adjoint boundary value problems, Fourier series, solution of partial differential equations by separation of variables. Prerequisites: MATH 230, 272, and 274 or MATH 374.
MATH 580 Number Theory
3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330.

MATH 595 Topics in Elementary/Middle School Mathematics
3 hrs.
This course addresses topics in mathematics content and pedagogy relative to the teaching and learning of elementary/middle school mathematics. Prerequisite: MATH 352 or consent of instructor. Course may be repeated for credit.

MATH 599 Independent Study in Mathematics
1-3 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. Prerequisite: Approval of chairperson of Department.

PHILOSOPHY

Michael Prichard, Chair
Shirley Bach
Kent Baldwin
Sylvia Culp
John Dilworth
Joseph Elin
Arthur Faik
Eugenie Grochowski, Adjunct
John Hartline, Adjunct
Marie Hungerman
Michael Picard
Janet Poisachi
Richard Pulaski
Michael Scriven, Adjunct
Quentin Smith
Richard Wright

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.

Appropriate courses and/or independent studies in philosophy can serve the purpose of helping to unify or 'cap off' a wide variety of concentrations for those students who select the university's 'student planned curriculum,' described in the General Information section of this catalog. The Philosophy Department encourages these concentrations and members of the staff will be happy to serve as advisors to students wishing to construct concentrations that involve philosophy.

The Philosophy Department offices are located on the third floor of Moore Hall. Students are invited to visit the department office and the office of faculty at any time. Office hours are posted beside each instructor's door.

Before preregistration each term, the faculty prepare brief written descriptions of the courses to be offered. These descriptions are posted on the department bulletin board outside the department office and additional copies may be obtained in the office. The department also announces its tentative course offerings a year in advance.

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 encouraged.

Normally, but not necessarily, the honors student is a senior major. In exceptional cases non-seniors or non-majors may be considered.

Philosophy Major

Because the Department of Philosophy believes that there is no single correct approach to the study of philosophy, but that, as much as possible, each student under the guidance of a faculty member should design a program in accordance with his/her interests, ability, and intellectual maturity, no one course is required of all students in philosophy. Instead, students majoring in philosophy must plan their program with a faculty advisor. Every faculty member serves as a student advisor and normally students may select any advisor they prefer. The advisor works closely with the student in planning a program of studies and helps the student make an informed and intelligent choice of courses.

Students should select an advisor as soon as they are fairly certain that they intend to major in philosophy. Normally this would not occur until after they have taken at least one, and possibly two philosophy courses. Every major must choose and consult with an advisor no later than the completion of 12 hours of philosophy courses; no hours beyond the 12th will be credited towards a Philosophy major unless the approval of an advisor has been obtained. Students are encouraged to see their advisors frequently, but consultation should occur at least once every academic year.

A major consists of a minimum of 28 hours in philosophy including PHIL 300 or PHIL 301. PHIL 100 and 200 cannot both be taken towards a major or minor.

Cognates: Appropriate courses in other departments may be used towards a philosophy major (not a minor) up to a maximum of four hours. Consult with the department chairperson.

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 (4 hrs.)
   PHIL 200, 220, 300, 301, 434
3. Two of the following (8 hrs.)
   PHIL 201, 303, 310, 311, 313, 314, 534
4. PHIL 410 Professional Ethics (4 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 will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

PHIL 300 Ancient and Medieval Philosophy
PHIL 410 Professional Ethics
PHIL 470 Seminar in Philosophy

MEDIEVAL INSTITUTE PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences.
Philosophy Minor
A minor consists of at least 16 hours in philosophy. Minors may choose any courses they find suitable. Minors are strongly urged to consult with advisors (preferably after completing 8 hours), but this is not required. For further information, students should read the Philosophy Department Student Handbook or see any faculty member. The handbook is available in the department office, 320 Moore Hall.

Minor in Professional and Applied Ethics
Minimum of 18 credit hours. Minor slip required. Required Philosophy courses:

1. ONE of the following (4 credit hours): PHIL 200, 220, 300, 301
2. TWO of the following (8 credit hours): PHIL 201, 303, 310, 311, 313, 314, 434, 534
3. PHIL 410: Professional Ethics (4 credit hours)

The remaining credit hour requirements may be satisfied in a variety of ways. The student may complete the minor by doing additional course work within the Department of Philosophy. Any courses, including PHIL 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 interested in a general introduction to philosophy should consider PHIL 201, 220, or some upper-level cognate. Students interested in a more technical appreciation of the central problems of philosophy should consider such courses as PHIL 332 (Theory of Knowledge) and PHIL 333 (Metaphysics). Many students will find it advisable to begin with either PHIL 100, 200 or 201, and then continue on the upper level.

Repeating Courses for Credit
Since philosophy courses may vary widely in content from year to year, a student may be occasionally justified in repeating a course for credit. Students who wish to do so must obtain permission of the instructor before they register. If the student requests, the department will have the student’s record indicate that the course when repeated differed substantially in content from the originally numbered course previously completed.

Philosophy Courses (PHIL)
(Courses described in italics are approved for General Education.)

INTRODUCTORY COURSES
PHIL 100 Critical Thinking and Writing
4 hrs.
A seminar for students who wish to improve their ability to think analytically, argue logically, and express a train of thought carefully and cogently in writing. There will be frequent writing assignments which will focus on issues raised by readings of broad philosophical interest. Class time will be about equally divided between discussion of the readings and critical analysis of the student’s own writings. Fulfills the University Intellectual Skills college-level writing requirement.

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 philosophic study of morality. Deals with questions such as: What is the good life? Why should I be moral? What is the meaning of right and wrong?

PHIL 220 Elementary Logic
4 hrs.
A study of the rules and techniques of deductive reasoning and the sources of some common fallacies. Topics included are syllogisms and the logic of propositions. Open to first-year students.

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.

PHIL 301 History of Modern Philosophy
4 hrs.
A survey of modern philosophy from the Renaissance through Kant, with emphasis on Descartes, Leibnitz, Locke, Berkeley, Hume, and Kant.

PHIL 303 Existentialist Philosophies
4 hrs.
A concentrated study of leading thinkers in modern philosophical existentialism: Kierkegaard, Nietzsche, Jaspers, Sartre, and Carnus.

PHIL 307 Phenomenology
4 hrs.
A systematic study of the origins and developments of the phenomenological movement. The writings of several major phenomenologists will be considered, e.g. Husserl, Heidegger, Merleau-Ponty, etc.

PHIL 310 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.

PHIL 311 Political Philosophy
4 hrs.
An examination of fundamental problems arising from political and social relationships. The main emphasis is on such political values 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
4 hrs.
An analysis of the nature of art and esthetic experience, and its significance in human life. The course may cover all forms of art, or concentrate on a few, for instance, literature, drama and music.

PHIL 313 Philosophy of Law
4 hrs.
This course considers the nature of law and the goals, policies and limitations of a legal system. The connections between law and justice, law and freedom, and law and morality will be examined.

PHIL 314 Philosophy and Public Affairs
4 hrs.
A philosophical examination of principles and values underlying contemporary social issues. The course will focus on specific issues such as racial and sexual equality, abortion, privacy, censorship, violence, and goals and methods of social change, as well as social movements such as Marxism, the women's movement, and various utopian ideals. Topics to be announced in the Schedule of Classes.

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 324 Philosophy of the Sciences
4 hrs.
A critical examination of the concepts, methods, presuppositions and conclusions of the natural and social sciences.

PHIL 328 Theory of Knowledge
4 hrs.
An examination of basic problems concerning knowledge and belief, discussing traditional approaches but stressing recent analyses. Possible topics: skepticism and certainty, knowing and believing, perception, memory, “a priori” vs. “a posteriori” knowledge, self-knowledge, knowledge of others.

PHIL 333 Metaphysics
4 hrs.
A study of basic metaphysical questions, discussing traditional solutions but emphasizing recent approaches. Questions will be selected from such topics as: substances, qualities and relations, universals and particulars, identity, space and time, causation, mind and body, persons, free will.
PHIL 334 Philosophical Problems of Psychology 4 hrs. Problems in the philosophy of mind with emphasis on recent analysis and solutions. Among the possible topics are the definition of "mind" and its relation to "the body," to "behavior," and to "experience." Teleological and mechanistic explanations of behavior, including behaviorism, and functionalism, machine-models of thinking, "thinking machines," robots, servomechanisms and the concept of a person; privacy of one's own mind and one's knowledge of other minds; consciousness of self and of world, free will and determinism.

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. Philosophical ideas from the physical and life sciences, economics, political and ethical theory, and mathematics will be studied in the writings of such thinkers as Galileo, Descartes, Darwin, Einstein, Machiavelli, Hobbes, Marx, Smith, Weber, Nietzsche, Freud and Pompare.

ADVANCED COURSES

PHIL 410 Professional Ethics 4 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 434 Biomedical Ethics 4 hrs. In this course, the ethical principles (respect for autonomy, beneficence, justice) and other ethical concerns (e.g. privacy, confidentiality, relationships among patients and professionals) are studied and applied to contemporary problems in medicine and biomedical research. These problems include genetic testing, counseling, and therapy; treatment issues in the AIDS epidemic; sources of donors and recipients in organ transplantation; decision-making regarding treatment at the end of life; and research issues in the development of new medical therapies.

PHIL 440 Philosophy at Pre-College Levels 4 hrs. A content-oriented course for the teaching minor 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 470 Seminar in Philosophy—Variable Topics 2-4 hrs. Seminars deal with selected advanced topics in philosophy. Since content varies from semester to semester, students are advised to check course descriptions which are available in the department office. Suggestions for seminar topics from students are welcomed. Seminars may be set up to be taken for variable credit and to last more or less than a semester's length.

PHIL 498 Independent Study 2-4 hrs. Independent study is for those students who have attained a degree of competence in philosophy and who wish to embark upon a project to be carried out without the usual close guidance of the instructor in the classroom. Independent study may not be elected as a substitute for a regularly scheduled course. Prerequisite: Permission of the instructor with whom the student wishes to work.

500-LEVEL COURSES

The prerequisites for admission into 500-level courses are: Junior status and 12 hours of philosophy. Specific prerequisites may be added to individual courses.

PHIL 520 Mathematical Logic 3 hrs. This course covers the basic ideas in modern mathematical logic. First the fundamentals of the propositional and quantificational calculi (including the symbolization of English sentences) are discussed. Next comes a study of the basic features of formal languages and axiomatic theories with special emphasis on the notions of formal proofs in, and models for, such systems. Finally, the course includes an introduction to the metamathematics of formal theories through a study of such topics as consistency and completeness, the deduction theorem, recursive functions, the Godel and Church theorems, decidable vs. undecidable theories. Prerequisite: PHIL 320 (MATH 314) or CS 331 may substitute for PHIL 320, and two other courses in philosophy, mathematics (above the level of MATH 110), or computer science (above the level of CS 100).

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. No prerequisite. A working knowledge of high school algebra is assumed. Prerequisite: PHIL 220 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 4 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 health care; 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 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.

PHIL 598 Readings in Philosophy 2-4 hrs. Research on some selected period or topic under supervision of a member of the Philosophy faculty.
The Department requires ASC Physics majors to have computer programming skills before graduation. This requirement may be met by previous programming experience or by taking appropriate course(s) in Computer Science.

**Computer Programming Requirement**
The Department requires ASC Physics majors to have computer programming skills before graduation. This requirement may be met by previous programming experience or by taking appropriate course(s) in Computer Science.

**Baccalaureate Writing Requirement**
Students who have chosen the ASC Physics major with Electrical Engineering option will satisfy the Baccalaureate Writing Requirement by successfully completing PHYS 566 Advanced Laboratory.

**Physics Major with a Materials Physics Option**
This program is designed for those students who wish to pursue a physics degree with a concentration in Materials Science. The courses required for the ASC Physics major with a Materials Physics option program are:

- **PHYS 205** Mechanics and Heat 4
- **PHYS 206** Mechanics and Heat Laboratory 1
- **PHYS 207** Electricity and Light 4
- **PHYS 208** Electricity and Light Laboratory 1
- **PHYS 309** Introductory Modern Physics 3
- **PHYS 310** Introductory Modern Physics Laboratory 1
- **PHYS 330** Thermodynamics and Kinetic Theory 3
- **PHYS 420** Analytical Mechanics 4
- **PHYS 460** Quantum Mechanics 3
- **PHYS 563** Solid State Physics 3
- **PHYS 566** Advanced Laboratory 4
- **EE 210** Circuit Analysis 4
- **EE 221** Electronics I 4
- **EE 301** Network Analysis 3
- **EE 310** Network Analysis 3

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 EE and be approved by the advisor.

- **PHYS 352** Optics 4
- **PHYS 562** Atomic and Molecular Physics 3
- **PHYS 564** Nuclear and Particle Physics 3
- **EE 320** Electronics II 4
- **EE 330** Electrical Machinery 4
- **EE 371** Linear Systems 3
- **EE 380** Probabilistic Methods of Analysis 3
- **EE 420** Power Electronics 3
- **EE 430** Electrical Power Systems 3
- **EE 451** Digital Systems 3
- **EE 455** Digital Signal Processing 3
- **EE 460** Communication Systems 3
- **EE 470** Feedback Systems 3

ASC Physics majors with Electrical Engineering option are required to complete the two introductory courses PHYS 205 and PHYS 207 with a grade of "C" or better.

**Computer Programming Requirement**
The Department requires ASC Physics majors with Electrical Engineering option to have computer programming skills before graduation. This requirement may be met by previous programming experience or by taking appropriate course(s) in Computer Science.

**Baccalaureate Writing Requirement**
Students who have chosen the ASC Physics major with Electrical Engineering option will satisfy the Baccalaureate Writing Requirement by successfully completing ET 454, Physical Metallurgy I.

**Geophysics Major**
The required courses for a geophysics major are:

- **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 4
- **PHYS 342** Electronics 4
- **PHYS 352** Optics 4
- **PHYS 440** Electricity and Magnetism I 4
- **PHYS 460** Quantum Mechanics 3
- **PHYS 563** Solid State Physics 3
- **PHYS 566** Advanced Laboratory 4
- **EE 210** Circuit Analysis 4
- **EE 221** Electronics I 4
- **EE 301** Network Analysis 3

In addition, a student is required to take three electives from upper-level geology, physics, and engineering courses to be chosen with the consent of the advisor. A field course in geology (6-8 hrs.) is strongly recommended.
ASC Physics Minor
The courses required for the ASC physics minor are:

- **PHYS 205** Mechanics and Heat 4 hrs.
- **PHYS 206** Mechanics and Heat Laboratory 1 hr.
- **PHYS 207** Electricity and Light 4 hrs.
- **PHYS 208** Electricity and Light Laboratory 1 hr.
- **PHYS 309** Introductory Modern Physics 3 hrs.
- **PHYS 310** Introductory Modern Physics Laboratory 1 hr.

In addition, three physics courses numbered above 300 are required. ASC physics minors are required to complete PHYS 205 and PHYS 207 with a grade of "C" or better.

Secondary Education Physics Minor
The courses required for the SED physics minor are:

- **PHYS 205** Mechanics and Heat 4 hrs.
- **PHYS 206** Mechanics and Heat Laboratory 1 hr.
- **PHYS 207** Electricity and Light 4 hrs.
- **PHYS 208** Electricity and Light Laboratory 1 hr.
- **PHYS 309** Introductory Modern Physics 3 hrs.
- **PHYS 310** Introductory Modern Physics Laboratory 1 hr.
- **PHYS 342** Electronics 4 hrs.
- **PHYS 352** Optics 3 hrs.

SED Physics minors are required to complete PHYS 205 and PHYS 207 with a grade of "C" or better.

Physics Courses (PHYS)
(Courses described in italics are approved for General Education.)

- **PHYS 102** Physics, Technology, and Society 3 hrs.
  The main objective of this course is to provide the student with a quantitative understanding of physical principles which underlie selected environmental problems. Topics covered include the energy problem, air pollution, and nuclear weapons. This course may not be applied towards any major or minor in physics. Prerequisite: MATH 110 or equivalent.

- **PHYS 103** Astronomy Laboratory 1 hr.
  The laboratory exercises include studying atomic spectra, classifying stars, determining the orbit of the moon, calculating the recessional velocities of distant galaxies, etc. Algebra and trigonometry are required to do many of the exercises. Recommended for students majoring in the physical sciences. This course should be taken concurrently with PHYS 104.

- **PHYS 104** Introductory Astronomy 3 hrs.
  The aim of the course is to present the development of knowledge about the solar system, the stars, the galaxies, and the origin and evolution of the universe. Emphasis will be placed on the methods and tools of the astronomer and the major principles and their applications, and on the challenging problems of the space age. Mathematics will be restricted to high school algebra. The course consists of three lectures per week. Some evening observation sessions will be offered during the semester. Students majoring in the physical sciences are advised to take PHYS 103 also.

- **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 a one semester course at the level of general college physics. The course meets for four hours per week. A student may not receive credit for both PHYS 107 and either PHYS 113 or PHYS 205.

- **PHYS 108** Elementary Physics Laboratory 1 hr.
  This is a laboratory course which includes exercises related to topics covered in PHYS 107. Normally this course is taken concurrently with PHYS 107. A student may not receive credit for both PHYS 107 and either PHYS 113 or PHYS 205.

- **PHYS 111** General Physics I 4 hrs.
  A general college physics course in the principles and practical application of mechanics, sound, and heat. Recommended for students in curricula other than science and students desiring a non-calculus course in physics. The course meets for four hours per week. Many schools of engineering will not accept PHYS 113-116 for transfer credit. Prerequisite: MATH 110 or equivalent.

- **PHYS 112** General Physics II 4 hrs.
  This is a laboratory course which includes exercises related to topics covered in PHYS 111. Normally this course is taken concurrently with PHYS 112. A student may not receive credit for both PHYS 112 and PHYS 205. Prerequisite: PHYS 112 concurrently.

- **PHYS 113** General Physics I Laboratory 1 hr.
  This is a laboratory course which includes exercises related to topics covered in PHYS 112. Normally this course is taken concurrently with PHYS 113. A student may not receive credit for both PHYS 113 and PHYS 206. Prerequisite: PHYS 113 concurrently.

- **PHYS 114** General Physics II 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 114. A student may not receive credit for both PHYS 114 and PHYS 206. Prerequisite: PHYS 113 concurrently.

- **PHYS 115** General Physics II Laboratory 1 hr.
  This course follows PHYS 112 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 206. Prerequisite: PHYS 115 concurrently.

- **PHYS 205** Mechanics and Heat 4 hrs.
  This first course of a sequence of three in general college physics employing calculus, algebra and trigonometry are required to do many of the exercises. Recommended for majors in physics, mathematics, and for future physics teachers, and strongly recommended for majors in other sciences. The course meets four hours per week. Prerequisite: MATH 123 concurrently or consent of instructor. Open to qualified first year students. A student may not receive credit for both PHYS 113 and 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. Normally this course is taken concurrently with PHYS 205. A student may not receive credit for both PHYS 206 and PHYS 114. Prerequisite: PHYS 205 concurrently.

- **PHYS 207** Electricity and Light 4 hrs.
  This course follows PHYS 205 and consists of studies in electricity, magnetism, and light. Prerequisite: PHYS 205 or consent of instructor. A student may not receive credit for both PHYS 115 and 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. Normally this course is taken concurrently with PHYS 207. A student may not receive credit for both PHYS 208 and PHYS 116. Prerequisite: PHYS 207 concurrently.

- **PHYS 214** Mechanics and Heat Problems 1 hr.
  This course is intended for those who have had 113 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 PHYS 213. 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, or consent of instructor.

- **PHYS 306** Teaching of Physical Science 3 hrs.
  This course deals with problems of teaching high school chemistry, physics and physical science. The main emphasis is on effective methods of instruction. Practical methods of observation, maintenance, and construction of apparatus are also considered. Prerequisites: One year of college chemistry and one year of college physics. Does not carry credit towards physics major or minor but is a required course for those in secondary education.

- **PHYS 309** Introductory Modern Physics 3 hrs.
  This course follows PHYS 205/206 and PHYS 207/208, completes the sequence making up the introductory course in physics with calculus. Topics include special relativity, quantum physics, atomic, nuclear, and solid state physics. This course consists of three lectures per week. Prerequisite: PHYS 211 or consent of instructor.

- **PHYS 310** Introductory Modern Physics Lab 1 hr.
  A laboratory course which includes exercises related to the topics covered in PHYS 309. Normally this course is taken concurrently with PHYS 309. Prerequisite: PHYS 309 concurrently.
PHYS 312 Recent Developments in Physics
3 hrs.
This course is designed to acquaint the student with the new and exciting developments in selected areas of Physics and Astrophysics. The course content will change from year to year to include the latest advances in High Energy Physics, Nuclear Physics, Astrophysics, Solid State Physics and Optics. The treatment is largely descriptive with minimal mathematics. Prerequisite: PHYS 212 or the consent of instructor.

PHYS 320 Problems in Mechanics
2 hrs.
This course is designed to enhance the problem-solving techniques needed by Secondary Education instructors in the teaching of mechanics. Emphasis is on free-body diagrams, action-reaction pairs, and the energy balance in simple mechanical systems.

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 is an introduction to quantum statistics. Prerequisite: PHYS 207.

PHYS 331 Problems in Thermodynamics
3 hrs.
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.

PHYS 342 Electronics
4 hrs. Winter
This course deals with analysis of the more important transistor and integrated circuits and includes practical experience in the laboratory. There are three lectures and one 3-hour laboratory per week. Prerequisite: PHYS 207.

PHYS 344 Microprocessor Electronics
3 hrs. Fall
This introductory course explores the use of modern instrumentation in physics; the use of computers, computer circuits, and basic techniques for physical measurement are included. One lecture and four hours of laboratory weekly. Prerequisite: PHYS 207.

PHYS 352 Optics
3 hrs.
This is an introductory course in geometrical and physical optics in which the main topics covered are reflection, refraction, lenses, mirrors, aberrations, simple optical instruments, wave motion, interference, diffraction, and polarization. Lasers, fiber optics, holography, and image processing are covered qualitatively as time permits. Two lectures and one two hour laboratory per week. Prerequisite: PHYS 207.

PHYS 420 Analytical Mechanics
3 hrs. Fall
The topics studied include the dynamics of a single particle and the motion of a system of interacting particles. Techniques of vector analysis are used frequently, and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisites: PHYS 207 and either MATH 274 or 374. The mathematics course may be taken concurrently.

PHYS 440 Electricity and Magnetism
4 hrs.
This course provides an upper level theoretical treatment of electromagnetic phenomena, using methods of vector calculus. Electro- and magneto-statics, induction, Maxwell’s equations, and electromagnetic radiation are treated. Prerequisites: PHYS 207 and either MATH 274 or 374 or consent of instructor.

PHYS 460 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. Prerequisite: PHYS 207 and 420 or consent of instructor.

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 staff member. Prerequisite: Consent of instructor.

The 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 admission.

PHYS 561 Quantum Physics
4 hrs. Winter
This course is the same as PHYS 460 except that a laboratory is included. Students may not receive credit for both PHYS 460 and PHYS 561. Prerequisite: PHYS 520 or consent of instructor.

PHYS 562 Atomic and Molecular Physics
4 hrs. Fall
This course continues the study of the applications of quantum mechanics. Topics 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 or consent of the instructor.

PHYS 563 Solid State Physics
3 hrs. Fall
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 or consent of the instructor.

PHYS 564 Nuclear and Particle Physics
3 hrs. Winter
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 or consent of the instructor.

PHYS 566 Advanced Laboratory
3 hrs. Winter
The objectives of this course are to provide the student with experience in the use of advanced laboratory equipment and with a better understanding of several important physical phenomena. The student will perform experiments from a list covering 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. Prerequisites: PHYS 342 and PHYS 460. (460 may be elected concurrently with 566.)

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.
POLITICAL SCIENCE

Chester B. Rogers, Chair
James M. Butterfield
Ralph C. Chandler
Kenneth A. Danberg
Elizabeth H. Dalton
Suhashni Datta-Sandhu
David G. Houghton
Alan C. Isak
Robert W. Kaufman
Peter Kobrak
Carolyn Lewis
Richard L. McNaw
Neil Pinney
Peter G. Renstrom
William A. Ritchie
Heeman S. Robin
Ernest E. Rossi
Murray Scot 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 registration form and to consult with a departmental advisor.

Programs of study offered by the department include: (1) the standard major and minor in political science; (2) major in political science with an international and comparative concentration; (3) the major in political science with a public law concentration; (4) the major in political science with a public policy concentration; (5) a major and minor in public administration; and (6) a teaching major and minor in political science.

Baccalaureate Writing Requirement

Students who have chosen the Political Science major (any concentration) or the Public Administration major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- PSCI 391 Internship Seminar
- PSCI 404 Making of Public Policy in the U.S.
- PSCI 405 National Public Policy
- PSCI 450 Seminar in International and Comparative Politics
- PSCI 490 Political Science Honors Seminar
- PSCI 494 Seminar in Political Science

Major and Minor in Political Science

MAJOR

The major consists of a minimum of 30 semester hours of work in the department. 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 and PSCI 250 International Relations.

Requirements may be waived with the written permission of the chairperson of the department.

International and Comparative Politics Concentration

This concentration is available within the Political Science Major for students with particular career and/or advanced degree interests that would require concentrated knowledge of foreign politics and/or international politics. The concentration provides for students completing the program to receive designation of this specialization on their Permanent Record Card.

Students interested in a major in Political Science with a Concentration in International and Comparative Politics should see the designated departmental advisor.

To complete the concentration within political science, a student must:

A. Complete the required core for the Major (14 hrs.)

- PSCI 200 National Government
- PSCI 250 International Relations
- PSCI 422 Constitutional Law
- PSCI 423 Civil Liberties and Civil Rights
- PSCI 424 Comp. Law and the Constitution
- PSCI 491 Baccalaurate Writing Requirement (Choose one from PSCI 391, 404, 405, 450, 490, 494)

B. Complete THREE of the following courses (12 hrs.)

- PSCI 340 Western European Political Systems
- PSCI 341 African Political Systems
- PSCI 342 Asian Political Systems
- PSCI 343 Latin American Political Systems
- PSCI 344 Russian and East European Politics
- PSCI 345 Comparative Politics (prerequisites: PSCI 250, 340, and approval of the instructor or the advisor)

C. Complete EACH of the following courses (10-11 hrs.)

- PSCI 350 American Foreign Policy
- PSCI 450 Seminar in International and Comparative Politics (prerequisites: PSCI 250, 350, one of the 340s, and approval of the instructor or the advisor)

D. Complete 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, History, Languages and Linguistics, Marketing, Religion, or Sociology. Students must receive prior permission from the concentration advisor before selecting courses in these departments.

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.

Students interested in the concentration should see the Public Law Advisor of the Political Science Department, Dr. Peter Renstrom—3029 Friedmann Hall (387-5697).

To complete the concentration within political science, a student must:

A. Complete the required core for the Major (14 hrs.)

- PSCI 200 National Government
- PSCI 250 International Relations
- PSCI 34—Comparative Politics (to be chosen from 340, 341, 342, 343, or 344)

- PSCI — Political Theory (to be chosen from 360, 361, 362, 363, 562, or 564)

- PSCI — Baccalaurate Writing Requirement (Choose one from PSCI 391, 404, 405, 450, 490, 494)

B. Complete PSCI 320 American Judicial Process (4 hrs.)

C. Complete THREE of the following courses (9 hrs.)

- PSCI 325 Criminal Justice Policy
- PSCI 420 Constitutional Law
- PSCI 422 Civil Liberties and Civil Rights
- PSCI 526 Administrative Law and Public Regulation

D. Complete THREE of the following courses (9-10 hrs.)

These courses cannot be substituted for any of the requirements in A-C above.

- FCL 380 Legal Environment
- FCL 384 Criminal Law and Procedure
- PHIL 313 Philosophy of Law
- SOC 362 Criminology
- SOC 363 Criminal Justice Process
- SOC 466 Advanced Criminology

Public Policy 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 provides for students completing the program to receive designation of this specialization on their Permanent Record Card.

The concentration in Public Policy is aimed at preparing students for careers in government service at national, state, and local levels, and in politics.

Students interested in a major in Political Science with a Concentration in Public Policy should see the designated departmental advisor.

To complete the major, a student must complete the following:
MAJOR (32-34 hrs.)

I. Required core (10 hrs.)
PSCI 200 National Government 3
PSCI 202 State and Local Government 4
One theory course to be chosen from:
PSCI 362 Contemporary Political Theory 3
PSCI 363 American Political Theory 3
PSCI 562 Modern Democratic Theory 3

II. Methodology (6 hrs.)
Two courses to be chosen from:
PSCI 564 Introduction to Political Analysis 3
PSCI 572 Computer Applications 3
PSCI 590 Research Methodology 3
PSCI 591 Statistics for Pol. Scientists 3

III. Policy Applications and Institutions (16 hrs.)
Required:
PSCI 304 Intro. to Public Policy 3
PSCI 405 National Public Policy 4
PSCI 535 Budgeting and Finance 3
One course from List A:
PSCI 300 Urban Politics 3
PSCI 340 Environmental Politics 3
PSCI 350 American Foreign Policy 3
PSCI 404 Making Public Policy 3
PSCI 526 Administrative Law and Public Reg 3
One course to be chosen from List B below OR from the courses not already selected from List A above.
PSCI 314 The Presidency 3
PSCI 315 Politics of Congress 3
PSCI 320 American Judicial Process 4

Programs in Public Administration

These programs are designed to prepare students for entrance level positions in public and public-related agencies by equipping them with a knowledge and understanding of the political, social, economic, and legal environment of public agencies, by introducing them to operational and procedural problems of public agencies, and by providing them with an understanding of selected administrative tools.

The major in Public Administration has an interdisciplinary focus, which includes required courses in accounting, computers, economics, and statistics as well as political science. Internships which permit students to assist public administrators in their work are available. Credit can be obtained for these internships.

All students who elect the public administration programs are to complete a major or minor slip in consultation with a public administration advisor in the Department of Political Science. The student must consult with an advisor upon entering the program. The political science major in public administration (Curriculum PAP) requires 40 semester credit hours divided between: (1) a 34-semester-hour core of required courses; and (2) 6 hours of electives.

MAJOR

Required Core
1. PSCI 200 National Government
2. PSCI 202 State and Local Government
3. PSCI 330 Intro. to Public Admin.
5. PSCI 533 Public Personnel Admin.
6. PSCI 534 Politics of Governmental Budgeting and Finance

PSCI 200 National Government 3
PSCI 202 State and Local Government 4
One theory course to be chosen from:
PSCI 362 Contemporary Political Theory 3
PSCI 363 American Political Theory 3
PSCI 562 Modern Democratic Theory 3

In addition, each major must complete both of the following:
(a) One approved course in statistics; and
(b) One introductory course in computers.

Electives
3. Choose ONE from the following:
PSCI 300 Field Work in Pol. Sci.
PSCI 391 Internship Seminar
PSCI 404 Making Public Policy
PSCI 405 National Public Policy
PSCI 531 Admin. in Local and Regional Govts.
PSCI 534 Administrative Theory
PSCI 536 Comparative Pub. Admin.

MINOR

The minor in public administration requires 22 hours, including all courses listed in section 1 except the Baccalaureate Writing Requirement, and one course (3 hrs.) drawn from section 3. Many political science majors choose to minor in public administration.

RELATED MAJOR

The Department of Political Science also cooperates with the Haworth College of Business in offering a major in public administration (PAB) designed for students planning careers in the private sector involving contact with governmental agencies and activities. The student receives a Bachelor of Business Administration with a business administration major plus the political science minor in public administration. For further details, see Business Administration: Related majors. For counseling see the general business advisor and the public administration coordinator.

Secondary Education Curriculum

MAJOR

The teaching major consists of a minimum of 30 semester hours of work in Political Science. It is expected that transfer students will take at least one-half of the minimum required 30 hours in the department. The following are required courses for teaching majors:
PSCI 200 National Government 3
PSCI 202 State and Local Government 4
PSCI 250 International Relations 3
PSCI 34-: One course in Comparative Politics (340, 341, 342, 343, or 344)
PSCI 360 One course in Political Theory (360, 361, 362, 363, 365, or 564)

Students who may become teaching majors are encouraged to take PSCI 100 Introduction to Political Science as their first course in the department during their freshman year. Students planning to use this major to meet teacher certification requirements are required to complete GEOG 460 Concepts and Strategies in the Teaching of Geography or HIST 386 Teaching Methods in the Secondary School.

Teaching majors must also complete the secondary education minor in group social sciences.

MINOR

A teaching minor consists of 20 semester hours of work 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 teaching minor shall complete PSCI 200 National Government and PSCI 202 State and Local Government.

GROUP SOCIAL SCIENCE

Students in the secondary education curriculum who major in Political Science must also complete the SED minor in group social science. Refer to the "Interdisciplinary Programs" section of this catalog for a description of the minor requirements.

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 a "B" level and a willingness to do original and independent work. Students interested in the program should consult the departmental honors advisor, Dr. Alan C. Isaac.

Institute of Government and Politics

The Department of Political Science houses and administers the Institute of Government and Politics (IGP). The mission of IGP is to provide a professional staff of the Department of Political Science in their varied fields of interest and specialization. It is to assist in meeting the needs of the department's student body by extending their educational and professional experiences beyond the confines of the classroom. IGP also reaches out into the larger community, to the university, its immediate environment, the state and national scene, as well as the international arena. In this regard, IGP gives particular attention to the practical applications of political science training. It is therefore charged with the development of relationships between the Department of Political Science and the various colleges, departments, and programs comprising the University.

Courses By Topic

PRINCIPLES

100 Introduction to Political Science 3
270 Political Topics

AMERICAN POLITICAL SYSTEM

200 National Government 3
202 State and Local Government 4
210 Citizen Politics 3
300 Urban Politics in the United States 3
304 Introduction to Public Policy 3
306 Environmental Politics 3
310 Political Parties and Elections 3
314 The Presidency 3
315 The Politics of Congress 3
320 The American Judicial Process 3
325 Criminal Justice Policy 3
404 Making of Public Policy in the U.S. 3
405 National Public Policy 3
420 Constitutional Law 3
422 Civil Liberties and Civil Rights 3
506 Problems of American Government 3
526 Administrative Law and Public Regulation 3

PUBLIC ADMINISTRATION

330 Introduction to Public Administration 3
530 Problems in Public Administration 3
POLITICAL SCIENCE 139

531 Administration in Local and Regional Governments 3 hrs.
533 Public Personnel Administration 3 hrs.
534 Administrative Theory 3 hrs.
535 The Politics of Governmental Budgeting and Finance 3 hrs.
536 Comparative Public Administration

FOREIGN AND COMPARATIVE POLITICAL SYSTEMS
340 West European Political Systems 4 hrs.
341 African Political Systems 3 hrs.
342 Asian Political Systems 3 hrs.
343 Latin American Political Systems 3 hrs.
344 Russian and East European Politics 3 hrs.
346 Women in Developing Countries 3 hrs.
542 Administration in Developing Countries 3 hrs.
544 Political Change in Russia 3 hrs.
549 Problems of Foreign Political Systems

INTERNATIONAL RELATIONS
250 International Relations 3 hrs.
350 American Foreign Policy 3 hrs.
450 Seminar in International and Comparative Politics 4 hrs.
552 Studies in International Relations 3 hrs.
553 United Nations 3 hrs.
555 International Law 3 hrs.

POLITICAL THEORY AND METHODOLOGY
360 Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes 3 hrs.
361 Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx 3 hrs.
362 Theoretical and Ideological Bases of Contemporary Politics 3 hrs.
363 American Political Theory 3 hrs.
562 Modern Democratic Theory 3 hrs.
563 Theories of Revolution 3 hrs.
564 Introduction to Political Analysis 3 hrs.
590 Research Methods 3 hrs.
591 Statistics for Political Scientists 3 hrs.

SPECIAL STUDIES
370 Issues in Contemporary Politics 3 hrs.
390 Field Work in Political Science 3 hrs.
391 Internship Seminar 3 hrs.
490 Political Science Honors Seminar 3 hrs.
492 Political Science Honors Research 3 hrs.
494 Seminar in Political Science 3 hrs.
572 Computer Applications for Political Scientists 3 hrs.
598 Studies in Political Science 3 hrs.

Political Science Courses (PSCI)
(Courses described in italics are approved for General Education.)

PSCI 100 Introduction to Political Science 3 hrs.
An introduction to those concepts useful for an understanding of politics. These concepts and their interrelationships will be examined in the context of contemporary political systems.

PSCI 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.

PSCI 202 State and Local Government 4 hrs.
A study of the institutions, the problems and the politics of policy making at the state and local levels in the United States. Consideration is given to the changing relations of state and local government to the total framework of government in the United States.

PSCI 210 Citizen Politics 3 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. There are two sessions of this course, process participants, state and federal court structures, recruitment and selection of judges, bases of judicial behavior, policy making, and impact of judicial decisions.

PSCI 250 International Relations 4 hrs.
A study of the nature of the international community and the forces which produce cooperation and conflict. Particular attention is given to analyzing power in terms of its acquisition and uses.

PSCI 270 Political Topics 1-3 hrs.
A specifically focused course dealing with a political topic of general student interest. The course will be primarily substantive rather than theoretical to accommodate students with no previous training in political science. The topic will be announced in advance, and the course may be repeated for credit with a different topic.

PSCI 300 Urban Politics in the United States 3 hrs.
A study of those factors having an impact on the governing of American cities, including social and economic conditions in the cities, the organization of local political systems, and the actions of the state and federal governments. The city will be viewed as a center of economic and social problems that necessitate political activity and as a laboratory for the advancement of general knowledge of politics.

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 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. There are two sessions of this course, process participants, state and federal court structures, recruitment and selection of judges, bases of judicial behavior, policy making, and impact of judicial decisions.
PSCI 360 Introduction to the History of Political Theory: 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 sociocultural conditions of these periods.

PSCI 361 Introduction to the History of Political Theory: Political Theory from Thomas Hobbes to Karl Marx
3 hrs.
A survey of political philosophy from the seventeenth century to the middle of the nineteenth. Emphasis upon the great individual philosophers of this period and the early development of the major ideological systems that emerged in our own times.

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 the analysis of the theories and ideologies that have emerged in our own times.

PSCI 363 American Political Theory
3 hrs.
An exposition and critical analysis of American political thought from the Puritans to the contemporary period, with primary emphasis on concepts of democracy, liberty, and property, and on varieties of liberalism and conservatism.

PSCI 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.

PSCI 390 Field Work in Political Science
1-2 hrs.
An opportunity for students of Political Science or Public Administration to test theoretical and practical knowledge in an internship situation under the supervision of a faculty sponsor and a public or public-related official. Students wishing to apply must have a minimum of fifteen hours in Political Science and department approval before registering. Approval application required. Graded on a Credit/No Credit basis.

PSCI 391 Internship Seminar
3 hrs.
An undergraduate seminar taken in conjunction with Field Work in Political Science (PSCI 390). An emphasis will be placed on readings that analyze the administrative realm and also focus on recent political, economic, and social developments. Interns also will discuss their field experiences. Department approval must be obtained to enroll for this seminar.

PSCI 404 Making of Public Policy in the U.S.
3 hrs.
A study of the formation of public policy at the local, state, and national levels with emphasis on the impact of decision processes upon policy outcomes.

PSCI 405 National Public Policy
4 hrs.
This seminar places primary attention on emerging trends and issues that will affect the political, economic, and social character of American public life a decade or more ahead, and analyzes potential changes in existing public policies. Significant analysis and writing are required. Prerequisite: PSCI 304 or consent of instructor.

PSCI 420 Constitutional Law
3 hrs.
Study of leading American constitutional principles as they have evolved through major decisions of the U.S. Supreme Court. Emphasis on judicial review, federalism, separation of powers, commerce and taxation.

PSCI 422 Civil Liberties and Civil Rights
3 hrs.
An examination of Supreme Court responses to First Amendment, criminal procedure, and equal protection questions with particular emphasis on political, social and policy-making aspects.

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. It is designated as one of the department's writing intensive courses. Prerequisites are PSCI 250, 250, any one of the PSCI 340 series, and approval of the instructor.

PSCI 490 Political Science Honors Seminar
3 hrs.
An undergraduate seminar for honors 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. Prerequisite: Admission by permission of the Department Honors committee.

PSCI 492 Political Science Honors Research
2-3 hrs.
Honors 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.

PSCI 493 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. 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 or 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. Topics will vary from semester to semester and students may repeat the course.

PSCI 530 Problems in Public Administration
3 or 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 533 Public Personnel Administration
3 hrs.
An examination of the components of the personnel system: recruitment, advancement, salary, training, evaluation, human motivation, affirmative action, unionism, and pension plans. Emphasis on the skills and techniques required of a good personnel manager.

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 536 Comparative Public Administration
3 hrs.
This course introduces students to a variety of public administration systems found in the contemporary world and includes a brief evolutionary history of these systems. Various theoretical models of administration and bureaucracy are compared with current practice in Western Europe, North America, the Soviet Union, and in contemporary Asian and African systems.

PSCI 542 Administration in Developing Countries
3 hrs.
A consideration of the relation of administrative structure and technique to the political, economic and social problems of the developing countries. Special attention is given to the role of the bureaucracy in the political system and the nature of, and obstacles to, administrative modernization.

PSCI 544 Political Change in Russia
3 hrs.
An examination of processes of political change in Russia in areas of policy and structure. Past reform efforts in the former
Soviet Union and Russia are studied, followed by an extensive inquiry into system change. The course relates the Soviet and Russian experience to the literature on political change and theories of comparative politics.

PSCI 549 Problems of Foreign Political Systems 3 or 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.

PSCI 552 Studies in International Relations 3 or 4 hrs.

Examines selected topics within the field of international relations. Topics will vary and will be announced each semester. Course may be repeated.

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, conflict resolution and UN peace-keeping 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 elitists 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 both their analytical and normative implications.

PSCI 564 Introduction to Political Analysis 3 hrs.

A consideration of the approaches and methods used by contemporary political scientists with an emphasis on the application of scientific method to the study of politics. Included are applications of leading models of politics and the formulation of concepts, generalizations, and theories.

PSCI 572 Computer Applications for Political Scientists 3 hrs.

This course is designed to provide students in Political Science and Public Administration with a foundation in computer concepts and applications. They will learn to use application packages such as SPSS and DPL. The course includes computer exercises and a term project. Prerequisite: CS 105 or equivalent or consent of instructor.

PSCI 590 Research Methods 3 hrs.

Study of the formulation of research questions, the design of research, the methods of data collection, and the procedures for analyzing data concerning political institutions and behavior.

PSCI 591 Statistics for Political Scientists 3 hrs.

An introduction to statistical reasoning with particular reference to research on political institutions and behavior. This course will emphasize bivariate statistics, but will include a brief introduction to multivariate analysis. No mathematical prerequisite is required.

PSCI 598 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 application required.

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, with all 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 departmental office, 255 Wood Hall, 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 a individual basis.

Baccalaureate Writing Requirement

Students who have chosen the Psychology major (Arts and Sciences curriculum or Secondary Education curriculum) will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

PSY 330 Methology of Behavior Analysis
PSY 460 Survey of Behavior Analysis

Psychology Major, Arts and Sciences Curriculum

37 hours

Introductory Core (9 hrs.)

PSY 100 General Psychology ..... 3
PSY 160 Child Psychology ..... 3
PSY 250 Abnormal Psychology ..... 3

Method and Theory Core (13 hrs.)

PSY 300 Statistics for the Behavioral Sciences ..... 3
PSY 330 Methodology of Behavior Analysis ..... 3
PSY 360 Concepts and Principles of Behavior Analysis ..... 4
PSY 460 Survey of Behavior Analysis Research ..... 3
Practicum courses:
PSY 347 Practicum: Learning and Self-Management 3
PSY 357 Practicum: Special Populations 3
PSY 367 Practicum: Child Care 3
PSY 377 Practicum: Child Psychology 3
PSY 387 Practicum: Direct Instruction 3
PSY 397 Specified Arranged Practicum in Psychology 3

Lecture-Laboratory Combinations
PSY 362 and 368 Conditioning and Learning 3/3
PSY 372 and 378 Physiological Psychology 3/3
PSY 570 and 576 Mental Retardation 3/3

Electives (9-12 hrs.)
PSY 344 Organizational Psychology 3
PSY 464 Systems and Theories 3
PSY 374 Toward Experimental Living 3
PSY 512 Behavioral Pharmacology and Toxicology 3
PSY 513 Animal Behavior 3
PSY 517 Psychology of Learning for Teachers 3
PSY 518 Research in Stimulus Control and Perceptual Processes 3
PSY 524 Human Sexuality 3
PSY 526 Human Drug Use and Abuse 3
PSY 560 Behavioral Medicine 3
PSY 562 Management of Health Related Behaviors 3
PSY 574 Experimental Social Psychology 3

Also, any of the courses listed under Practicum and Laboratory Experience that were not taken to fulfill that requirement may be taken as electives. This includes any of the practicum courses as well as PSY 372 and PSY 570 which can be taken without taking their related laboratory courses. Note that PSY 362 can not be taken without simultaneous enrollment in the related laboratory course.

Acceptable minors: anthropology, biology, chemistry, communication, economics, English, linguistics, mathematics, philosophy, physics, political science, sociology, social work, and others approved by the department advisor.

PSYCHOLOGY MAJOR, SECONDARY EDUCATION OPTION
Students who plan to obtain a secondary school teaching certificate with psychology as a teachable minor must complete the arts and sciences psychology minor (which may include one of the practicum courses—347, 357, 367, 377, 387, or 397) and must also complete Psychology 517. These students are urged to complete teachable minors in one of the sciences or mathematics although other teachable minors may be approved by the department advisor.

Minor Options
A student who elects to minor in psychology has two options, (a) the arts and sciences psychology option and (b) the secondary education psychology option. The requirements for each of these options are summarized in the tables below.

ARTS AND SCIENCES PSYCHOLOGY MINOR OPTION
A minimum of 18 hours
PSY 100 General Psychology 3
PSY 150 Introduction to Human Behavior 3
PSY 160 Child Psychology 3
PSY 250 Abnormal Psychology 3

SECONDARY EDUCATION PSYCHOLOGY MINOR
Students who plan to obtain a secondary school teaching certificate with psychology as a teachable minor must complete the arts and sciences psychology minor (which may include one of the practicum courses—347, 357, 367, 377, 387, or 397) but in addition must take PSY 517.

Honors Program in Psychology
The honors program is designed to promote an academic community of undergraduate students, graduate students and faculty in psychology. The requirements for the departmental honors program include:
1. The completion of a major in Psychology
2. A University grade point average of 3.5 and a department grade point average of 3.8.
3. Completion of PSY 499, Honors Project in Psychology (6 credit hours) and the preparation of an Honors Thesis.
4. The successful defense of the Honors Thesis before a departmental committee.
5. Participation in a professional apprenticeship program (2 credit hours).

Psychology Courses (PSY)
(Courses described in italics are approved for General Education)
PSY 100 General Psychology 3 hrs. Fall, Winter
An eclectic approach to a social and behavioral survey of major topics in psychology, including learning, motivation, intelligence, personality, mental illness, and social relations. Approved for General Education.

PSY 150 Introduction to Human Behavior 3 hrs.
An introduction to general psychology from the point of view of humanistic behaviorism; the use of the science of behavior to help people achieve their full potential as human beings. Emphasizes how the environment has a major influence on the way we are and how the environment can be changed so that we can become the kind of people we wish.

PSY 155 Teaching Apprenticeship in Introductory Psychology 2-4 hrs.
A laboratory course in the instructional methods of teaching introductory psychology. Prerequisite: Consent of instructor. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 160 Child Psychology 3 hrs. Fall, Winter
An introduction to behavior principles in the analysis of complex behavior with an emphasis upon early childhood learning and the techniques for enhancing children’s development. Topics include mental retardation, behavioral problems in childhood, emotional development, and language learning. Prerequisite: PSY 100.

PSY 165 Teaching Apprenticeship in Child Psychology 2-4 hrs.
A laboratory course in the instructional methods of teaching child psychology. Prerequisite: Consent of instructor. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 197 Special Programs in Psychology 1-3 hrs.
The department of psychology offers special programs of study for students at academic risk in the University. The program follows a Learning to Learn curriculum which is supervised by advanced students enrolled in a practicum course.

PSY 250 Abnormal Psychology 3 hrs. Fall, Winter
An introduction to the description, classification and interpretation of human behavior labeled by society as “abnormal” with an emphasis on the social variables and environmental conditions related to the acquisition and persistence of such behavior. Prerequisite: PSY 100.

PSY 255 Teaching Apprenticeship in Abnormal and Social Psychology 2-4 hrs.
A laboratory course in the instructional methods of teaching abnormal psychology. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 300 Statistics for the Behavioral Sciences 3 hrs. Fall, Winter
Introduction 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.

PSY 330 Methodology of Behavior Analysis 3 hrs.
An examination of the problems approached and of the methodologies utilized in applications of behavior analysis. Extensive readings in the recent literature of applied behavior analysis introduce the student to current issues in the field. Prerequisite: PSY 300 or consent of instructor.

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. 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 related to Employee Assistance Programs (EAPs). Emphasis is placed on methods of creating and sustaining 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).

PSY 355 Teaching Apprenticeship in Statistics
2-4 hrs.
A laboratory course in the instructional methods of teaching elementary statistics. May be repeated for credit, but does not fulfill major requirements.

PSY 357 Practicum with Special Populations
3 hrs.
Supervised experience in the application of principles of behavior analysis to special populations. The Oyster River 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. Prerequisite: PSY 250.

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 habilitation, respondent conditioning, operant conditioning, and the control of operand behavior by motivational and emotional variables. An introductory laboratory accompanies the lecture portion of the course. Prerequisites: PSY 100, 160, 250, and 300.

PSY 362 Experimental Analysis of Behavior
3 hrs.
An advanced level coverage of respondent and operand behavior. There is an emphasis upon research design, the theoretical interpretation of data, experimental methodology and the techniques of response measurement. Prerequisite: PSY 300. Concurrent enrollment in PSY 368 is required.

PSY 367 Practicum in Child Care
3 hrs.
Supervised practicum at the Kalamazoo Learning Village. This course is designed to provide experience in all aspects of the conduct of a day care center. The daily schedule at the Village is combined with research in developmental psychology, child abuse and early childhood learning. Prerequisite: PSY 160.

PSY 368 Laboratory in Experimental Analysis
3 hrs.
An advanced laboratory emphasizing the variations in response measurement and experimental methodology in research areas within operant conditioning. Research design, data analysis and description, as well as professional writing are stressed. Concurrent enrollment in PSY 362 is required.

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 374 Toward Experimental Living
3 hrs.
A comparison of complex social structures with an emphasis upon social ethics and the design of communities. Visits to experimental communities may be included. Prerequisite: 6 hours of psychology or permission of instructor.

PSY 377 Practicum in Child Psychology
3 hrs.
Supervised experience in the application of the principles of behavior analysis to early childhood learning. The Child Development Center is the site of this practicum. The Center provides accelerated education, nutrition, health and physical education programs. Students learn the techniques of direct instruction and other programs while serving as apprentice teachers. Prerequisite: PSY 330.

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 math and reading using the techniques of direct instruction. This course teaches the techniques of direct instruction and provides tutorial experience. Prerequisite: 9 hours of psychology.

PSY 397 Practicum in Psychology
3 hrs.
Supervised experience at a community based mental health site as announced in the schedule of classes or as approved by the undergraduate advisor. Corresponding seminar sessions provide structure and integration of the experience with other practicum experience. This course may be repeated for credit with different experiences. Prerequisite: Permission of instructor.

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 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, mental retardation, education 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 464 Systems and Theories in Psychology
3 hrs.
A critical examination of the assumptions, methods and problems of several major schools of psychology. Structuralism, Functionalism, Associationism, Behaviorism, Gestalt Psychology and Psychoanalysis. Prerequisite: 9 hours of psychology.

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 and the abnormal, with a significant portion of the course devoted to the higher cognitive processes. Prerequisite: Permission of instructor.

PSY 512 Behavioral Pharmacology and Toxicology
3 hrs.
Topics range from the use of drugs to clarify behavioral principles to the use of behavioral preparations to discern pharmacological effects. Readings include summaries of pharmacological evidences and selected experimental reports concerning both the behavioral techniques and pharmacological problems in basic research. Prerequisite: 9 hrs. of Psychology, permission of instructor or enrollment in SPADA program.

PSY 513 Research in Animal Behavior
3 hrs.
Research in various areas of animal behavior. An individual research project is required with emphasis on animal learning processes. Research design, data collection, analysis and reporting are included.

PSY 517 Psychology of Learning for Teachers
3 hrs.
Designed to teach the principles of behavior and the application of these principles to teaching. Topics include the use of behavior principles in the development of objectives, selection and preparation of instructional material, classroom management.
and incentive motivation, behavior change, performance contracting and program evaluation. Practical application is stressed.

PSY 518 Stimulus Control and Perceptual Processes
3 hrs.
An examination of the literature surveying sensory and perceptual processes with an emphasis upon the research methodology and theoretical interpretation of data from studies of stimulus control and discrimination in non-human organisms. Prerequisite: 9 hours of psychology or permission of instructor.

PSY 519 Corrective and Remedial Teaching
3 hrs.
An introduction to and survey of various content skills, curriculum approaches and special teaching techniques used in elementary school reading and mathematics instruction. Designed primarily for prospective school psychologists. Focus is on academic skill content, sequencing of skill hierarchies, devising short term educational plans to teach specific skills and evaluating the effectiveness of such plans. Prerequisite: Graduate standing in psychology, education or permission of instructor.

PSY 524 Human Sexuality
3 hrs. Fall
Discussion of those human behaviors concerned with sex, sexuality and reproduction. Consideration is given to the anatomical and psychological properties of sexual functioning in male and female. Emphasis is placed upon the sexual response cycle as described by Masters and Johnson. The course is not intended to provide therapy training.

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 535 Instrumentation and Computer Use in Psychology
3 hrs.
A survey of problems of response measurement in experimentation. Lecture and laboratory. May be repeated for credit.

PSY 560 Behavioral Medicine
3 hrs.
Application of behavioral technology to medical patients with emphasis on in-patient treatment. Sample topics include biofeedback, pain control, compliance with medical regimen and issues of work in a medical setting.

PSY 562 Management of Health-Related Behaviors
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.

PSY 570 A Behavior Analysis Approach to the Area of Retardation
3 hrs.
Topics will include: Historical background, assessment, training and legal implications of treatment.

PSY 574 Experimental Social Psychology
3 hrs.
Methodology of research with groups of animals and humans with emphasis upon design, application and ethical implications. Prerequisite: Permission of the instructor.

PSY 576 Research Practicum: Developmentally Disabled Population
3 hrs.
Supervised experience at the Croyden Avenue School which offers an educational program for the developmentally disabled. This course involves a variety of problems in behavior change and learning which can be studied at the school. The research problems are carefully selected to be beneficial to the client and provide appropriate experience for the student. Data collection and report writing are stressed. Prerequisite: PSY 570 or concurrent enrollment.

PSY 595 History of Psychology
3 hrs.
The historical and philosophical foundations of contemporary American psychology.

PSY 597 Topical Studies in Psychology
2-4 hrs.
A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. Permission of instructor.

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 credits may be limited by the degree program. Students should consult the program advisor. Courses may include the following: Parent Training, Studies in Industrial Psychology, Computer Assisted Instruction, Theory of Direct Instruction.

PADM 532 Program Planning and Proposal Writing
3 hrs.
This course seeks to build skill in program planning, program management, and proposal writing. The first part of this course will be devoted to the grantsmanship process, including how to formulate and promote a project concept; prepare the project proposal; submit the project proposal; and follow-up after acceptance or rejection of the proposal. Emphasis will be placed upon the project proposal as an integral component of agency planning, program management, and assessment activities, from both grantor and grantee perspectives. The second part of this course each participant will prepare a project proposal.

PADM 572 Computer Applications in Administration
3 hrs.
Administrators at all levels increasingly rely upon computers to perform the tasks for which they are responsible. Whether to prepare reports, access data, or communicate with others, administrators at all levels of the organizational hierarchy are expected to possess a certain minimum facility with this technology. In this introductory technical core course, MPA degree candidates will become proficient in the administrative uses of computers.

PADM 596 Readings in Public Administration
1-3 hrs.
A program of independent study to provide the well qualified MPA candidate with an opportunity to explore in-depth a topic of interest under the guidance of a faculty member. The end product of this effort may be an annotated bibliography, a bibliographic essay, or a major paper. Planning a topic for investigation is a joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits of the proposal. Prerequisite: Consent of both instructor and School Director.
Since content varies, students are advised to read course descriptions distributed by the School. The course may vary in the number of credit hours awarded and may last more or less than a semester's length.

**RELIGION**

E. Thomas Lawson, Chair
H. Byron Earhart
David Ede
Nancy Falk
Francis Gross, Jr.
Otto Gründler
Timothy Light
Rudolf Seibert
Irene Vasquez

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 minors are a good preparation for graduate study in religion, for the teaching of the academic study of religion in the public schools, and for a vocation associated with religion.

**Baccalaureate Writing Requirement**

Students who have chosen the Religion major will satisfy the Baccalaureate Writing Requirement by successfully completing REL 300 Writing About Religion.

**Requirements for Majors and Minors**

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.

**Teaching Minor in the Academic Study of Religions**

A teaching minor leading to state certification in the academic study of religions consists of a minimum of six courses, totaling 22 semester hours, and composed as follows:
1. REL 100 Religions of the World
2. REL 200 Introduction to Religion
3. REL 304 African Religions
4. One course in the Christian, Jewish or Islamic religions, within the category of Historical Studies
5. One course in any religion other than those specified above under (3) and (4), within the category of Historical Studies, or one course in Methodological Studies
6. REL 521 The Teaching of Religion in the Public School

**Courses By Topic**

**INTRODUCTORY STUDIES**

100 Religions of the World
200 Introduction to Religion

**HISTORICAL STUDIES**

302 Religion in the Indian Tradition
303 Chinese Religion
304 African Religions
305 The Christian Tradition
306 The Jewish Tradition
307 The Islamic Tradition
308 Japanese Religion
500 Historical Studies in Religion

**COMPARATIVE STUDIES IN RELIGION**

311 Myth and Ritual
313 Religion in America
510 Morphological and Phenomenological Studies in Religion
511 Women in Religion

**METHODOLOGICAL STUDIES IN RELIGION**

320 The Philosophy of Religion
321 Religion and Revolution
324 Psychological Elements in Religion
530 Methodological Studies in Religion
521 The Teaching of Religion in the Public School

**CONSTRUCTIVE STUDIES IN RELIGION**

332 Religion and Social Ethics
334 Religion in Modern Society
498 Independent Study
530 Constructive Studies in Religion
598 Readings in Religion

**SPECIAL REQUIREMENT**

300 Writing About Religion

**Religion Courses (REL)**

(Courses described in italics are approved for General Education.)

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
This course enhances writing skills in the focus upon issues of contemporary interest in American society in particular. Required of all religion majors.

REL 302 Religion in the Indian Tradition 4 hrs.
This course draws its materials primarily from the great religious traditions native to India—Brahmanism, Buddhism, Jainsim, and Hinduism. Particular attention is paid to the continuities of motif and practice that allow one to speak of "Indian Religion" as a unified phenomenon with a single history. Consideration is also given to such problems as the relationship between Indian religions and Indian culture and the relationship between Indian religious forms and the religious forms of other cultures.

REL 303 Chinese Religion 4 hrs.
A study of the historical continuity and overall unity in the Chinese religious tradition. The formal religions of Confucianism, Taoism, and Chinese Buddhism, as well as the informal religious movements of "ancestor worship," family religion, and state religion will be discussed. An attempt is made to assess the meaning of religion in Chinese culture.

REL 304 African Religions 4 hrs.
This course is designed to introduce the student to the complexity and varieties of the religions of Africa. This is done by focusing on the myriad religious forms, e.g., ideas of the soul, cosmology, initiation rites, etc., which have emerged during the long history of Africa. The course pays attention to religious forms which either came into being or defined a specific cultural stratum: for example, the religious forms of hunters and food-gatherers, horticulturalists, agriculturalists, nomadic herders. Finally an attempt is made to see what changes Westernization has made in the African appropriation of their traditional religious symbols.

REL 305 The Christian Tradition 4 hrs.
An introduction to some of the salient features of the Christian experience as expressed in thought, practice and institutional structures. In an effort to elucidate the all-pervasive influence Christianity has had on Western culture, the course focuses on such problems as the questions of the origin and identity of Christianity, the most important stages in its development, the interaction of Christian experience and current world-view of the host cultures, and particularly the phenomenon of secularization which is examined in the light of the astronomical, biological, historical, psychological and sociological "attacks" by modernity upon Christianity.

REL 306 The Jewish Tradition 4 hrs.
This course traces the history and development of Judaism from its roots in the Ancient Near East to the present, and its role in the shaping of Western consciousness. Particular attention is given to the periods of radical social, political and cultural change in Jewish history and hence to the critical problem of Jewish identity. An analysis of Jewish writings, customs, and institutions taken from different periods of Jewish history reveals that Jewish people have discovered and expressed their identity within a religious framework that includes myths and rituals, festivals, and holy days, celebration of the past and anticipation of the future, as well as social movements and political revolutions.

REL 307 The Islamic Tradition 4 hrs.
A study of the major factors involved in the development of both the Islamic religious tradition and Islamic civilization. The pre-Islamic background, the life of Muhammad, the Qur'an, geographical expansion of the Muslim community, Islamic law, mysticism, sectarian development, philosophy, and abilities to promote modern era are the major topics to be examined during the term.

REL 308 Japanese Religion 4 hrs.
A study of the historical continuity and overall unity in the Japanese religious tradition. The major organized religions of Shinto and Japanese Buddhism, and also the influence of Taoism, Confucianism, and Christianity are discussed. Also taken up are the informal religious movements of "ancestor worship," family religion, and state religion. An attempt is made to assess the meaning of religion in Japanese culture.

REL 311 Myth and Ritual 4 hrs.
Eric Dardel, an anthropologist, has written: "Myth says with utmost seriousness something that is of essential importance." In this course an attempt will be made to discover just what this important something is and how it is actualized in certain rituals. Myths and rituals will be taken from a variety of historical traditions in order to reflect the cultural milieu of the communities whose lives are governed by them. Special problems to be considered will be the relationship between myth and cult, the problem of time and myth, the logic of mythic forms, etc.

REL 313 Religion in America 4 hrs.
An introduction to the full range of religious phenomena in today's North American culture and societies. The course attempts to isolate the specifically American elements in religious concepts, values, and institutions and relate them to other elements of the socio-cultural fabric. While attention is directed to historical background, the rise, institutionalization and decline of movements, developing traditions, changing concepts, etc., the emphasis of the course is on contemporary experience and special attention is given to content analysis of the mass media such as TV, radio, newspapers and magazines, advertising, popular music, comics, films, etc.

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.
In this course, religion will be looked upon as a driving force of social and cultural evolution. The historical and contemporary record shows religion capable of exhibiting profound revolutionary tendencies as, for instance, in the Peasant War in 16th century Germany or in the present South American situation. The course will be concerned with religion's capacity to motivate fundamental change. It will explore the following main issues: The utopian and prophetic elements in Eastern, Mid-Eastern, and Western religious traditions; comparison of contemporary religious and secular political hopes and aspirations; the correlation of political exodus utopias and religious eschatologies; the mutual reproduction of religious theory and social and political practice.

REL 324 Psychological Elements in Religion 4 hrs.
This course is concerned with the correlation between religion and the human subject—the religious or a religious individual. The central interest of the course is with religious propensities, feelings, impulses, passions, attitudes, motivations, values, ideas, prejudices. Critical questions are: What is the function of religious faith for the nervous stability, mental health and wholesomeness of the subject? Does religion reinforce or hinder the maturation process of the individual? Is the need for religion just a derivation from the child's feeling of helplessness and of the longing it evokes for a sublime father figure?

REL 327 Religion and Social Ethics 4 hrs.
This course will be a study of different styles of religious and secular social ethics and the creative ideas, problems, and attitudes toward the social world they contain. The course will discuss a variety of special contemporary socio-ethical problems: the New sexual morality, abortion, divorce, guaranteed income, thermoclear and chemical warfare, artificial insemination, euthanasia, and drug addiction. Particular attention will be paid to how different styles of social ethics relate themselves to fundamental changes in contemporary management and family life as well as in the economic, political, and cultural sphere.

REL 328 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 to 1500; Renaissance and Reformation Theology; Mystical Dimensions of Islam.

REL 510 Morphological and Phenomenological Studies in Religion
2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Millennium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yugas; the Occult Tradition.

REL 511 Women in Religion
3 hrs.
Drawing together materials from many religious traditions, this course explores religion's effect on women and women's effect on religion. It attends especially to women's roles in traditions studied—both roles allotted to women and roles women shape for themselves. It also traces repeating patterns in women's religious experience and evaluates common explanations for such patterns. Prerequisites: Junior or senior level and two courses (6 hours) in either Religion or Women's Studies.

REL 520 Methodological Studies in Religion
2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Scientific Issues in the Study of Religion; the Critical Theory; Myth and Symbol in Religion and Literature.

REL 521 The Teaching of Religion in the Public School
2 hrs.
This course focuses on methods and issues involved in the teaching of religion in the public school. Particular attention is given to the problems of its constitutionality, the distinction between the academic study of religion and religious instruction, and the question of meaning. Various approaches to the teaching of religion are critically evaluated. Teaching methods appropriate to the level of instruction, availability, organization, selection and use of materials are discussed. Required of all students following a Secondary Education Curriculum which includes the Academic Study of Religions as a minor. (This course is not applicable to the regular religion major/minor program.)

REL 530 Constructive Studies in Religion
2-4 hrs.
The topic to be announced in the schedule of classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Religious Images of Man; Christian Humanism; the Structure of Religion; the Future of Religion; Religion, Language and Structuralism.

REL 598 Readings in Religion
Variable Credit
Research on some selected period or topic 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.

RUSSIAN
See "Languages and Linguistics" in the College of Arts and Sciences.

SCIENCE (GROUP) MAJOR
See "Interdisciplinary Programs" in the College of Arts and Sciences.

SCIENCE AND MATHEMATICS
TEACHING MINOR
See "Interdisciplinary Programs" in the College of Arts and Sciences.

SCIENCE STUDIES

Larry Oppliger, Chair
Franklin G. Fisk
Robert S. Hafner
David Hargreave
George LeBonte
Amanda McConney
Robert H. Poel
Kamlesh Sharma
Visho Sharma,
Michael D. Swords

The Department of Science Studies has three components: environmental studies, science education, and interdisciplinary studies. Each one of them has a separate mission, but, they share a common goal: the study of science and the impact of science on the human condition. Faculty in the three components, thus, try to:
1. assist students in developing the ability to think critically, seek knowledge, and apply knowledge in decision making;
2. help students develop confidence in their ability to make judgements while acquiring a willingness to reconsider their judgements in the light of new insights, information, and values;
3. expose students to the scientific mode of inquiry and encourage them to develop an interdisciplinary perspective; and
4. help students develop a responsible awareness of themselves as human beings living in a variety of social and physical environments, and an awareness that each set of those social-physical environments is interrelated in an increasingly interdependent world.

The faculty of the department has developed:
1. graduate programs in science education leading to Master of Arts and Doctor of Philosophy degrees; and
2. individual courses for meeting the University General Education requirements.
3. undergraduate programs in environmental studies leading to an EVS Curriculum Major, an EVT Coordinate Major, a Teaching Minor, and a Non-Teaching Minor;

Science Education
The graduate programs in science education are described in the Graduate Catalog. In addition, the department offers several science courses for General Education and for those students majoring in education. The department also houses the Center for Science Education. The Center offers many in-service workshops and educational opportunities for area teachers.

Interdisciplinary Studies
The department offers interdisciplinary courses most of which are designed to contribute to the general education of the University students.

Environmental Studies
In addition to the course work described in the programs below, students in the ENVS program are encouraged to become actively involved in community environmental affairs by participating in an internship with a local organization or government agency, or by designing an independent project. Academic credit can be obtained for such experiences through ENVS 399 Internship or ENVS 499 Contemporary Environmental Projects.
Baccalaureate Writing Requirement

Students who have chosen the Environmental Studies Coordinate major will satisfy the Baccalaureate Writing Requirement by successfully completing the designated course in their standard major.

Majors

The Environmental Studies Program offers a single major package that the student may elect to take either as a curriculum (EVS) major or as a coordinate (EVT) major. In either case the student must fulfill the following program requirements:

1. Successful completion of a minimum of 32 semester hours of approved course work.
2. Selection of a second, disciplinary major, the choice of which is left to the student.

THE EVS CURRICULUM MAJOR

32-35 hrs. plus cognates

This option is offered for those who desire to graduate with a Bachelor of Science degree in Environmental Studies. Since the Environmental Studies Program itself is broadly interdisciplinary in scope and field, students electing this option 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. In addition to the program requirements listed above, those enrolled as EVS curriculum majors must satisfy all University degree requirements.

THE EVT COORDINATE MAJOR

32-36 hrs. plus cognates

This option is offered for those who desire to graduate with a Bachelor of Arts degree in Environmental Studies. Students in all options of the Environmental Studies, but also want a complementary major in Environmental Studies to broaden their perspective and possibly enhance career opportunities.

THE NON-TEACHING MINOR

22-24 hrs.

Those electing a non-teaching minor in Environmental Studies must successfully complete a minimum of 22 semester hours of approved course work within the program.

1. PROGRAM INTRODUCTION

ENVS 110 Introduction to Environmental Studies 3

2. CONCEPTS

BIOLOGICAL SYSTEMS:
BIOS 105 Environmental Biology 3

PHYSICAL SYSTEMS:
GEOG 105 Physical Geography 4

HUMAN SYSTEMS:
ANTH 220 or 240 Cultural Anthropology 3

OR

PSCI 306 Environmental Politics 3

3. ENVIRONMENTAL PERSEPCTIVES

ENVS 300 Appropriate Technology 3

OR

ENVS 305 Selected Environmental Topics (may be repeated with different topics) 2-3

ENVS 320 Major Environmental Writings 2

ENVS 350 Environmental Problem Solving (prerequisite: ENVS 110) 4

ENVS 360 Building Sustainable Societies (prerequisite: ENVS 110) 4

4. PRACTICA

ENVS 390 Internship (credit/no credit: 1-3 hrs.) 1-3

OR

GEOG 557 Environmental Impact Assessment 3

ENVS 400 Senior Seminar (prerequisites: ENVS 350, 360) 3

Minors

The Environmental Studies Program offers both a non-teaching and a teaching minor.

Advising

Given the interdisciplinary nature of the program, it is very important that students work with one of the program advisors. Once a decision is made to major or minor in Environmental Studies, students should come to the advising office, so that a program can be designed to meet requirements and fit individual interests. Information about internships, summer jobs, and career opportunities is also available in the advising office. Students are urged to consider an environmental internship, for which academic credit is usually available.

Environmental Studies Courses (ENVS)

ENVS 110 Introduction to Environmental Studies 3 hrs.

Fundamentals of Environmental Studies is an interdisciplinary introduction to the study of environmental concerns. It is particularly designed for students majoring or minoring in Environmental Studies, but is equally valuable for anyone desiring a conceptual foundation on which to build an independent study of these concerns. Attention is focused on the structure and behavior of systems—biological, physical, and social—which both create and are influenced by environmental problems. Particular attention is given to the role of energy in the definition and maintenance of these systems.

ENVS 300 Introduction to Appropriate Technology 3 hrs.

An academic inquiry into the environmental, ethical, technological and socio-political aspects of “appropriate technology.” Such technologies are designed to fit local environments and to be consistent with the resources and values of respective cultures. Lectures will review the development of appropriate technology, its importance in today’s world, and its role in creating a livable future.

ENVS 305 Selected Environmental Topics 2-3 hrs.

An intensive, focused study of an environmental topic such as: solid waste and resource recovery, energy, environmental law, and environmental communications. Topic to be announced in schedule of classes. An alternate selection for majors and minors, this course may be repeated for cognate credit with a second topic.

ENVS 320 Major Environmental Writings 2 hrs.

This course, required of environmental studies majors, will use selected readings of classic works in the environmental field. It may be taken at any point in the program, but preferably before ENVS 350 or ENVS 360.

ENVS 350 Environmental Problem Solving 4 hrs.

This course develops an approach to solving complex problems, together with specific skills for analyzing problem situations and making decisions. It introduces students to the structure and behavior of complex systems and to elementary techniques for systems analysis. It also explores the elements of, and problems surrounding, risk/benefit analysis utilized in decision making. Prerequisite: ENVS 110 or departmental permission.

ENVS 360 Building Sustainable Societies 4 hrs.

This course presents the environmental perspective of the humanities and social sciences. Topics examined are ecologically damaging practices in developed and developing nations, and a search for
environmentally sustainable principles, policies and lifestyles. Prerequisite: ENVS 110 or departmental permission.

ENVS 399 Internship
1-3 hrs.
The environmental internship gives majors 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.

ENVS 400 Senior Seminar in Environmental Studies
3 hrs.
A team-taught, integrated seminar in which the subject material will be built around the orienting concepts of ecology, evolution and culture. Students will develop a project which demonstrates ecological relationships.

ENVS 499 Contemporary Environmental Projects
1-4 hrs.
Contemporary Environmental Projects is designed for students who wish to carry split interdisciplinarn work in Environmental Studies under the direction of a faculty member. Work will be geared to a single project in which there will be investigation, research, field experience, and/or workshop experience. Students selecting this course will work on projects especially designed for their programs. The goal of this course is to identify a problem, outline the approach to study, and consider paths to solving the problem. The course is repeatable for up to eight hours of academic credit. Prerequisite: Consent of instructor and approval of the director of the Environmental Studies Program.

Science Courses (SCI)
(Courses described in italics are approved for General Education.)

SCI 131 Physical Science in Elementary Education
4 hrs.
This course is designed to introduce students to some of the broad concepts of physical science, and to the methods of inquiry that have been useful in developing these concepts. Student experiences are designed to further understand the interrelationships between the physical sciences and society, as well as those between the physical sciences and elementary general education, and will be taught in laboratory groups of limited size. Because of its broad-based nature, this course is especially valuable for elementary education minors and is at the same time appropriate for majors and minors in all fields of endeavor.

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 achievements of the scientific enterprise, as well as demonstrating the methods of science and other methods of obtaining reliable information. The course, designed for the non-scientist, is a non-mathematical examination of science and the way it is used 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, genetic engineering, pollution, and the ethical and moral concerns implicit in these.

SCI 231 Physical Science in Elementary Education II
4 hrs.
This course is a continuation of SCI 131, Physical Science in Elementary Education, for those students who desire or need further study in the concepts and methods of the physical sciences. Instruction will be in laboratory sections of limited size; and a learning-by-doing inquiry approach will be utilized. This course will further elaborate on some concepts introduced in SCI 131 and will also introduce additional important concepts in the physical sciences. Prerequisite: SCI 131 or consent of instructor.

SCI 432 Science and Parascience
4 hrs.
The goal of this course is to examine open-mindedly several “alternate visions” of the nature and origin of human life in the light of the attitudes and objectives associated with science. Topics examined: astrology, future-predicting, “harmonies” between entities, ESP, telepathy, the aura, PK, UFO’s, extraterrestrial life, ancient astronauts, and others.

SCI 433 Science, Technology, and Society
4 hrs.
This course consists primarily of seminars and discussions centering on the impact of science and technology on contemporary society, viewed from a variety of perspectives. One objective will be to assist the student in acquiring knowledge about current scientific and technological problems. 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.

SCI 596 Readings in Science
1-4 hrs.
To be used by students seeking work in topics not otherwise available. The student is limited to not more than four hours in all reading courses and work must be completed under a member of the graduate faculty. Prerequisite: 12 hours of a science and 12 hours of professional education courses.

GENL 305 Non-Western Societies in the Modern World
4 hrs.
An analysis of the distinctive cultural configuration of one of the following regions: East Asia, Southeast Asia, South Asia, the Middle East and North Africa, Sub-Saharan Africa. The type of transition being made in the particular region from a traditional to a modern society will be explored through an examination of the interrelationship between technology, social structure and ideology.

GENL 325 Self-Images and Social Images
4 hrs.
An interdisciplinary inquiry into the personal and social factors which shape self-images. The course will examine how images of the self are related to the images of other individuals and groups. The aim is to understand how this process affects the quality of our lives.

GENL 333 American Studies
1-4 hrs.
A variable-topics course reflecting the broad range of the American cultural experience. Although the topics may vary, the objective is to broaden our understanding of America through the wide range of themes such as a specific offering. Topics might include: Film and American Life, Sports as American Metaphor, the American Way of Death, the World of American Mystery Fiction, America through Photography, Country Music and the American Scene, and American Humor, Wit and National Character. May be repeated for credit when topic changes. Does not count for General Education.

GENL 356 In Pursuit of Awareness
4 hrs.
This course is a study of the methods and techniques by which individuals acquire, transmit, utilize and block knowledge. The students apply various theories of perception in case-studies, exercises and simulated problems during classroom sessions and in written assignments. These sessions and assignments are designed to give students insights and skills of interpretation that will be useful to them throughout their lives.

GENL 499 Independent Study in General Studies
1-8 hrs.
Various extra-classroom activities, including independent reading or research under the direction of a faculty member or projects associated with field experience or travel of recognized educational value. Prior arrangement with a faculty member and prior approval of the Chair of the Department of Science Studies. May be repeated for credit. This course will not be accepted for General Education credit without approval.

SCIENCE STUDIES 149

Interdisciplinary Courses (GENL)
(Courses described in italics are approved for General Education.)

GENL 304 Introduction to the Non-Western World
4 hrs.
A survey of the traditional cultures of certain major societies which have developed essentially apart from the stream of Western civilization. This is followed by an analysis of the Western impact on these societies and their relations thereto, and by a study of contemporary social, economic, and political problems of non-Western countries.
SOCIOMETRY

Lewis Walker, Chair
Monton J. Brawner
Susan Carperella-MacDonald
Susan A. Carlson
Susan L. Farrell
Douglas V. Davidson
Ronald C. Kramer
Richard A. MacDonald
Gene Marquis
Eilen Page-Robin
James C. Petersen
Stanley B. Robin
Herbert L. Smith
Zoann Snyder-Joy
Subhash R. Sonnad
Sylvie C. Tourigny
Douglas V. Davidson
Lewis Walker, Chair
Robert Wilt
Paul Weinir

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, mental roles, race relations, voting behavior, alcoholism, mental health, demography, and education.

Honors Program

Students in sociology and criminal justice may participate in the department honors program in four ways:

1. Qualifying for a bachelor’s degree with honors in sociology or criminal justice. The purpose of this program is to stimulate and reward outstanding student work in sociology or criminal justice. Requirements include: sociology or criminal justice major, overall average of 3.0 or better with an average of at least 3.25 in major courses, and satisfactory completion of an honors paper (including an oral exam on the paper). University recognition of graduation with honors appears on the diploma and transcript.

2. Membership in Alpha Kappa Delta, the national sociology honorary 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.

3. Leonard C. Kercher Fund Awards are made each year for outstanding student achievement. Dr. Kercher was head of the department from 1940 to 1972.

4. 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 credit 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.

Further information and application forms may be obtained at the Sociology Office, 2420 Sangren Hall.

Advising

DEPARTMENT ADVISOR
2407 Sangren Hall, 387-5286. Students must consult the department advisor for major/minor slips in Sociology, Criminal Justice, and 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 winter semesters. Department assistantships may be offered for a faculty member or a department project. Applicants for these awards are also considered for the Kercher Award. For further information and application forms, see the department advisor.

Baccalaureate Writing Requirement

Students who have chosen the Sociology major will satisfy the Baccalaureate Writing Requirement by successfully completing SOC 456 Social Stratification.

Students who have chosen the Criminal Justice curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing SOC 466 Advanced Criminology.

Sociology Major

A major in sociology consists of a minimum of 30 hours in sociology courses. SOC 200, 300, 320, 382, 383, and 456 are required. Students may choose their electives from the following offerings in the Department at least two of the courses must be 300-500 level. Only one 100-level course may be used (SOC 182 is not an allowable elective). Limitations include: (1) A maximum of 12 hours transferred from a two-year institution may be included. (2) At least 9 hours must be taken at Western Michigan University. (3) No more than one course at the 100-level may be included. Any variance of the above requirements must be approved by the Undergraduate Advisor, 2407 Sangren Hall.

Transfer students should see the department advisor, since any transfer credit in sociology without a stated equivalent must be evaluated by the department if it is to apply toward a sociology major or minor.

Students in secondary education must take one of the following: 4 GEOG 486 (Concepts and Strategies in Teaching of Geography, or HIST 396 (Teaching Methods for Secondary Schools)) to meet the state certification requirement for a teaching methods course. This course may not be included in the hours required for a sociology major or minor. A major slip is required.

GROUP SOCIAL SCIENCE

Students in the secondary education curriculum who major in sociology must also complete a minor in group social science. Refer to the “Interdisciplinary Programs” section of this catalog for a description of the minor requirements.

Sociology Major, Accelerated BA/MA Program

This program is intended for the exceptional sociology major who intends to pursue a disciplinary masters degree in sociology at Western Michigan University. It is designed to accelerate progress toward the attainment of the disciplinary masters degree in sociology.

Requirements include:

1. application during the second semester of junior standing;
2. declared sociology major; and
3. recommended 3.4 GPA overall, based on at least 30 hours at WMU

The program requires completion of all requirements of the Sociology major with this difference: SOC 581 and one additional 500-level sociology course be taken during the junior year and SOC 602, or SOC 603, or SOC 625 and one additional 600-level sociology course be taken during the senior year as part of the thirty hour minimum requirement for the Sociology Major.

Applicants will be considered for this program by evaluation by the Department of Sociology. Upon completion of the BA the participant will apply for admission to the MA program in Sociology through standard procedures.

Sociology Minor

A minor in sociology consists of 18 hours for students in curricula other than education. Students qualifying for teacher certification are required to complete a minimum of 20 hours. SOC 200 and 210 are required in either case. 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) At most one 100-level course may be included. Minor slips are required.

Sociology/Anthropology Major

A combined major in sociology and anthropology consists of a minimum of 30 hours, with at least 12 hours in the department. SOC 200, 300, 382, and ANTH 210, 240, and 250 are required. Additional courses in either department may be selected by the student.

Criminal Justice Curriculum

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.
CRIMINAL JUSTICE MAJOR (33 hours)

Required Prerequisites
The following courses are required before taking any of the core courses. These hours are not included in the 33 hour requirement for the major.
SOC 200 Principles of Sociology or SOC 210 Modern Social Problems

Writing Expectation
Students are expected to write at the college level before enrolling in the following advanced courses. Students should have completed Basic 105 or equivalent.

Core Courses
All of the following courses (22 hours) are required. It is important to check with the advisor as courses are taken in proper sequence.
SOC 362 Criminology
SOC 363 Criminal Justice Process
SOC 364 Sociology of Law Enforcement
SOC 365 Correctional Process
FCL 384 Criminal Law and Procedure
SOC 454 Juvenile Delinquency
SOC 466 Advanced Criminology

Research Methods Requirement
The following is required.
SOC 362 Methods of Sociological Inquiry

Special Area of Concentration
Completion of one of the following areas is required.

Contemporary Issues in Criminology (6 hours)
SOC 495 Special Topics in Sociology and Criminal Justice (when applicable)
SOC 412 Child Abuse
SOC 560 Corporate and Governmental Crime
SOC 561 Violence and the Violent Offender
SOC 562 Victimology

Corrections (6-8 hours)
SOC 457 Institutional Corrections
SOC 465 Community Corrections
COURTS (6-8 hours)
PHIL 313 Philosophy of Law (4)
PSCI 320 American Judicial Process (4)
PSCI 330 Criminal Justice Policy
PSCI 330 Introduction to Public Administration
PSCI 422 Civil Rights and Civil Liberties
SOC 578 Sociology of Law

Juvenile Justice (6 hours)
SOC 456 Non-International Treatment of Offenders
SOC 459 Organizational Perspectives on Juvenile Justice
SOC 421 Childhood Socialization
SOC 422 Adolescent Socialization

Law Enforcement Administration (6 hours)
SOC 460 Interviewing/Investigation
SOC 461 Criminal Justice Administration Issues
SOC 467 Police and Community Dynamics
SOC 468 Police and Crime Prevention

LAW ENFORCEMENT CERTIFICATION
Students attend the Police Academy at Kalamazoo Valley Community College (KVCC). Preliminary screening is required. Students are required to take the courses during the last two semesters at WMU. See the advisor for further information.

Electives
To complete the required total of 33 hours, students may include any classes listed in another special area of concentration (with the exception of the Law Enforcement Certification), or the following:
BAS 300 Black Experience
FCL 380 Legal Environment
PSCI 202 State and Local Government (4)
PSCI 300 Urban Politics in United States
PSCI 333 Public Personnel Administration
SWRK 433 Dynamics of Race and Culture for Social Work Practice
SWRK 572 Community Agency Resources (2)
SOC 314 Ethnic Relations
SOC 320 Introduction to Social Psychology
SOC 495 Special Topics-Sociology (when applicable)
SOC 497 Juvenile Court Intervention Internship (with permission)
SOC 498 Criminal Justice Internship (with permission)
SOC 456 Social Stratification
SOC 598 Directed Independent Study (2-6 hours) with permission.

Note: All WMU classes are 3 credit hours unless otherwise noted.

CRIMINAL JUSTICE MINOR
A 18 hour-criminal justice minor is available, patterned after the major. Minor slips are required.

Required Core (12 hours)
SOC 200 Principles of Sociology or SOC 210 Modern Social Problems
SOC 260 Introduction to Criminal Justice
SOC 362 Criminology
SOC 466 Advanced Criminology

Two of the following are required.
SOC 363 Criminal Justice Process
SOC 364 Sociology of Law Enforcement
SOC 365 Correctional Process
SOC 454 Juvenile Delinquency

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 careers in human service organizations and can provide an excellent theoretical foundation for graduate work in applied fields such as social work, counseling, public administration, and criminology.

MAJOR REQUIREMENTS
SOC 200, 300, 350, 382, 383, and 456 are required. Three (9 hours) of the following electives are required: SOC 412, 421, 422, 479, and 520. Students must take at least three (3) hours of other electives within the sociology department with no more than one 100-level course included.

MINOR REQUIREMENTS
SOC 200, 210, and 320. Two (6 hours) of the following electives are required: SOC 412, 421, 422, 479, and 520. The student may include any other sociology course to complete the required eighteen (18) hours.

Sociology Courses (SOC)
(Courses described in italics are approved for General Education.)

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.
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, Minitab, plus introducing students to microcomputers. This course meets the University's computer literacy requirement.

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. Selected sociological concepts, theories, and research findings will be discussed. Required for sociology majors and minors.

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 vary with the instructor. Required for sociology minors.

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 disciplinary authority of officials who are engaged in the decision making roles.
required to process suspects from arrest to release.

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. Required for sociology majors. Prerequisite: SOC 200.

SOC 314 Ethnic Relations
3 hrs.
A study of race and ethnic relations, stressing a global perspective on social relations among defined peoples at different levels of development, and in different parts of the world.

SOC 320 Introduction to Social Psychology
3 hrs.
An introduction to social psychological theory and research, covering the interaction of individuals and the relationships of individuals to groups. Includes such topics as social influence, attitudes, socialization, and personality.

SOC 334 Pacific Rim — Asian Societies
3 hrs.
A sociological analysis of those Asian Pacific Rim societies (such as China, Japan, Taiwan, South Korea, and Singapore) in various stages of industrialization and modernization, with consideration of their influence on American society.

SOC 335 Modern Latin American Societies
3 hrs.
An introduction to contemporary Latin American societies focusing on their developmental problems and processes. Topics may include rural-urban migration, land reform, and governmental development policies in the urban industrial sector.

SOC 336 Modern Japanese Society
3 hrs.
An introduction to Japanese society, focusing upon current developments in the process of industrialization and urbanization. Examines the impact of these processes on Japanese populations, 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 criminals 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 an 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.

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, region, 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 375 Sociology of Work
3 hrs.
An introduction to the problems arising from employment, such as worker morale and productivity, and the integration of women, racial and ethnic minorities, and handicapped workers. The course also involves a survey of various attempts at solving these problems from unions and collective bargaining and other forms of worker participation to government manpower programs and other employment policies.

SOC 382 Methods of Sociological Inquiry I
3 hrs.
An introduction to the quantitative and qualitative methods of empirical research in the social sciences. Major topics include the logic of scientific inquiry, ethics, design, measurement, and an introduction to univariate and bivariate descriptive statistics. Computer-assisted projects and exercises are introduced in laboratory sessions. Required for sociology majors who are urged to take this course following SOC 200 and to develop the ability to evaluate research findings in subsequent content courses. Prerequisites: SOC 200 and SOC 182 or Computer Literacy Requirement.

SOC 383 Methods of Sociological Inquiry II
3 hrs.
A further consideration of the quantitative and qualitative methods of empirical research in the social sciences. Topics include experimental and survey designs, utilization of available statistics, evaluation procedures, statistical inference, association and non-parametric statistics, and an introduction to multivariate analysis. Computer-assisted projects and exercises are conducted in laboratory sessions. A continuation of SOC 382. Prerequisite: SOC 382.

SOC 390 Marriage and Family Relations
3 hrs.
A sociological analysis of the structural and interactional aspects of marriage and family groups in contemporary society, with emphasis on the American middle class. Consideration is given to change and diversity in family patterns, norms, and values, and to factors contributing to family unity or disorganization. Prerequisite: SOC 200.

SOC 402 Child Abuse
3 hrs.
This course is an examination of child abuse in American society. Medical, psychological, educational, psychiatric, legal, and treatment perspectives are combined in a social analysis. The origins, family context, nature, extent, and social consequences of child abuse are discussed. Currently practiced social and legal solutions are presented, as well as possible social change required to respond to this phenomenon.

SOC 421 Childhood Socialization
3 hrs.
An investigation of social development of the child from birth to adolescence. The course focuses 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 the adult world and adulthood. Prerequisite: SOC 320.

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 covered. When feasible, students visit community programs. Prerequisite: SOC 200.

SOC 456 Social Stratification
3 hrs.
An analysis of the nature, causes and consequence of class and status differences within societies. Stress is placed upon such concepts as mobility, class, status and differential power. Conflict and functional theories of stratification are treated. This class satisfies the Baccalaureate Writing Requirement for Sociology majors. Prerequisite: SOC 200.

SOC 457 Institutional Corrections
3 hrs.
This is a seminar in correctional treatment which focuses on modern means of intervention in closed custody (institutional) settings. Available methods currently utilized to improve the social functioning of the imprisoned lawbreaker will be reviewed. Specific attention is directed at such role functions as correctional diagnostician, correctional counselor, program administrator, institutional parole officer, correctional officer, training school teacher, etc. The impact of custody, classification, and prison programming will be examined in...
detail. Inadvertent products of total institutions on incarcerated inmates will be evaluated in terms of the inmate culture, privatization and leadership roles. This will be applied to all types of correctional institutions (juvenile and adult, men and women, misbehavior and felons). Visits to selected institutions will be arranged.

SOC 458 Non-institutional Treatment of Offenders 3 hrs.
This is a seminar in correctional treatment which focuses on modern means of intervention which emerge from local community resources directed at the improved social functioning of the identified lawbreaker. Specific attention is directed at the role functions relative to such correctional processes as probation, parole, half-way houses, community treatment centers and youth service facilities. Methods and techniques of service delivery to men and women, juveniles and adults, mistreated and felons will be analyzed. Visits to selected agencies will be arranged.

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. Personal and organizational factors that are associated with, or that determine offenders' passage through, the juvenile court are examined.

SOC 460 Interviewing-Investigation 3 hrs.
This course is designed to give Criminal Justice students knowledge of the basic methods and techniques necessary for conducting interviews and investigating criminal complaints. Topics covered include communication skills, non-verbal communication, interviewing techniques, written confession, interrogation law, and interviewing juveniles.

SOC 461 Criminal Justice Administration Issues 3 hrs.
This course provides an overview of current issues in Criminal Justice Administration, particularly the police, and identifies administrative practices that have particular impact on new police employees. Students will be expected to gain an understanding of the issues and potential solutions to administration problems.

SOC 465 Community Corrections 3 hrs.
This course reviews the role of corrections in communities and the impact community based programs, like half-way houses and work release, have on society and offenders. Organizational and management structures are reviewed and policy perspectives are discussed. Prerequisite: SOC 455.

SOC 466 Advanced Criminology 3 hrs.
This is the capstone course for the criminal justice major. The course examines the intersection of criminological theory, public policies on crime, and political ideology. A number of important crime control policies are analyzed. Students are asked to examine the empirical philosophy and theoretical ideas which underlie these policies, the research evidence on their effectiveness, and their political implications. This class satisfies the Baccalaureate Writing Requirement for Criminal Justice Majors.

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 includes the practical application of knowledge to contemporary issues facing police such as the use of deadly force, police performance, neighborhood patrols, politics of law enforcement, minority relations, victimless crime, and the resolution of police/community differences.

SOC 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 examined.

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 492 The Family as a Social Institution 3 hrs.
The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family institution and the relationship between the social structure of society and the family system. Emphasis is placed on change and comparative analysis. Prerequisite: SOC 200 or equivalent.

SOC 490 Social Context of Sexual Behavior 3 hrs.
This course focuses on a systematic analysis of contemporary social codes and behaviors in American society. Present-day beliefs and values are viewed in historical context (especially from 1900 to the present) to gain insight into issues of today, with the purpose of projecting what may be in the future. This sociological, historical, social psychological analysis examines current patterns of behavior and potential effects and consequences both for individuals and couples, and also for society. Prerequisite: SOC 200.

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 497 Juvenile Court Intervention Internship 3 hrs.
Supervised field experience in the juvenile court. Students attend seminars at the court and engage in supervisory case disposal as determined by the court, including interviews with clients, law enforcement personnel, and school authorities. Students make home visits, answer emergency calls, prepare reports, and attend court. Course is repeatable up to six credit hours.

Prerequisite: SOC 454 or 459 or consent of department. Approved application required.

SOC 498 Field Experience 2-8 hrs.
Structured as part of a specific departmental program and identified as such in the printed schedule when offered. 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 by advanced undergraduates. May be repeated for credit with a different topic.

500-level courses in the Department of Sociology are designed for a graduate student audience. Advanced undergraduates with at least 12 hours of prerequisites and junior class status will be accepted. Prerequisites must include SOC 200 or its equivalent in another related social science discipline, and two 300- or 400-level courses (i.e., one of each; or two of one). Exemptions for these may be granted in rare cases with the written approval of the director of the Undergraduate Studies Program.

SOC 500 Computer Application in Social Research 3 hrs.
An introduction to computer applications for graduate students in the social sciences. Since they all have utility in the research process, the full range of applications will be covered, including: word processing, spreadsheets, graphics, data base management, communications, and statistical processing. A hands-on course, it includes individual assignments relating to each of the application areas. Special attention will be paid to the use of SPSS (The Statistical package for the Social Sciences) in the analysis of quantitative data. Several assignments will relate to the use of this software package. Primarily for graduate students in the social and behavioral sciences with no special mathematical or computer experience. Undergraduates admitted only with the permission of instructor.

SOC 501 Social Systems Theory and Analysis 3 hrs.
An investigation and critique of social systems theory, general systems analysis, and specific systems analysis techniques which have been used in social organizations. Each student will be required to conduct a systems analysis during the course. Prerequisite: SOC 200.

An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 210.

SOC 515 Sociology of Mental Disorder 3 hrs.
An introduction to computer applications for graduate students in the social sciences. Since they all have utility in the research process, the full range of applications will be covered, including: word processing, spreadsheets, graphics, data base management, communications, and statistical processing. A hands-on course, it includes individual assignments relating to each of the application areas. Special attention will be paid to the use of SPSS (The Statistical package for the Social Sciences) in the analysis of quantitative data. Several assignments will relate to the use of this software package. Primarily for graduate students in the social and behavioral sciences with no special mathematical or computer experience. Undergraduates admitted only with the permission of instructor.

An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 210.

SOC 515 Sociology of Mental Disorder 3 hrs.
help-seeking for mental disorder, and sociological analysis of psychotherapy. Prerequisite: SOC 200.

SOC 520 Studies in Social Psychology: Variable Topics 3 hrs. Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: SOC 320.

SOC 531 Studies in Social Change: Designated Areas 3 hrs. Analysis of social change in specific geographic or national areas designated in the course title as scheduled. Change is examined through perspectives from history, anthropology, and sociology. May be repeated for credit with a different area. Prerequisite: SOC 200.

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 552 Sociology of Aging 3 hrs. An examination of the process of aging in American society, with particular emphasis on the periods of late maturity and old age. Consideration will be given to theories of aging and the social implications of age grading, the meaning of work and retirement, and the status and roles of the aged. Prerequisite: 6 hours of sociology including SOC 200.

SOC 560 Corporate and Governmental Crime 3 hrs. An examination of the crimes committed by business corporations and government agencies. The course describes the nature, extent, and costs of these organizational crimes, explains the structural and organizational force which give rise to such crimes and analyzes the problem of controlling organizational offenders. The course also examines the political process whereby corporations and governments come to be defined as deviant of criminal. Prerequisite: SOC 200 or 210, SOC 260, and SOC 362, and one other upper level (300- or 400-level) course.

SOC 561 Violence and the Violent Offender 3 hrs. This course analyzes the nature and pattern of violence. It looks at the social, cultural, and individual factors that increase the probabilities of violent behavior. Assault, murder, rape, robbery, mass murder, domestic violence, and war will be analyzed from cross-cultural perspectives. Causes, processes, and prevention will be discussed. Prerequisite: SOC 200 or 210, SOC 260, and SOC 362, and one other upper level (300- or 400-level) course.

SOC 562 Victology 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. Prerequisite, SOC 200 or 210, SOC 260, and SOC 362, and one other upper level (300- or 400-level) course.

SOC 570 Studies in Social Institutions: Variable Topics 1-4 hrs. An examination of a selected topic in the area of social organization or institutions. The focus of the course will be substantive, but theoretical and methodological concerns will also be covered. Possible topics could include work and leisure, occupations and professions, sociology of science, mass society, macro-sociology, arts, and others. May be repeated for credit with a different topic. Prerequisite: SOC 200 or equivalent.

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 or equivalent.

SOC 578 Sociology of Law 3 hrs. An examination of legal organization, 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 581 Logic and Analysis of Social Research I 3 hrs. This course is designed to provide thorough grounding in basic univariate and bivariate descriptive and inferential statistics for social sciences. Prerequisite: graduate standing or SOC 382 and 383.

SOC 585 Research Methodology: Variable Topics 1-4 hrs. This course concentrates on specialized research techniques and topics such as sampling and survey design, interviewing, and the use of sociological computer software. It may be repeated for credit with a different topic. Prerequisite: Consent of department.

SOC 592 Family Life Education and Counseling 3 hrs. Provides the student with working knowledge of the methods and materials appropriate in the school, the church and other social situations, for working with individuals and small groups who desire preparation for marriage and parenthood. Some attention will be given to the techniques for handling counseling opportunities arising out of these teaching situations. Prerequisite: SOC 200.

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 upon the merit of the proposal. Two or three hours credit per semester, cumulative to six hours. Enrollment beyond the first semester may be either for the same topic or for a new topic. Prerequisite: Consent of instructor and the department chairperson.
The function of the professional Haworth College of Business is to prepare capable men and women for responsible positions in business, industry, and public service. Three major areas of education are involved in the development process. They are:

1. A foundation of liberal arts and sciences in full recognition that as a future leader in the business and industrial world, the student will need a solid understanding of his/her relationships to social, economic, political, and cultural trends.

2. The presentation of a core curriculum that complements a thorough grounding in the fundamentals through which our free enterprise economic system operates. These fundamentals are met through business core subjects such as accounting, statistics, law, finance, marketing, management, and communications.

3. An opportunity for specialization in various aspects of business activity.

Continuing opportunities are made available to resident students to participate in campus meetings with business, industrial, and public service leaders, as well as outstanding professionals from various disciplines. In addition, business firm visitations, as well as business internships, give ample opportunity for the student to relate to his/her future role. Western’s Placement Office is visited by the major firms that are engaged in recruiting activities.

The four main programs in the Haworth College of Business are:

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 intensive preparation for a professional accounting career
4. Master of Science in Business for students desiring intensive preparation for professional careers in Business.

**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.

**John E. Fetzer Business Development Center**

The John E. Fetzer Business Development Center provides a wide variety of services for business, industry, governmental, charitable, and educational organizations. Programs range from management and executive development seminars presented in the Center by Western’s Haworth College of Business faculty and outside consultants through in-house tailored sessions for specific organizations. Programs are also offered in locations throughout the region. In addition, the Fetzer Center provides an array of meeting, conference, training, and special event facilities for local, regional, and state organizations. The building features a 250-seat United Nations-style auditorium, a large comfortable lecture hall, numerous seminar rooms, a computer simulation laboratory, and banquet facilities. The opening of the Fetzer Center building in 1983 has enabled the Haworth College of Business to interact more effectively with regional business organizations.

**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 two areas, scholarly publications, and practitioner seminars and workshops, and (5) foster and build interdisciplinary work among faculty and between colleges at the University.

**Business Administration Curriculum (BBA Degree)**

I. Pre-Business Curriculum

Any entering or transfer student planning to pursue business administration as a curriculum will be admitted to a pre-business curriculum and will work with a business advisor in the development of a planned program.

The pre-business curriculum requirements are:

1. Completion of a minimum of 60 semester hours.
2. An acceptable overall grade point average (minimum of 2.50).
3. Minimum grade of "C" in the following pre-business courses or approved alternatives:

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**John E. Fetzer Business Development Center**

The John E. Fetzer Business Development Center provides a wide variety of services for business, industry, governmental, charitable, and educational organizations. Programs range from management and executive development seminars presented in the Center by Western’s Haworth College of Business faculty and outside consultants through in-house tailored sessions for specific organizations. Programs are also offered in locations throughout the region. In addition, the Fetzer Center provides an array of meeting, conference, training, and special event facilities for local, regional, and state organizations. The building features a 250-seat United Nations-style auditorium, a large comfortable lecture hall, numerous seminar rooms, a computer simulation laboratory, and banquet facilities. The opening of the Fetzer Center building in 1983 has enabled the Haworth College of Business to interact more effectively with regional business organizations.

**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 two areas, scholarly publications, and practitioner seminars and workshops, and (5) foster and build interdisciplinary work among faculty and between colleges at the University.

**Business Administration Curriculum (BBA Degree)**

I. Pre-Business Curriculum

Any entering or transfer student planning to pursue business administration as a curriculum will be admitted to a pre-business curriculum and will work with a business advisor in the development of a planned program.

The pre-business curriculum requirements are:

1. Completion of a minimum of 60 semester hours.
2. An acceptable overall grade point average (minimum of 2.50).
3. Minimum grade of "C" in the following pre-business courses or approved alternatives:
II. 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, physical education and the first two years of study as outlined in the pre-business curriculum, students must complete the following.

1. Upper Class Requirements:
   A. BIS 340 Principles of Business Communication 3 hrs.
   B. BIS 350 Management Information Systems 3 hrs.
   C. FCL 320 Business Finance 3 hrs.
   D. FCL 380 Legal Environment 3 hrs.
   E. MGMT 300 Fundamentals of Management 3 hrs.
   F. MGMT 463 Production and Operations Management 3 hrs.
   G. MKTG 370 Marketing 3 hrs.
   H. Advanced Quantitative 3 hrs.

(choose one: BIS 464, FCL 420, ECON 400, MGMT 360, MKTG 471)

I. Advanced ECON 3 hrs.

J. MGMT 499 Strategic Management 3 hrs.
   (This capstone course must be taken during a student’s final semester/session)

A “C” average grade point is required in the upper-level core courses outlined above.

2. Major courses (minimum) 21 hrs.
   A “C” average grade point is required in all courses applied toward a major.

3. General Education/ Electives
   A. General Education Distribution Program: Area I Humanities and Fine Arts 6 hours, Area III Natural Science, 3 hours
   B. Physical Education, 2 hours
   C. Non-business electives, 22 hours

4. Additional hours will be taken in the following areas during the 60 semester hours:
   A. General Education Distribution Program: Area I Humanities and Fine Arts, 6 hours, Area III Natural Science, 3 hours
   B. Physical Education, 2 hours
   C. Non-business electives, 22 hours

After completion of not less than 45 semester hours of work, application for admission to the professional business administration curriculum must be made by native students. Admission application 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 listed above will apply.

Equivalent transfer work must be credited to the same areas listed above.

Students not meeting admission requirements will be informed of the steps they can take to earn admission. Admission of students on a probationary basis to the professional business administration curriculum will be considered on an individual basis and include an examination of ACT test results in addition to a personal interview.

All students will receive academic advising from the Haworth College of Business during their first two years on an appointment basis. After admission to the Haworth College, students will be assigned to a specific advisor in the Academic Advising Office. After a choice of major has been made, students will also be assigned an advisor in that particular area.

Students following non-business curricula within the University beyond their sophomore year may request that they could have difficulty graduating with a BBA degree in a four-year span.

Areas of Concentration In Business Administration

To graduate with any major from the Haworth College of Business, it is necessary to be enrolled in the Bachelor of Business Administration curriculum.

Accountancy (ACTY)

MAJOR REQUIREMENTS

The accountancy program has a core of courses to be taken by all majors. The core consists of the following required courses:

ACTY 210, 211, Principles of Accounting

ACTY 310, 311, Financial Accounting

ACTY 313 Accounting Information Systems

ACTY 322 Managerial Accounting

ACTY 324 Income Tax Accounting

ACTY 516 Auditing

The additional courses to complete the accountancy major are to be selected from options 1 through 3 described below.

Courses may be selected as the student chooses within the guidelines of the University and the Haworth College of Business but a student must complete the requirements for an accounting major by selecting from only one of the options listed below.

Each option requires a minimum of 33 credit hours. A student meeting the requirements with less than 33 credit hours should select from the following courses to reach that minimum:

ACTY 511 Advanced Accounting

ACTY 513 Advanced Accounting Systems

ACTY 514 Institutional Accounting

ACTY 518 Accounting Theory and Problems

ACTY 522 Cost Accounting—Theory and Practice

ACTY 524 Studies in Tax Accounting

Option 1 (33 hours)

A student may take the following courses to complete the accountancy major:

Accounting Core

One of the following 3 hrs.

MGMT 464 Production and Control

IE 326 Operations Planning and Control

Both of the following

IE 328 Quality Assurance and Control

ACTY 522 Cost Accounting—Theory and Practice

All of the prerequisites for IE 326 and IE 328 must be met.

Option 2 (33-42 hours)

A student may take the following courses to complete the accountancy major:

Accounting Core

One of the following 3 hrs.

MGMT 464 Production and Control

IE 326 Operations Planning and Control

Both of the following

IE 328 Quality Assurance and Control

ACTY 522 Cost Accounting—Theory and Practice

Plus one of the following 9-18

ACTY 511 Advanced Accounting

ACTY 513 Advanced Accounting Systems

ACTY 514 Institutional Accounting

ACTY 518 Accounting Theory and Problems

ACTY 522 Cost Accounting—Theory and Practice
A General Options Minor in Computer Science or
• A sequence of courses terminating with one of the following courses:
  BIS 462 Applied CIS Development Project
  BIS 464 Decision Support and Expert Systems
  CS 543 Principles of Data Base Management
  CS 555 Computer Networks and Distributed Systems

All of the Computer Science sequences require specific courses as prerequisites. A student may need to take additional credit hours to meet those prerequisites.

Minor Requirements: Students wishing to minor in accounting are required to take a minimum of 21 hours. Fifteen of these hours must be in accounting. ACTY 210, ACTY 211 are required. Plus 9 additional credit hours for which the student meets the prerequisites to be selected with the student’s professional objectives in mind. The remaining 6 hours must be selected from the following: FCL 320 and 380, MGMT 300, and MKTG 370.

Qualifications for Accounting Certification Exams: A graduate from the Haworth College of Business with a major in Accountancy will be qualified to take many of the professional certification exams. Since the qualifying rules differ by state and are subject to change, the student is responsible for determining if additional criteria need to be met for a specific exam or state.

Advisors: Report to the Department of Accountancy, 3190 Haworth College of Business Building, for assignment to an advisor.

Transfer Credits: Up to 6 hours of elementary accounting may be accepted from other than a four-year accredited school. All majors must take a minimum of 12 hours of accounting courses at WMU.

Business Information Systems (BIS)
The Department of Business Information Systems offers three undergraduate major areas of concentration as shown below. The courses are to be taken in the sequence indicated, following prerequisites as listed after the catalog course descriptions.

1. ADMINISTRATIVE SYSTEMS (ADS) 27 hours
  BIS 102 Introduction to Information Processing 3
  BIS 260 Microcomputer Business Applications 3
  BIS 386 Advanced Office Systems 3
  BIS 388 Records Management 3
  Plus 6 hours, as advised, from 6
  BIS 360 Information Systems Analysis and Design
  BIS 456 Office Management
  BIS 484 Micrographics and Graphics
  BIS 486 Corporate Records Centers
  Plus 9 hours, as advised, from 9
  BIS 261 COBOL Programming
  BIS 264 Report Program Generator
  BIS 342 Organizational Communication
  BIS 343 Report Writing
  BIS 410 Internship in Administrative Systems
  BIS 458 Topics in Administrative Systems
  BIS 596 Independent Study in Administrative Systems
  BIS 598 Readings in Administrative Systems

2. BUSINESS COMMUNICATION (BCM) 598 Hours
  Major Requirements (27 hours)
  BIS 340 Principles of Business Communication 3
  BIS 342 Organizational Communication 3
  BIS 343 Report Writing 3
  BIS 344 Business Communication Problems and Practices 3
  BIS 442 Senior Seminar in Business Communication 3
  BIS 454 Intercultural Business Communication 3
  BIS 480 Business Communication Technology 3
  Plus 6 hours, as advised from 9
  BIS 360 Information Systems Analysis and Design
  BIS 386 Advanced Office Systems
  BIS 400 Topics in Business Communication
  BIS 410 Internship in Business Communication
  BIS 456 Office Management
  BIS 483 Business Publications and Presentations
  BIS 596 Independent Study in Business Communication
  BIS 598 Independent Readings in Business Communication

Minor Requirements (21 hours)
  BIS 340 Principles of Business Communication 3
  BIS 342 Organizational Communication 3
  BIS 343 Report Writing 3
  BIS 442 Senior Seminar in Business Communication 3
  Plus 9 hours, as advised from 9
  BIS 344 Business Communication Problems and Practices 3
  BIS 454 Intercultural Business Communication 3
  BIS 480 Business Communication Technology 3
  BIS 483 Business Publications and Presentations 3
  BIS 596 Independent Study in Business Communication 3
  BIS 598 Independent Readings in Business Communication

May include 6 additional credit hours selected from among the following (non-business majors must include
ACTY 210) 6

ACTY 210 Principles of Accountancy I 3
  BIS 350 Management Information Systems
  FCL 380 Legal Environment
  MGMT 300 Fundamentals of Management
  MKTG 370 Marketing

3. COMPUTER INFORMATION SYSTEMS (CIS) 30 hours
  BIS 260 Microcomputer Business Applications 3
  BIS 261 COBOL Programming 3
  BIS 360 Information Systems Analysis and Design 3
  BIS 362 Advanced COBOL Programming
  BIS 467 Applied CIS Development 3
  CS 443 Data Base Management Systems
  Plus 9 hours, as advised, from 9
  CS 223 Computer Organization
  BIS 264 Report Program Generator
  BIS 396 Advanced Office Systems

BIS 410 Internship in CIS
BIS 464 Decision Support and Expert Systems
BIS 465 Trends in Information Systems
BIS 466 Distributed Data Processing
BIS 474 Information Resource Management
BIS 555 Topics in Computer Information Systems
BIS 596 Independent Study in Business Information Systems
BIS 598 Independent Readings in Computer Information Systems

BUSINESS EDUCATION MINOR
This program is not currently accepting applications. Students not majoring in business education may elect a 20-hour business education minor in General Business or Accounting and Related Business Subjects. A minimum of 15 hours must be taken in the Haworth College of Business. The minors must include either VE 342 or VE 344. These courses may not be taken by correspondence.

A. General Business Teaching Minor
   BIS 102 Introduction to Information Processing 3
   BIS 182 Keyboarding 2
   ACTY 210 Principles of Accounting 3
   ACTY 211 Principles of Accounting 3
   ACTY 310 Financial Accounting 1
   OR
   ACTY 322 Managerial Accounting 3
   OR
   ACTY 324 Income Tax Accounting 3
   BIS 260 Programming and Applications with Microcomputers 3
   BIS 261 COBOL Programming 3
   BIS 264 Report Program Generator 3
   OR
   CS 111 Computer Programming I

Finance and Commercial Law (FCL)
The Finance and Commercial Law Department offers majors in general business, insurance, finance, and real estate and minors in general business, finance, law, insurance, and real estate.

1. FINANCE AND COMMERCIAL LAW MAJORS
Option 1. Finance Major (FIN)
Advisors: Report to department office, 3390 Haworth College of Business Building, 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 complete FCL 342 as their upper class advanced quantitative course plus 21 hours of finance course study. Six of the 21 hours shall consist of FCL 310 and FCL 351. The remaining fifteen shall be selected in consultation with an advisor from the finance faculty.

Proper sequencing of advanced courses allows a student in finance to study corporate
financial management, securities and investment management, financial markets and institutions, insurance, and real estate.

Option 2: General Business Major (GBS)
Advisors: Report to department office, 3290 Haworth College of Business Building, for assignment to an advisor.

In addition to the upper class requirements of MGMT 300 and 499, FCL 320 and 360, and MKTG 370 and an upper level quantitative class, a student may elect a logical sequence of seven advanced business courses at or above the 300 level. At least three of the seven courses must be from the Finance and Commercial Law Department and no more than three may be from any one area of study. A student majoring in general business may not minor in general business option 2.

Option 3: Insurance Minor (INS)
Advisor: Kennedy

In addition to completion of the curriculum requirements for all students pursuing the Bachelor of Business Administration degree, for which FCL 320 is required, all insurance majors must complete FCL 342 as their upper class advanced quantitative course plus 21 hours of finance, insurance, and law courses. Of the 21 hours, 12 are required, as shown below:

- FCL 360 Risk and Insurance
- FCL 361 Life and Health Insurance
- FCL 362 Property and Liability Insurance
- FCL 480 Tort Law and Liability

The additional nine hours are to be selected in consultation with an advisor.

Option 4: Real Estate Major (REA)
Advisor: Scheu

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 real estate majors must complete FCL 342 as their upper class advanced quantitative course plus 21 hours of finance and commercial law course study. Of the 21 hours, the following nine hours are required:

- FCL 330 Real Estate Fundamentals
- FCL 331 Real Estate Finance
- FCL 332 Real Estate Investments

The remaining 12 hours are to be at the 300 level or above and are to be selected in consultation with an advisor.

2. FINANCE AND COMMERCIAL LAW MINORS

Option 1: Finance Minor (FIN)
Advisors: Finance Area Faculty

Students wishing to minor in finance are required to take 21 hours. Of the 21 hours, 12 hours are required (3 in accounting and 9 in finance) and 9 are elective finance courses as shown below:

- ACTY 210 Principles of Accounting
- FCL 310 Introduction to Financial Markets
- FCL 320 Business Finance
- FCL 351 Investment Analysis

Nine (9) additional hours from available finance courses at the 300 level or above selected in consultation with an advisor and with the student’s professional objectives in mind.

Option 2: General Business Minor (GBS)
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 21 hours or approved substitute business courses:

- ACTY 210 and 211 Principles of Accounting
- FCL 330 Business Finance
- FCL 330 Business Finance
- FCL 331 Real Estate Fundamentals
- MKTG 370 Marketing

Management (MGMT)
Advisors: Report to the Department of Management, 3390 Haworth College of Business Building, for assignment to an advisor.

MAJOR IN MANAGEMENT (24 hours)
A major in management consists of the three courses listed below plus fifteen hours of additional work. Such courses may be drawn from all Department of Management offerings above 302, except 360, 463, and 499. A student who needs to build a special program is required to do so in consultation with a departmental advisor.

- MGMT 300 Fundamentals of Management
- MGMT 301 Management Analysis and Behavior (I)
- MGMT 302 Management Analysis and Behavior (II)

Concentration in General Management
In addition to the requirements of the management major, the student must complete MGMT 314 Small Business Ownership and Management, MGMT 414 Entrepreneurship, MGMT 352 Personnel Management, and two electives from management courses approved by a departmental advisor.

Concentration in Human Resource Management
In addition to the requirements of the management major, the student must complete MGMT 460 Decision Analysis, MGMT 464 Production Management and Control, MGMT 470 Production/Operations Simulation or MGMT 480 Materials Management Strategy, and one elective from management courses approved by a departmental advisor.

Concentration in Production/Operations Management
In addition to the requirements of the management major, the student must complete MGMT 460 Decision Analysis, MGMT 464 Production Management and Control, MGMT 470 Production/Operations Simulation or MGMT 480 Materials Management Strategy, and one elective from management courses approved by a departmental advisor.

MINOR IN MANAGEMENT (21 hours)
The minor in management requires twenty-one credit hours consisting of the following courses:

- MGMT 300 Fundamentals of Management
- MGMT 301 Management Analysis and Behavior (I)
- MGMT 302 Management Analysis and Behavior (II)
- Electives from the Management Department approved by a Departmental advisor

Two additional courses selected from among the following:

- ACTY 210 Principles of Accounting (required of Non-BBA majors)
- FCL 320 Business Finance
- FCL 330 Business Finance
- MKTG 370 Marketing
Marketing (MKTG)

The Marketing Department offers five major areas of concentration as shown below. Course prerequisites are listed after the course descriptions.

1. ADVERTISING AND PROMOTION (ADV)

27 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

Required Courses (18 hours)

1. Biomedical Sciences
2. Chemistry
3. Computer Science
4. Manufacturing Technology

4. MARKETING (MKT)

27 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

Required courses (18 hours)

Selected three courses from the following electives (9 hours)

MKTG 470 Industrial Marketing 3
MKTG 471 Quantitative Marketing 3
MKTG 474 Advertising Copy and Layout 3
MKTG 475 International Marketing 3
MKTG 476 Retail Management 3
MKTG 480 Franchising 3
MKTG 484 Business Logistics 3

5. RETAILING (RET)

27 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

Required courses (18 hours)

MKTG 370 Professional Selling 3
MKTG 371 Marketing Research 3
MKTG 372 Purchasing Management 3
MKTG 375 Principles of Retailing 3
MKTG 376 Sales Administration 3
MKTG 377 Sales Promotion 3
MKTG 470 Industrial Marketing 3
MKTG 473 Direct Marketing 3
MKTG 477 Consumer Behavior 3
MKTG 480 Franchising 3
MKTG 484 Business Logistics 3

Electives—Select three courses (9 hours)

MKTG 474 Advertising Copy and Layout
MKTG 475 International Marketing
MKTG 487 Advertising Theory and Ethics

2. FOOD MARKETING (FMK)

29-31 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

Required Courses (26-28 hours)

1. ADVERTISING AND PROMOTION (ADV)

2. FOODMARKETING (FMK)

3. INDUSTRIAL MARKETING (IDM)

27 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

Required courses (24 hours)

3. PUBLIC ADMINISTRATION (PAB)

Advisor: McCoy

Major Requirements: 24 hours
In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, complete the following:

EE 101 Fundamentals of Electronics and Machines 3
ET 142 Engineering Graphics 3
ET 487 Manufacturing Productivity Techniques 3
FCL 486 Marketing and Sales Law 3
ME 220 Manufacturing Productivity 3
MGMT 464 Production Management and Control 3
MGMT 480 Materials Management Strategies 3
MGMT 481 Integrated Materials Systems 3
MKTG 372 Purchasing Management 3
MKTG 484 Business Logistics 3
MKTG 485 Materials Systems Analysis 3

2. INTEGRATED SUPPLY MANAGEMENT (ISM)

37 hours
In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, complete the following:

MKTG 486 Marketing Strategy 3

Select two courses from the following (6 hours)

ACTY 210 Principles of Accounting 3
ACTY 211 Principles of Accounting 3
FCL 330 Business Finance 3
MATH 216 Business Statistics 3

Any deviations from the course requirements must have written approval of the department chairperson.

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 40 percent of their coursework in business and upper division economics courses, in addition to the 40 percent in non-business requirement.

1. ECONOMICS (ECO)

Advisor: Caruso

Elect an additional 21 semester hours of advanced courses (300-500 level) from the Department of Economics.

2. INTEGRATED SUPPLY MANAGEMENT (ISM)

37 hours
In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, complete the following:

EE 101 Fundamentals of Electronics and Machines 3
ET 142 Engineering Graphics 3
ET 487 Manufacturing Productivity Techniques 3
FCL 486 Marketing and Sales Law 3
ME 220 Manufacturing Productivity 3
MGMT 464 Production Management and Control 3
MGMT 480 Materials Management Strategies 3
MGMT 481 Integrated Materials Systems 3
MKTG 372 Purchasing Management 3
MKTG 484 Business Logistics 3
MKTG 485 Materials Systems Analysis 3

3. PUBLIC ADMINISTRATION (PAB)

Advisor: McCoy

Major Requirements: 24 hours
In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, complete the following:

FCL 330 Business Finance 3

Elective Courses—Select seven (7) courses

FCL 330 Business Finance 3

Select seven (7) courses

Elective Courses—Select seven (7) courses

FCL 330 Business Finance 3

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MKTG 486 Marketing Strategy 3

Select two courses from the following (6 hours)

ACTY 210 Principles of Accounting 3
ACTY 211 Principles of Accounting 3
FCL 330 Business Finance 3
MATH 216 Business Statistics 3

Any deviations from the course requirements must have written approval of the department chairperson.

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 40 percent of their coursework in business and upper division economics courses, in addition to the 40 percent in non-business requirement.

1. ECONOMICS (ECO)

Advisor: Caruso

Elect an additional 21 semester hours of advanced courses (300-500 level) from the Department of Economics.

2. INTEGRATED SUPPLY MANAGEMENT (ISM)

37 hours
In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, complete the following:

EE 101 Fundamentals of Electronics and Machines 3
ET 142 Engineering Graphics 3
ET 487 Manufacturing Productivity Techniques 3
FCL 486 Marketing and Sales Law 3
ME 220 Manufacturing Productivity 3
MGMT 464 Production Management and Control 3
MGMT 480 Materials Management Strategies 3
MGMT 481 Integrated Materials Systems 3
MKTG 372 Purchasing Management 3
MKTG 484 Business Logistics 3
MKTG 485 Materials Systems Analysis 3

3. PUBLIC ADMINISTRATION (PAB)

Advisor: McCoy

Major Requirements: 24 hours
In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, complete the following:

FCL 330 Business Finance 3

Elective Courses—Select seven (7) courses

FCL 330 Business Finance 3

Select seven (7) courses

Elective Courses—Select seven (7) courses

FCL 330 Business Finance 3

AREAS OF CONCENTRATION 159

MKTG 486 Marketing Strategy 3

Select two courses from the following (6 hours)

ACTY 210 Principles of Accounting 3
ACTY 211 Principles of Accounting 3
FCL 330 Business Finance 3
MATH 216 Business Statistics 3

Any deviations from the course requirements must have written approval of the department chairperson.

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 40 percent of their coursework in business and upper division economics courses, in addition to the 40 percent in non-business requirement.
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 U.S. 3
PSCI 531 Administration in Local and National Governments 3
PSCI 534 Administrative Theory 3
PSCI 591 Statistics for Political Science 3

4. STATISTICS (STB) 40-41 hours
Advisor: Sievers
The following courses from the Department of Mathematics plus one business elective comprise the major in statistics. All students electing the statistics option must make sure they meet the minimum requirement of 40 percent of their coursework in statistics 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 3
MATH 272 Vector and Multivariate Calculus 4
MATH 364 Statistical Methods 4
MATH 365 Probability 3
MATH 460 Intro. to Mathematical Statistics 3
MATH 506 Scientific Programming 3

Two of MATH
MATH 563 Sample Survey Methods 3
MATH 566 Nonparametric Statistical Methods 3
MATH 567 Statistical Design and Analysis of Experiments 4
MATH 568 Regression Analysis 4

Elective (one upper-level business course emphasizing statistical applications) 3

Related Minor

1. INTERNATIONAL BUSINESS MINOR (INT) 21 hours
Two courses from the following list 6
FCL 320 Business Finance (Prereq: MATH 216 and ACTY 210) 3
FCL 380 Legal Environment 3
BIS 340 Principles of Business Communications (Prereq: BIS 102) 3

Four courses from the following list 12
FCL 442 International Finance (Prereq: FCL 320) 3
FCL 484 International Business Law (Prereq: FCL 380) 3
FCL 494 International Business Seminar 3
MGMT 410 Multinational Management 3
MGKT 475 International Marketing (Prereq: MKGT 370) 3
ECON 480 International Economics (Prereq: ECON 211-212) 3

One course from one of the following areas chosen in consultation with minor advisor 3

1. Foreign language course: must be at second semester of first year or higher.

2. Cultural and regional study: available only for students otherwise meeting foreign language requirement.

3. Skill specialization: available only for students otherwise meeting foreign language and cultural/regional area study requirement.

Haworth College of Business Courses (BUS)
(Courses described in italics are approved for General Education.)
BUS 399 Field Experience (Community Participation) 2-8 hrs.
A program of independent study combining academic work with social, environmental, civic or political field work. Prerequisites: A written outline of the student’s project, approved by a faculty supervisor, and approval from the office of the dean.

BUS 594 International Business Seminar 1-6 hrs.
A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers and business executives. The seminar introduces participants to a firsthand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar.

Students may receive six hours credit in any combination of departments, as described, provided the seminar is planned with that combination in mind. No student will receive credit under the course plan indicated here for work done in seminars planned and conducted by other institutions or for work done independent of seminars planned by the Haworth College of Business.

ACCOUNTANCY
Richard L. Hodges, Interim Chair
Alan I. Blankley
Hans J. Dykhoorn
J. Patrick Forrest
Debra A. Bullis Fransson
Charles E. Hines, Jr.
Jerry G. Kreuze
Sheldon A. Langsgaard
William C. Morris
Gail E. Newell
David Rozelle
Jack M. Ruhl
F.W. Schaeberle
Kathielen E. Sinning
Roger Y. Tang
William R. Welke

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 201 Accounting Concepts and Applications 3 hrs.
A study of the fundamental concepts and applications of accounting. Especially designed for the non-business student. This course does not serve as a prerequisite for any other accounting course and cannot be used for a major or minor in business. Not open to students with credit in accounting.

ACTY 210 Principles of Accounting 3 hrs.
An introductory course in accounting which includes the recording and reporting of business transactions, and the measuring, planning, and controlling of business income, assets and equities.

ACTY 211 Principles of Accounting 3 hrs.
A continuation of course 210 with emphasis on managerial and accounting concepts. Prerequisite: 210.

ACTY 310 Financial Accounting I 3 hrs.
This course reviews the accounting cycle, related accounting records and theory. Accounting principles and reporting requirements for current assets, plant and equipment, intangibles, and other assets are also studied. Prerequisite: 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 generally included are the study of the Statement of Changes in Financial Position, the recording and reporting of accounting changes, the analysis of financial statements, and the study of statements adjusted for inflation. Prerequisite: 310

ACTY 313 Accounting Information Systems 3 hrs.
A study of concepts, organization, technology, and controls of an accounting information system. Includes a study of specific application (payroll, accounts receivable, etc.), with particular emphasis on data input, processing, and output utilizing the computer. 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 variances analysis, incremental analysis, cost and profit analysis, relevant costing, and product costing concepts and practices. Prerequisite: 211.

ACTY 324 Income Tax Accounting
3 hrs.
A study of the federal tax laws as they apply to individuals, partnerships, and corporations. While the course is primarily organized around the individual taxpayer, particular emphasis is given to the concepts that apply to all reporting entities. Prerequisite: 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 potential employers. Students are required to write a final report. Each employer will provide an evaluation of the student. 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.

ACTY 411 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, fund accounting, accounting by agencies and branches, business combinations, reporting by parent-subsidiary consolidated entities (including foreign subsidiaries). Prerequisite: 311.

ACTY 414 Institutional Accounting
3 hrs.
A comprehensive study of the recording of transactions by government units and the preparation of financial statements by fund entities. City government is the basic unit of study; however, school districts, universities, and hospitals are given brief coverage to illustrate the similarity in accounting for all not-for-profit entities. Prerequisite: 211.

ACTY 416 Auditing
3 hrs.
The theory and practice of auditing business enterprises and government agencies. Topics include a review of professional pronouncements, internal control concepts, ethics, and a discussion of audit objectives. Prerequisite: 311 and 313.

ACTY 418 Accounting Theory and Problems
3 hrs.
A study of financial accounting theory and practice. The course is organized around pronouncements of the Financial Accounting Standards Board and other authoritative bodies. Case studies are used to illustrate application of the concepts of such pronouncements. Prerequisite: Senior accounting major.

ACTY 421 Cost Accounting Concepts
3 hrs.
A study of the accounting methodology and concepts that have been developed to account for both products and period costs of a business enterprise. Includes product costing for job order and continuous process situations with related systems concepts, cost allocations among departments of an enterprise, joint and by-product costing, and standard costing as it relates to inventory pricing. Prerequisite: ACTY 322.

ACTY 423 Studies in Tax Accounting
3 hrs.
Special studies related to tax problems of individuals, partnerships, and corporations. Emphasis is on federal taxation of corporations, trusts and estates. Prerequisite: ACTY 324 or equivalent.

ACTY 598 Readings in Accounting
1-4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

ACTY 524 Studies in Tax Accounting
3 hrs.
Special studies related to tax problems of individuals, partnerships, and corporations. Emphasis is on federal taxation of corporations, trusts and estates. Prerequisite: ACTY 324 or equivalent.

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

Joel P. Bowman, Chair
Kuriakose Athappilly
Benedine P. Branchaw
Cherakal Chacko
Earl E. Halvas
L. Michael Moskowis
Pamela S. Rooney
Roberta Supnick
Hung-Lian Tang
Andrew S. Targowski
Judy A. Yeager
Bee K. Yew

The Department of Business Information Systems offers three undergraduate programs of study: (1) Administrative Systems (ADS), (2) Business Communication (BCM), and (3) Computer Information Systems (CIS).

Business Information Systems Courses (BIS)

(Courses described in italics are approved for General Education.)

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. (Credit/No Credit)

BIS 102 Introduction to Information Processing 3 hrs.
An introductory survey of the needs for and roles of computer information systems within business organizations which will prepare students to be relatively sophisticated computer users. Emphasis is on (1) management information systems (MIS) including a focus on information management and information processing, (2) microcomputer applications, and (3) the development of elementary level programs in BASIC language. A student may not receive credit for both BIS 102 and CS 105.

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 182 Keyboarding 2 hrs.
To provide basic touch keyboarding skill to input to typewriters and computers efficiently. To develop speed and accuracy on the alphabetic, numeric, and symbol keys.

BIS 183 Formatting 2 hrs.
An opportunity to build keyboarding speed and to learn to format common business information such as letters, memos, reports, and tabular material. Prerequisite: BIS 102.

BIS 260 Microcomputer Business Applications 3 hrs.
A study of the role of microcomputers in business. Through hands-on exposure to small systems, students learn about microcomputer hardware configurations, business software application packages, and advanced BASIC programming techniques, especially file creation and manipulation, applicable to micros. Prerequisite: BIS 102 or equivalent.

BIS 261 COBOL Programming 3 hrs.
Computer programming in the most widely used language for business type application. Programming will be done in timesharing and/or batch sequential mode. Current computer developments are discussed. Prerequisite: BIS 102 or equivalent.

BIS 264 Report Program Generator 3 hrs.
Study of feasibility and applicability of RPG (Report Program Generator) computer programming to business problems. Included are the design, coding, compiling and execution of programs in RPG, RPG II, and RPG III. Prerequisite: BIS 102.

BIS 340 Principles of Business Communication 3 hrs.
This course focuses on written communication in modern organizations. Students will apply communication strategies in formulating objectives, structuring messages, and choosing appropriate communication channels to solve business problems. Assignments will center on writing appropriate to the business disciplines. Prerequisite: BIS 142 or equivalent; junior standing.

BIS 342 Organizational Communication 3 hrs.
A study of communication in structured organizations and the application of communication theory to the solution of communication problems in organizations. Special emphasis on small group decision making. Prerequisite: BIS 340.

BIS 343 Report Writing 3 hrs.
Intensive discussion and practice of the commonly used report-writing techniques. The study includes various formats and graphics of reports. In addition to writing several brief reports, students prepare a complete research report, give oral reports. Prerequisite: BIS 340.

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: BIS 340.

BIS 350 Management Information Systems 3 hrs.
Provides an understanding of and experience in the integration of the computer and information systems into the management process. Incorporates the tools, techniques, and applications for managing and using computerized information systems in business environments for improved productivity. Prerequisites: BIS 102 and MGMT 300.

BIS 360 Information Systems Analysis and Design 3 hrs.
A study of the total systems analysis and design process including data collection, problem definition, systems analysis and design, systems implementation, and application of the tools and techniques of the systems professional. Prerequisite: BIS 102 or equivalent.

BIS 362 Advanced COBOL 3 hrs.
Continuation of BIS 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: BIS 261.

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, implementation, and management technology and ergonomics in the information (white-collar) environment.

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 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 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 442 Senior Seminar in Business Communication 3 hrs.
The senior seminar in business communication is a capstone course designed to teach participants how to analyze communication in modern business organizations. Focus of the course will be on evaluating and improving organizational communication. Seminar emphasis will vary depending upon semester and instructor.

BIS 454 Intercultural Business Communication 3 hrs.
Intercultural Business Communication is designed to develop the effectiveness of students' communication skills with culturally diverse audiences, both at home and abroad. Prerequisite: BIS 340.

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, consumer relations, office systems, work measurement and simplification, forms control and design, and others. The topic will be announced in advance. May be repeated for credit.

BIS 462 Applied CIS Development Project 3 hrs.
Application of computer programming and system development concepts, principles, and practices to a comprehensive system development project. A team approach is used to analyze, design, and document realistic systems of moderate complexity. Use
of project management methods, project scheduling and control techniques, formal presentations, and group dynamics in the solution of information systems problems. Development of a database to support the system. Prerequisite: BIS 362.

BIS 464 Decision Support and Expert Systems 3 hrs.
Students learn how quantitative models, in conjunction with databases internal and external to the organization, can be used to develop information systems to assist managerial decision making. Students apply these concepts by developing actual decision support systems/expert systems as part of their course work. Prerequisite: BIS 362.

BIS 465 Trends in Information Systems 3 hrs.
This course is designed to familiarize students with "leading edge" issues of computer information systems. Because the computer field continues to evolve at a rapid rate, the specific content of the course will change from year to year. Prerequisite: BIS 350.

BIS 466 Business Data Networks 3 hrs.
The features of centralized, decentralized, and distributed systems will be examined. The impact of distributed systems on the business enterprise will be exposed via the medium of case studies. Technology implications of computer hardware, software, and communications are discussed as they relate to the design, development, and implementation of distributed data processing systems. Prerequisite: BIS 360.

BIS 474 Information Resource Management 3 hrs.
This seminar course provides an overview of the management of information systems resources. The student will gain an insight and understanding of the subject through study of the fundamentals of organizing, planning, controlling, and other significant management tasks that relate to management of information resources. Prerequisite: BIS 462.

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. Prerequisites: BIS 102 or CS 105, and a 300-level or 400-level writing class.

BIS 483 Business Publications and Presentations 3 hrs.
Business Publications and Presentations provides students actual experience in developing numerous types of publications and presentations—from conception through camera-ready production. The course provides a working understanding of the processes involved in determining page layout and design and the psychology used in various components of the document production and presentations. While working on collaborative projects, students will benefit from extensive interaction with community professionals involved in the designing, typesetting, printing, and distributing of business documentation. Hands-on experience is also provided through training in advanced word processing, graphics, generation, scanning techniques, file transfers, and page layout techniques. Prerequisites: BIS 102, BIS 340.

BIS 484 Micrographics and Reprographics 3 hrs.
Fundamentals of micrographics and reprographics, including basic components of technology, legal implications, systems applications and trends, feasibility, and industry standards.

BIS 486 Corporate Records Centers 3 hrs.
An examination of commercial and corporate records centers. Includes services, equipment, systems, and technology; addresses functions of planning, staffing, operating, and managing records centers. Prerequisite: BIS 386 or permission.

BIS 555 Topics in Computer Information Systems 3 hrs.
Special topics appropriate to business applications such as data base management systems, structured concepts, networking, programming, documentation and efficiency, planning, organizing and directing management information systems. May be repeated for credit.

BIS 560 Office Systems and Procedures 3 hrs.
A study of paperwork systems and procedures. Emphasis is placed on office systems and the techniques of systems development including fact gathering and recording, work analysis, and office work simplification and measurement.

BIS 596 Independent Study 1-4 hrs.
A directed independent project in an area of Administrative Systems, Business Communication, or Computer Information Systems. Prerequisite: Approved application required.

BIS 598 Readings 1-4 hrs.
A series of direct readings in an area of Administrative Systems, Business Communication, or Computer Information Systems. Prerequisite: Approved application required.

BIS 599 Special Topics 1-4 hrs.
Special topics appropriate to business. May be repeated for credit.

FINANCE AND COMMERCIAL LAW

F. William McCarty, Chair
Robert Baik
Nicholas C. Batch
David Burnie
James D’Mello
Adrian Edwards
A.D. Elias
Robert Jones
Kenneth Kennedy
C. R. Krishna-Swamy
Inayat Mangla
Craig Peterson
Ajay Samant
Stephen Scharz
Tim F. Scheu
Leo Stevenson
Carol VanAuken-Haight

Majors may be obtained in general business, finance, insurance, and real estate. Minors are available in general business, finance, insurance, law, and real estate. The general business major and minor require students to select a logical sequence of courses from the several departments within the Haworth College of Business. All majors and minors (except the general business minor when completed by a student having a business major) in this department must be approved by the assigned advisor.

Finance and Commercial Law Courses (FCL)

FCL 310 Introduction to Financial Markets 3 hrs.
A survey of financial markets and intermediaries with emphasis on their structure, social justification, and current status. This course provides additional background for advanced study in finance and a practical foundation for those students interested in an exposure to the financial system. Prerequisite: ACTY 210.

FCL 320 Business Finance 3 hrs.
Presents a basis for understanding the financial management function of the business enterprise. Considers financial principles and techniques essential for planning and controlling profitability and liquidity of assets, planning capital structure and cost of capital, and utilizing financial instruments and institutions for capital raising. Prerequisites: MATH 216 and ACTY 210.

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 330 or consent of instructor.

FCL 332 Real Estate Investments 3 hrs.
The effect of various forms of taxation, market conditions and governmental policies as they affect the investor’s spendable income are reviewed. Prerequisite: FCL 330 or consent of instructor.
FCL 333 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 330 or consent of instructor.

FCL 342 Quantitative Applications in Finance 3 hrs.
The applications of quantitative analysis to finance. Emphasis will be placed on the techniques available in financial decision making, determination of financial relationships, and financial forecasting. Applications in corporate financial management, investment analysis, and financial institutions. 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.

FCL 361 Life and Health Insurance 3 hrs.
This course combines a discussion of the economic aspects of life and health insurance with basic analysis of life insurance and annuity contracts. It also includes investigation of the major functional aspects of life and health insurance companies. Prerequisite: FCL 360.

FCL 362 Property and Liability Insurance 3 hrs.
This course includes analytical study of the major property and liability contracts, together with discussion of the principal functional aspects of property and liability company operations. Prerequisite: FCL 360.

FCL 380 Legal Environment 3 hrs.
An introduction to the legal environment in society. An examination of the role of law in society, the structure of the American legal system and the basic legal principles governing individual conduct.

FCL 381 Ecology and the Law 3 hrs.
The study of law as it relates to people's efforts to protect the environment. Included will be an examination of traditional common law principles and federal and state statutes relating to environmental protection, analysis of recent cases, and discussion of techniques for the effective use of administrative procedures of the various environmental protection agencies.

FCL 382 Business Law 3 hrs.
The study of law affecting common business transactions. The course examines the formation and performance of contracts, basic types of property interests, and key aspects of laws affecting commercial paper. Sales law, debtor-creditor 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 corporate law and the concepts affecting the issuing and sale of corporate securities. The agency relationship, particularly between employer and employee, which 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 considered, together with relevant evidentiary topics. Prerequisite: SOC 462 or FCL 325 or FCL 380 or consent of instructor.

FCL 412 Advanced Financial Markets 3 hrs.
Further studies of financial markets stressing theories, supporting evidence, and policy implications of selected topics. Research and analytical methods are included in the course content. Prerequisite: FCL 310.

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 Asset Management: Theory and Practice 3 hrs.
An analytical approach to the study of the concepts and theories underlying asset valuation and management. From this theoretical framework, the course includes cases covering financial decision-making processes in the areas of capital budgeting, decision analysis, and forecasting. Consideration is given to the capital asset pricing model and working capital management. Prerequisite: FCL 320.

FCL 426 Corporate Financing: Theory and Practice 3 hrs.
An analytical approach to the study of the concepts and theories underlying the financing decisions of business enterprises. Apart from this theoretical framework, the course includes cases covering financial decision-making processes in the areas of long-term financing decisions, financial structure, cost of capital, dividend policy, mergers, reorganization and international financial management. Prerequisite: FCL 320.

FCL 430 Mortgage Banking 3 hrs.
Mortgage lending in the United States with special emphasis on the function, lending policies and operations of mortgage banks. Consideration is given to the relationship between savings and loan associations, savings banks, insurance companies, and governmental institutions in providing funds to the primary and secondary mortgage markets. Prerequisites: FCL 310.

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.

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 1-15 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, they are evaluated by the firm's executives. Available only to students majoring or minoring in finance, insurance, or real estate. No more than 3 hrs. can be used as credit toward a major or minor.

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 helping the student to bridge the gaps between techniques used by the academician and the practitioner. Prerequisite: FCL 351.

FCL 462 Group Insurance and Pensions 3 hrs.
By means of problems and cases this course analyzes in detail the following areas: group life and health insurance, business life and health insurance, insured pension plans and estate and tax planning. Prerequisite: FCL 361.

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.

FCL 464 Insurance Company Management 3 hrs.
The topics studied by means of cases and problems in this course include multiple-line insurance operations, special problems in functional areas of industry operations and personal and commercial risk surveys and analysis. Prerequisite: FCL 362.

FCL 480 Tort Law and Liability 3 hrs.
The study of individual and business rights and liabilities with respect to negligence, intentional wrongs, libel, misrepresentation, and insurance aspects thereof. Prerequisite: FCL 380.

FCL 482 Management and Labor Relations 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.
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 485 Governmental Regulations of Business 3 hrs.
Examines the laws, rules and regulations at the federal, state and local level which affect most business enterprises. Substantive laws affecting the firm’s obligation to employees, stockholders and the general public are examined as are procedural laws affecting 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 or consent.

FCL 583 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 or consent.

FCL 584 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 or consent.

FCL 585 Governmental Regulations of Business 3 hrs.
Examines the laws, rules and regulations at the federal, state and local level which affect most business enterprises. Substantive laws affecting the firm’s obligation to employees, stockholders and the general public are examined as are procedural laws affecting the regulation of the firm by public institutions. Prerequisite: FCL 380 or consent.

FCL 586 Marketing and Sales Law 3 hrs.
The course examines the laws 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.

FCL 494 International Business Seminar 1-6 hrs.
A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers and business executives. The seminar introduces participants to a firsthand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar. Students may receive six hours credit in any combination of departments as described, provided the seminar is planned with that combination in mind. No student will receive credit under the course plan indicated here except for work done in seminars planned and conducted or approved by the Haworth College of Business.

FCL 498 Readings and Research in Finance and Commercial Law 1-3 hrs.
Directed individual study of finance or legal problems which are not treated in departmental course offerings. Prerequisite: Written consent of the instructor.

FCL 562 Group Insurance and Pensions 3 hrs.
By means of problems and cases this course analyzes in detail the following areas: group life and health insurance, business life and health insurance, insured pension plans and estate and tax planning. Prerequisite: FCL 361 or consent.

FCL 563 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.

MANAGEMENT

Damodar Golhar, Chair
Sanjay Ahire
Raymond E. Alle
Henry H. Beam
Thomas A. Carey
Satish Deshpande
Dan Farrell
David Flanagan
Katherine Karl
J. Michael Keenan
Robert Landeros
Claudio Milman
John R. Rizzo
Trudy G. Verser
Matthew Waller

Management Courses (MGMT)
(Courses described in italics are approved for General Education.)

MGMT 210 Small Business Management 3 hrs.
A study of the fundamental principles involved in the operation of a small business enterprise. The structure, functions, and basic operating principles will be discussed and developed. Prerequisite: Non-BBA students only.

MGMT 300 Fundamentals of Management 3 hrs.
An introduction to the concepts, theories, and techniques central to the practice of management. Historical and contemporary thought are presented in the context of the behavioral, structural, functional, quantitative, and ethical aspects of managing organizations. Cross-cultural aspects of management are also explored. Expected outcomes for the student are: a general familiarity with the management process, and limited situational application of course content. Prerequisite: Junior standing.

MGMT 301 Management Analysis and Behavior (I) 3 hrs.
Management analysis and behavior will be presented and practiced by the students in small task oriented groups working on real problems. Group decision making, problem solving, and business presentations are emphasized. In addition, the student will learn the costs and benefits of assuming different group roles. Prerequisites: MGMT 300.

MGMT 302 Management Analysis and Behavior (II) 3 hrs.
An extension of MGMT 301.

MGMT 310 Survey of Management 3 hrs.
An introduction for non-business students to the key concepts and issues underlying management. The course includes a survey of management history and theory, management organization, and the process of management. Not open to PBA students or business majors or minors.

MGMT 314 Business Ownership and Management 3 hrs.
This course is designed to supply the specific knowledge and skills a business-trained individual needs after founding or buying an independent firm. Specific applications of business areas such as finance, advertising, accounting and tax law for the owner/manager of a small business will be addressed. It is assumed that students have
MGMT 352 Personnel Management
3 hrs.
The personnel function in organizations including manpower needs, staffing and development, organization and individual appraisal; employee compensation and benefits; safety and health; approaches to employee problems, labor relations. Open only to Employee Assistance Academic Program majors. Prerequisite: MGMT 300.

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 and uncertainty, inventory models, linear programming, elementary queuing theory, and introduction to techniques of mathematical simulation. Prerequisite: MATH 216 or equivalent.

MGMT 400 Topics in Management
3 hrs.
An examination of advanced topical problems in management. (Repeatable)

MGMT 404 Business and Society
3 hrs.
A systematic analysis and evaluation of the institutions and other external and internal factors which shape the role of business in the United States. Illustrative topics: pluralism, values, ethics, social responsibility, the business/government relationship, productivity, corporate governance and social responsiveness.

MGMT 410 Multinational Management
3 hrs.
An examination of management strategy, controls, environmental influences of the multinational corporation with consideration of geographic factors. 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 414 Entrepreneurship
3 hrs.
A senior or graduate elective for students interested in entrepreneurial careers. Primary attention given to managing a new or rapidly growing business. Alternative sources of capital are examined. Various growth strategies considered along with personal requirements for entrepreneurial success. Prerequisite: MGMT 300, FCL 340, FCL 320, MKTG 370 or department consent.

MGMT 432 Compensation Administration
3 hrs.
This course is an advanced introduction to compensation management. The course covers four general topics: wages and salary administration, performance appraisal, incentive systems, and supplementary benefits. Intended to emphasize application, the course assumes a knowledge of motivation and reinforcement theory. Prerequisites: MGMT 390, MGMT 392, and MGMT 360.

MGMT 453 Organizational Behavior
3 hrs.
A study of current theory, research, and practice regarding variables that influence human behavior in complex organizations. Emphasis is placed on models relevant to human productivity, satisfaction, retention, and learning in organizational settings.

MGMT 454 Employment Relations
3 hrs.
This course is designed to present methods and concepts of managing employment relations. How labor unions operate and how businesses avoid or become involved with labor unions are investigated. Negotiation, conflict resolution, and contract administration processes and their operation are covered. The goals, purposes and history of organized labor within the United States are examined. Maintenance of the quality of relationships between employees and organizations is explored. Prerequisites: MGMT 300, MGMT 352.

MGMT 456 Decision Analysis
3 hrs.
This course is designed to present methods and concepts of decision making in uncertain business environments. It will address both the philosophy, and the methodology of scientific decision processes to supplement intuitive decision making. The objective of the course is to provide a clear understanding of both the limitations and potential benefits of formal analysis and information gathering. Some of the topics covered include: utility functions, values of perfect and imperfect information, and preference assessment. Prerequisite: MGMT 360.

MGMT 463 Production and Operations Management
3 hrs.
Economic and socio-technical characteristics of the major types of production systems. 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 360.

MGMT 470 Production/Operations Simulation
3 hrs.
Familiarizes students with simulation model development, and the use of simulation results to evaluate the effectiveness of production management strategies. Production environments are simulated that involve uncertainty and interdependency among decision variables, and the effects of managerial decisions on the performance of a production facility. Prerequisites: MGMT 360 or equivalent.

MGMT 480 Materials Management Strategy
3 hrs.
Introduces students to a framework for making longer-term decisions in operations management, and assesses 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 operation 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 472, MKTG 484, ME 220.

MGMT 495 Independent Study
1-4 hrs.
Independent research on specialized management topics. Prerequisite: Consent of instructor. (Repeatable)

MGMT 499 Strategic Management
3 hrs.
An integrative capstone course focusing on the formulation and implementation of organizational policy and strategy from the perspective of the general manager. Prerequisite: Senior standing and successful completion of all course courses.

MGMT 512 Women in Management: Male, Female, and Organizational Perspectives
3 hrs.
A seminar dealing with the changing roles of women in business. Emphasis is given to the unique needs of women aspiring to managerial and professional ranks. Changes in attitudes and behaviors of women, men and organizations and the implications of change for traditional male-female relationships and organizational operations are explored.
MARKETING

Andrew A. Brogovicz, Chair
Joseph J. Belonax
Lowell E. Crow
Linds M. Delene
Frank Gambino
Paul Lane
Hank A. Laskey
Hanjoon Lee
Jay D. Lindquist
Mushrat Luqumani
Edward J. Mayo
Martin S. Meloche
A. Morys Perry
Richard E. Plank
Zahir A. Purohit
Robert Reck
Gail Stautamoyer
Ann M. Thompson

Marketing Courses (MKTG)

MKTG 270 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 demonstration, and a classroom demonstration.

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.

MKTG 370 Marketing
3 hrs.
Functions, institutions, and problems of marketing are examined from the viewpoint of their effect on distribution of goods. Prerequisite: ECON 201.

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 of the research to gathering, analyzing, and interpretation of data as it relates to marketing management. Prerequisites: MKTG 370, MATH 216.

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 370.

MKTG 374 Advertising
3 hrs.
A comprehensive survey of basic principles and practices of advertising in their relationship to the economy, society, and the system of mass communication. Prerequisite: MKTG 370.

MKTG 375 Principles of Retailing
3 hrs.
An introductory course designed to identify the fundamentals, challenges, and responsibilities of today’s retailers. The topics covered include human resources and store operations which help successful retailers anticipate, interpret, adapt, and react to the changing environment. Prerequisite: MKTG 370.

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 communication, territories and quotas; motivation; measuring selling effectiveness. Prerequisite: MKTG 370.

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 marketers of the sales force, distributors, or consumers with the primary objective of effecting an immediate sale. Prerequisite: MKTG 370.

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 explored related to store design/location, product mix, and promotion methods used by retailers, manufacturers, and wholesalers. Prerequisite: MKTG 290, MKTG 370.

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. Prerequisite: MKTG 290.

MKTG 397 Food Marketing Field Experience
1-4 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 4 credit hours. Graded on a credit/no credit basis to be included in the major for Food Marketing Majors only. Prerequisite: Food Marketing major.

MKTG 470 Industrial Marketing
3 hrs.
A course designed to analyze the problems of marketing industrial goods. Attention is given to market information, market planning, methods of distribution, pricing, and the promotional problems of industrial marketing. Prerequisite: MKTG 370.

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 statistical methods is required. Prerequisites: MKTG 370, 371.

MKTG 472 Media Planning
3 hrs.
A course designed to expose students to the procedures used in analysis, evaluation, and selection of appropriate media and media vehicles to effectively and efficiently reach target markets with promotional messages. Prerequisite: MKTG 374; Advertising Majors only.

MKTG 473 Direct Marketing
3 hrs.
Covers principles, concepts, methods, techniques, and applications of direct marketing, includes use of direct marketing under various conditions and media with special emphasis on mail and telemarketing, telephone, and catalog advertising, student projects required. Prerequisite: MKTG 370; MKTG 374.

MKTG 474 Advertising Copy and Layout
3 hrs.
Study of the theory and practice in the writing, preparation, and typographical composition of advertising including the writing of radio, television, magazine, newspaper, and outdoor copy. Prerequisites: MKTG 370, MKTG 374. Advertising majors only.

MKTG 475 International Marketing
3 hrs.
An examination of the theories and principles of international marketing. Attention directed to related commercial policies, trade practices and procedures, and marketing research tools and techniques required to locate and evaluate foreign markets. Prerequisites: MKTG 370.

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 operating) within retail merchandising and store operations divisions. Attention is also given to other functions and research as they relate to management and operation. Prerequisite MKTG 375.

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 370.

MKTG 479 Marketing Internship
1-6 hrs.
Cooperative internship training for BBA degree marketing majors having completed sophomore year. Variable credit at the rate of approximately one credit per 100 hours of internship training acceptable to advisor. May be repeated for a maximum of 6 hours. Term reports required, evaluations completed by executives of firms in which training takes place. Graded on a credit/no credit basis. Prerequisites: Marketing major; permission of the instructor.

MKTG 480 Franchising
3 hrs.
This is an introductory course designed to study franchising operations from both franchisor and franchisee viewpoints. The topics examine the nature of franchise development, operation of a franchise system, evaluation of franchise opportunities, and the relationships between franchisees and franchisors. Prerequisite MKTG 370.

MKTG 484 Business Logistics
3 hrs.
An analysis of the movement, handling, and storage of products and materials, including work-in-progress and finished goods.
Emphasis on customer requirements and customer satisfaction, total quality management, and optimization of total distribution costs. Prerequisite: MKTG 370.

**MKTG 485 Material Systems Analysis**  
3 hrs.  
This course examines the application of analytical and judgment techniques for integrated decision-making in material, logistic, and technological systems. Prerequisites: Passing grade in MGMT 464, MKTG 372, MKTG 484, and ME 220.

**MKTG 486 Marketing Strategy**  
3 hrs.  
Identification of marketing problem situations and cause diagnosis with development of appropriate marketing strategies. Stress placed on application of marketing fundamentals to factual case situations and decisions in a simulated dynamic environment. Communications of findings and strategies emphasized. Cases and computer games used. When appropriate, designated sections will use actual company projects. Prerequisites: Senior level, MKTG 370, MKTG 371, plus 6 additional MKTG hours.

**MKTG 487 Advertising Theory and Ethics**  
3 hrs.  
Critical examination of social, cultural, and ethical implications of “public and business” responsibilities involved in the advertising function. Special student interests developed through research and term projects. Prerequisite: MKTG 370, 374, permission of instructor.

**MKTG 492 Marketing Information Technology**  
3 hrs.  
Applications of information technologies utilized in the marketing of food and other consumer products. Emphasis will be on the use of computer technology to analyze price and cost controls, make merchandising, shelf management, and category decisions; develop sales forecasts, and interpret various operating performance ratios. Prerequisite: MKTG 290 or MKTG 375. Food Marketing or Retailing Majors only.

**MKTG 493 Food Marketing Issues**  
3 hrs.  
A study of current issues which impact the agricultural, manufacturing, wholesaling, transportation, and retail segments of the food industry. Prerequisite: MKTG 391. Food Marketing Majors only.

**MKTG 494 Food Marketing Strategies**  
3 hrs.  
Application of decision-making techniques to analyze food marketing problems and plan effective marketing strategies. This course will focus on problems and strategies related to market segmentation, inventory control, site location, merchandising, sales promotion, operations, personnel, and wholesale distribution. A case study approach to problem solving will be utilized. 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.
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 K-8), (valid for major and minor subjects in departmentalized classrooms in grades six through eight) OR the Michigan Secondary Provisional Certificate. (valid for major and minor subjects in grades nine 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.

All students seeking admission to teacher education curricula as entering freshman, transfers, or as students changing curricula for a curriculum leading to a teaching certificate will be assigned a pre-education designator (PED) at the time of admission to the University.

Students wishing to enter the Elementary Education or Secondary Education program must meet the following minimum requirements at the time of application:

1. Completion of at least 35 credit hours
2. Completion of all Western Michigan University Intellectual Skills Development requirements if required (e.g. MATH 109, ED 101, ENGL 101)
3. Completion of approved college level writing course
4. Completion of ED 250 Human Development or an approved course, with a grade of "C" or better
5. Achievement of a cumulative grade point average (GPA) of 2.5 or better
6. Achievement of passing scores on the Michigan Test for Teacher Certification (MTTC) — Basic Skills Section
7. Completion of a formal application by January 15 (Effective January 15, 1996)

Office of Admissions and Advising

2504 Sangren Hall
387-3474

Advisors:
Joyce DeRight, Director
Patricia Annen
Wendy Asmus

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 coordinates academic advisement for students enrolled in all teacher education curricula and advises post-baccalaureate students seeking initial teacher certification.

All students seeking admission to teacher education curricula as entering freshman, transfers, or as students changing curricula must contact the Office of Admissions and Advising. All students declaring a preference for a curriculum leading to a teaching certificate will be assigned a pre-education designator (PED) at the time of admission to the University.
Office of Directed Teaching
Robert Kotecki, Director
2206 Sangren Hall
387-3466

The Office of Directed Teaching is responsible for the coordination and oversight of all field experiences and directed student teaching associated with teacher education curricula.

STUDENT TEACHING
The following criteria must be met prior to applying for student teaching.
1. Completion of all required coursework.
2. A cumulative grade point average of 2.5 or above.
3. An overall grade point average of 2.5 in the professional sequence and no grade lower than a “C” in any Professional Education course.
4. Completion of the Elementary Education Minor for those seeking placement in an early childhood or elementary school setting.
5. Recommendation from major and minor departments.
6. Completion of method course(s) in major and minor with minor grade of “C”.

Students must contact the Office of Directed Teaching at least two semesters prior to the semester in which they plan to complete their student teaching requirements. The deadline for submitting student teaching applications for the Fall Semester is January 15. The deadline for submitting student teaching applications for the Winter Semester is September 15. Students may not select their placements for student teaching. Placements are made by the Office of Directed Teaching based on program needs and are usually within a 50 mile radius from main campus. Students may not enroll in other coursework during student teaching. Please note: To be recommended for teacher certification, students must achieve at least a grade of “C” in ED 410 Seminar in Education and “credit” in Directed Teaching, in addition to having met all other requirements for student teaching and graduation.

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 with the Office of Admission and Advising within 21 days of the aggrieved action. Appeals may be reviewed by the Academic and Professional Standards Committee.

HEALTH AND LIABILITY INSURANCE
Students engaged in field experiences or directed teaching must provide evidence of having health insurance at the time of course enrollment. Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in courses requiring field experience.

Elementary Education Curriculum
Advising: The Office of Admissions and Advising
2504 Sangren Hall
Bachelor of Arts or Bachelor of Science Degree
Michigan Elementary Provisional Certificate

The Elementary Education Curriculum is designed to prepare students to assume teaching responsibilities in self-contained classrooms in grades K-8.

Program Requirements:

<table>
<thead>
<tr>
<th>General Education Distribution</th>
<th>40 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Requirement</td>
<td>35 hours</td>
</tr>
<tr>
<td>Elementary Education Minor</td>
<td>30 hours</td>
</tr>
<tr>
<td>Additional Minor (four minor only)</td>
<td>12 hours</td>
</tr>
</tbody>
</table>

Minors/Majors Approved for Elementary Education

Students selecting the elementary education curriculum are required to complete three minors: the Elementary Education Minor (EED, 28 hrs.), the Science and Mathematics Teaching Minor (SCM, 27 hrs.) and one additional minor selected from the following:

- Art (ATE), 24 hrs.
- Early Childhood Education (EEE), 20 hrs.
- English Language Arts (ENL), 20 hrs.
- French (FRE), 20 hrs.
- German (GER), 20 hrs.
- Group Social Science (GSS), 24 hrs.
- Integrated Language Arts (ILAM), 24 hrs.
- Spanish (SPA), 20 hrs.

The Office of Directed Teaching is responsible for the coordination and oversight of all field experiences and directed student teaching associated with teacher education curricula.

STUDENT TEACHING
The following criteria must be met prior to applying for student teaching.
1. Completion of all required coursework.
2. A cumulative grade point average of 2.5 or above.
3. An overall grade point average of 2.5 in the professional sequence and no grade lower than a “C” in any Professional Education course.
4. Completion of the Elementary Education Minor for those seeking placement in an early childhood or elementary school setting.
5. Recommendation from major and minor departments.
6. Completion of method course(s) in major and minor with minor grade of “C”.

Students must contact the Office of Directed Teaching at least two semesters prior to the semester in which they plan to complete their student teaching requirements. The deadline for submitting student teaching applications for the Fall Semester is January 15. The deadline for submitting student teaching applications for the Winter Semester is September 15. Students may not select their placements for student teaching. Placements are made by the Office of Directed Teaching based on program needs and are usually within a 50 mile radius from main campus. Students may not enroll in other coursework during student teaching. Please note: To be recommended for teacher certification, students must achieve at least a grade of “C” in ED 410 Seminar in Education and “credit” in Directed Teaching, in addition to having met all other requirements for student teaching and graduation.

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 with the Office of Admission and Advising within 21 days of the aggrieved action. Appeals may be reviewed by the Academic and Professional Standards Committee.

HEALTH AND LIABILITY INSURANCE
Students engaged in field experiences or directed teaching must provide evidence of having health insurance at the time of course enrollment. Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in courses requiring field experience.

Music major** (63 hrs.) with Elementary Education minor

Elementary Education minor

Physical Education major (45 hrs.) with Elementary Education minor

Speech Pathology and Audiology major*** with Elementary Education minor

Teaching certificate awarded upon completion of master’s degree

Special Education, Emotionally Impaired
Elementary major** (34 hrs.)

Contact Department of Special Education to determine acceptable minors and desired level of preparation

Special Education, Mentally Impaired
Elementary major** (34 hrs.)

Contact Department of Special Education to determine acceptable minors and desired level of preparation

Special Education, Orthopedically Impaired
Elementary major** (34 hrs.)

Contact Department of Special Education to determine acceptable minors and desired level of preparation
Special Education, Visually Impaired

Notes: * Special Education majors require admission to Special Education Curriculum. Music majors require admission to College of Fine Arts.
*** Speech Pathology and Audiology majors are certified upon successful completion of master’s degree.

Requirements and approval for these required minors are available in the Office of Admissions and Advising. All students must have minor slips signed by an approved elementary education advisor.

**Elementary Education**

**Foundations**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 282</td>
<td>Children’s Literature</td>
<td>4 hrs</td>
</tr>
</tbody>
</table>

One course from the following:
- ENGL 105 | Thought and Writing | 4 hrs |
- BIS 142 | Informational Writing | 3 hrs |

One course from the following:
- GEGO 102 | World Geography Through Media and Maps | 3 hrs |
- HIST 211 | U.S. History Since 1877 | 3 hrs |
- PSCI 200 | National Government | 3 hrs |

One course from the following:
- COM 170 | Interpersonal Communications | 3 hrs |
- ANTH 370 | Culture and Communication | 4 hrs |
- (SPPA majors may substitute LING 105, The Nature of Language, 4 hrs |

One course from the following:
- WMS 300 | Working Women | 3 hrs |
- WMS 310 | Women and Social Institutions | 3 hrs |
- HIST 316 | Women in American History | 3 hrs |

One course from the following:
- ANTH 120 | Peoples of the World | 3 hrs |
- ANTH 220 | Cultural Anthropology | 3 hrs |
- GENL 304 | Introduction to Non-Western World | 4 hrs |

One course from the following:
- ANTH 240 | Principles of Cultural Anthropology | 3 hrs |
- BAS 300 | Black Experience | 3 hrs |
- ECON 100 | Contemporary Economic Problems | 3 hrs |
- GEOG 311 | Geography of Michigan | 3 hrs |
- SOC 100 | American Society | 4 hrs |
- HIST 210 | U.S. History to 1877 | 3 hrs |
- SOC 200 | Principles of Society | 3 hrs |

Note: Approved for General Education credit.

CS 105 is required for all students not electing the Science and Mathematics Teaching Minor (Art, Music, Physical Education, Special Education, or Speech Pathology and Audiology).

**Professional Education Program**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 200</td>
<td>The Creative Process</td>
<td>3 hrs</td>
</tr>
<tr>
<td>MUS 240</td>
<td>Music for the Classroom Teacher</td>
<td>3 hrs</td>
</tr>
<tr>
<td>COM 564</td>
<td>Creative Drama for Children</td>
<td>4 hrs</td>
</tr>
</tbody>
</table>

* Approved for General Education credit. See advisor in Integrated Language Arts for requirements in third minor.

**Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of English**

Minimum 2.0 GPA required in this minor

These courses cannot be used as part of any other minor or major.

Select one course from the following:
- GEGO 105 | Physical Geography | 4 hrs |
- SCI 131 | Physical Science in Elementary Education | 4 hrs |

Select two courses from the following:
- ART 200 | The Creative Process | 3 hrs |
- MUS 240 | Music for the Classroom Teacher | 3 hrs |
- COM 564 | Creative Drama for Children | 4 hrs |

Required courses—to be taken in this sequence:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 150</td>
<td>Number Concepts for Elementary/Middle School Teachers (minimum “C” grade)</td>
<td>4 hrs</td>
</tr>
</tbody>
</table>

**Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of Integrated Language Arts** (This program is not currently accepting applications)

Minimum 2.0 GPA required in this minor

This program is currently not accepting applications.

These courses cannot be used as part of any other minor or major.

Select one course from the following:
- GEGO 105 | Physical Geography | 4 hrs |
- SCI 131 | Physical Science in Elementary Education | 4 hrs |

Required courses—to be taken in this sequence:

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<td>4 hrs</td>
</tr>
</tbody>
</table>

**Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of Integrated Language Arts** (This program is not currently accepting applications)

Minimum 2.0 GPA required in this minor

These courses cannot be used as part of any other minor or major.

Select one course from the following:
- GEGO 105 | Physical Geography | 4 hrs |
- SCI 131 | Physical Science in Elementary Education | 4 hrs |

Required courses—to be taken in this sequence:

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<td>MATH 150</td>
<td>Number Concepts for Elementary/Middle School Teachers (minimum “C” grade)</td>
<td>4 hrs</td>
</tr>
</tbody>
</table>
ED 312 The Foundations of Reading Instruction 3 hrs. Prerequisite: ED 250

ED 351 Reading and Related Communication Skills for Early Childhood 3 hrs. Prerequisite: ENGL 282* AND ED 312

ED 352 Reading and Related Communication Skills for Middle and Upper Grades 3 hrs. Prerequisite: ENGL 282* AND ED 312 and ED 351

ED 407 Teaching Elementary Social Studies 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 202*

* Approved for General Education credit. See advisor in English for third minor.

Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of French, German, Spanish, or Group Social Science

Minimum 2.0 GPA required in this minor.

These courses cannot be used as part of any other minor or major.

Select one course from the following:

*GEOG 105 Physical Geography 4 hrs.
*SCI 131 Physical Science in Elementary Education 4 hrs.

Required courses—to be taken in this sequence:

MATH 150 Number Concept for Elementary/Middle School Teachers (minimum “C” grade) 4 hrs.
Prerequisite: MATH 110 OR adequate performance on placement test

ED 312 The Foundations of Reading Instruction 3 hrs. Prerequisite: ED 250

ED 351 Reading and Related Communication Skills for Early Childhood 3 hrs. Prerequisite: ENGL 282* AND ED 312

ED 352 Reading and Related Communication Skills for Middle and Upper Grades 3 hrs. Prerequisite: ENGL 282* AND ED 312 and ED 351

ED 407 Teaching Elementary Social Studies 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 202*

Select one course from the following:

*GEOG 105 Physical Geography 4 hrs.
*SCI 131 Physical Science in Elementary Education 4 hrs.

Required courses—to be taken in this sequence:

MATH 150 Number Concept for Elementary/Middle School Teachers (minimum “C” grade) 4 hrs.
Prerequisite: MATH 110 OR adequate performance on placement test

ED 312 The Foundations of Reading Instruction 3 hrs. Prerequisite: ED 250

ED 351 Reading and Related Communication Skills for Early Childhood 3 hrs. Prerequisite: ENGL 282* AND ED 312

ED 352 Reading and Related Communication Skills for Middle and Upper Grades 3 hrs. Prerequisite: ENGL 282* AND ED 312 and ED 351

ED 407 Teaching Elementary Social Studies 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 202*

Select one course from the following:

ENGL 369 Writing for Elementary Teachers 4 hrs.

ENGL 373 Reading and Writing as Psycholinguistic Processes 4 hrs.

Required:
Additional course to be approved by education advisor (e.g. ED 200, ED 398) 3 hrs.

Required courses—to be taken in this sequence:

PHYS 107 Elementary Physics (Lecture) 4 hrs.

PHYS 108 Elementary Physics (Lab) 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

ED 312 The Foundations of Reading Instruction 3 hrs. Prerequisite: ED 250

ED 407 Teaching Elementary Social Studies 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 202*

Select one course from the following:

ENGL 369 Writing for Elementary Teachers 4 hrs.

ENGL 373 Reading and Writing as Psycholinguistic Processes 4 hrs.

Required:
Additional course to be approved by education advisor (e.g. ED 200, ED 398) 3 hrs.

* Approved for General Education credit. See major advisor.

Elementary Education minor requirements with a major of Speech Pathology and Audiology

Minimum 2.0 GPA required in this minor.

These courses cannot be used as part of any other minor or major.

Select one course from the following:

*BICS 112 Introduction to Biological Sciences 3 hrs.
*BIOS 101 Animal Biology 4 hrs.

Required courses—to be taken in this sequence:

PHYS 107 Elementary Physics (Lecture) 4 hrs.

PHYS 108 Elementary Physics (Lab) 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

ED 312 The Foundations of Reading Instruction 3 hrs. Prerequisite: ED 250

ED 407 Teaching Elementary Social Studies 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 202*
Additional course to be approved by education advisor (e.g. ED 200, ED 398) 3 hrs. *Approved for General Education credit. See major advisor.

Integrated Creative Arts Minor
Advisor: Office of Admissions and Advising 2504 Sangren Hall (616) 387-3474

This 24-hour interdepartmental program is offered to preservice elementary school teachers and special education teachers. The program stresses the integration of all the arts as a primary motivating agent in the teaching of all subject areas. It also emphasizes the stimulation and development of creative problem-solving behaviors.

A minor is required. Students must see an advisor before they have completed eight hours in the minor. Minimum 2.0 GPA required in this minor.

* Art 148 Direct Encounter with the Arts 4 hrs.
* DANC 148 Direct Encounter with the Arts 4 hrs.
MUS 148 Direct Encounter with the Arts 4 hrs.
* THEA 148 Direct Encounter with the Arts 4 hrs.

ED 230 The Nature of Creativity* 3 hrs.
DANC 290 Teaching of Dance in the Elementary School 3 hrs.
MUS 240 Music for the Classroom Teacher 3 hrs.
ART 200 The Creative Process Through Art 4 hrs.
COM 564 Creative Drama for Children 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 enrolled in the minor must take ED 430 (Creativity in the Elementary School) after they have taken all other courses in this group minor.
*** Electives to accommodate student needs and balance will be determined by the departments and faculties of Education and Professional Development, Art, Dance, Music, and Communication and selected with the approval of the advisor.

Interdisciplinary Program
Integrated Language Arts Minor (ILAM) Maryellen Hains, Coordinator 924 and 623 Sprau Tower (616) 387-2627

An interdisciplinary program of:
COLLEGE OF ARTS AND SCIENCES
Communication English
COLLEGE OF EDUCATION
Department of Education and Professional Development
COLLEGE OF HEALTH AND HUMAN SERVICES
Speech Pathology and Audiology

This program is currently not accepting applications. This 24-hour interdepartmental program for preservice elementary school teachers emphasizes the integrated nature of learning. The critical importance of fieldwork in the learning of preservice teachers is recognized in the program and is an integral part of each course. Students in the program are encouraged to develop and implement innovative instructional materials and practices based on sound theory.

Each course is taught by a faculty member with interdisciplinary expertise from one of the departments participating in the minor. Each course focuses on a particular aspect of language development which will be presented through a balance of lectures, discussions, and workshops together with opportunities for student-initiated learning.

Students can enter the program in their sophomore year. Application forms are available from the Education and Professional Development Department or from Michele McLaughlin in the English Department, 620 Sprau Tower, 387-2570. She can make an appointment with the ILAM Coordinator, Maryellen Hains. Advising hours are Tuesday from 1:30 p.m.-3:30 p.m. in 623 Sprau Tower.

Admission Requirements: GPA of 2.75 or higher; ED 250 Human Development and Learning (or its equivalent); ENGL 282 Children’s Literature (or its equivalent). You must have a minor slip to enroll in classes. Entry courses are only offered in winter semester.

Program
This 24-hour interdepartmental minor for elementary education students consists of the following:

Entry Courses—must be taken concurrently:

ILAM/ED 260 Cognitive Development of the Child 2 hrs.
ILAM/SPRA 260 Linguistic Development of the Child 2 hrs.

Intermediate Courses:

ILAM/ENGL 375 Acquisition of Literacy and the Early Elementary Child 4 hrs.
ILAM/ENGL 376 Acquisition of Literacy and the Later Elementary Child 4 hrs.

Capstone—to be taken after at least 16 hours of the minor are completed:

ILAM/ED 460 Integrated Language Arts Seminar 4 hrs.

For individual course descriptions see catalog listings under the participating department.

Science and Mathematics Teaching Minor
Advisor: College of Education Office of Admissions and Advising 2504 Sangren Hall

The minor is open only to students enrolled in the elementary education curriculum. Transfer students will need to have their previous coursework 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 and Statistics.

Because of the interdisciplinary nature of this minor, one course must be selected from each of the three science areas. Mathematics courses must be taken in sequence. Minimum 2.0 GPA required in this minor.

A. REQUIRED SCIENCE (Select one course from each area. Courses approved for general education are marked with an *.)

Biological
BIOS 107 Biological Science 4 hrs.
*BICS 234 Outdoor Science 4 hrs.
Earth Science
*GEOG 130 Physical Geology 4 hrs.
*GEOG 105 Physical Geography 4 hrs.

Physical Science
CHEM 200 Chemical Science in Elementary Education 4 hrs.
SCI 231 Physical Science in Elementary Education II 4 hrs.
(Prerequisite: SCI 131)

B. REQUIRED MATHEMATICS
Minimum: “C” grade required in MATH courses

MATH 151 Geometry for Elementary/Middle School Teachers (Prerequisite: MATH 150) 3 hrs.
MATH 265 Probability and Statistics for Elementary/Middle School Teachers 4 hrs.
(Prerequisite: MATH 150)

C. REQUIRED COURSES PRACTICUM

COURSE 352 Teaching of Elementary Mathematics 3 hrs.
Prerequisites: MATH 151, MATH 265
ED 401 Teaching Elementary School Science 3 hrs.
Prerequisites: ED 310 (ED 309 Early Childhood) and all science courses. May be taken concurrently with ED 402
ED 402 Practicum in Science and Mathematics Teaching 2 hrs.
Prerequisites: MATH 352 and ED 401. (ED 401 may be taken concurrently)
MATH 352 and completion of all science courses are prerequisites for ED 401 and ED 402

Minor or Emphasis in Early Childhood Education
Advisor: Ariel L. H. Anderson 2430 Sangren Hall (616) 387-3493

Students may complete a minor or emphasis in Early Childhood. The completion of each offers a special professional sequence for kindergarten through eighth grade certification with an endorsement signifying special preparation in teaching young children. The Early Childhood Emphasis is an 18-hour program; the minor requires 21 hours. Students may choose either course of study to receive an Early Childhood endorsement on their teaching certificate. Prerequisite: ED 250 Human Development.
Middle School and Junior High School Curriculum
Bachelor of Arts or Bachelor of Science Degree
State Elementary or State Secondary Provisional Certificate

A program of undergraduate studies to prepare students to teach in the middle and junior high school which focuses on teaching-learning processes and content areas which are effective for working with the older child and the young adolescent in grades 5–9.* (Student has option of earning elementary (grades K-8) or secondary (grades 7-12) certification. Elementary certification is recommended.)

The program includes a two-semester sequence of planned and supervised experiences specifically designed for teaching in the middle or junior high school. Program requirements must be planned and approved by advisor.

Minimum hours required for this curriculum: 122 hrs.
General Education Requirement: 32 hrs. required for University General Education requirement. An additional 5 hrs. in General Education courses drawn from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies, are required for Michigan certification.

Major/Minor Requirements Elementary Certification Option
1. Two minors or group minors (20–29 hours); OR one major or group major (30–36 hours) selected from the following areas: English, foreign languages, mathematics, science, social science minor only.
2. Elementary Education minor, see advisor in the Office of Admissions and Advising.

Secondary Certification Option
1. One major or group major

Ed 350 Young Children, Their Families, and Their Society 3 hrs.
Ed 351 Reading and Related Communication Skills for Early Childhood 3 hrs.
Ed 309 Educational Psychology in Early Childhood 3 hrs.
Ed 369 Classroom Organization and Management Early Childhood 3 hrs.
Ed 410 Seminar in Education Elementary Childhood Emphasis 2 hrs.
Edv 575 Administration of Child Development Centers 3 hrs.
Ed 470 Directed Teaching (Early Childhood)* 5 hrs.

* This course is required for the Early Childhood minor only.

** The directed teaching experience, with its accompanying seminar, counts as half of the required number of directed teaching hours for certification of the elementary school teacher and is not an additional student teaching assignment. In all, the student must complete 12 hours of directed teaching and seminar for elementary certification.

Bachelor of Science Degree Elementary Music Curriculum
Elementary Education Music
Grants certification to teach in elementary grade room (K-5) and music (K-8)

General Education Requirements: 35 hrs.

2. One minor or group minor

Majors and minors must be selected from the following areas: communication, English, languages, linguistics (second major only), mathematics, and science.

It is strongly recommended that majors and minors be chosen from related disciplines. See advisor for acceptable combinations.

Pre-professional Foundations: 3 hrs.
Ed 250 Human Development 3 hrs.

Professional Education
An overall grade point average of 2.5 and no grade lower than a “C” in any Professional Education course are required.

Two-semester planned sequence
Fall Semester
One course from: GENL 122 or GHUM 316, OR SOC 314, 320, 353, 514.
Com 170 Interpersonal Communications 3 hrs.
Ed 312 The Foundations of Reading Instruction 3 hrs.
Ed 301 Teaching of Reading Secondary 3 hrs.
Ed 371 Elementary Classroom Organization and Management 3 hrs.
Ed 398 Special Studies in Education (topical seminars) 4 hrs.
Field Experiences (no credit) 17 hrs.

Winter Semester
Ed 398 Special Studies in Education (Psychology and Guidance of Young Adolescents) 2 hrs.
Ed 352 Reading and Related Communication Skills for Middle and Upper Grades 3 hrs.
Ed 395 School and Society 3 hrs.
Ed 407 Teaching Elementary Social Studies (elementary option OR methods course in major or minor field—secondary option) 3 hrs.
Ed 410 Seminar in Education 2 hrs.
Ed 472 Directed Teaching Upper Elementary/Middle School 5-10 hrs.

472 and 410 are taken concurrently during senior year. Professional Education must total 21 hours, other professional education requirements are included in two semester planned sequence.

Physical Education 2 hrs.

Baccalaureate Writing Requirement
Students who have chosen the Middle School and Junior High School Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society.

Bachelor of Science Degree Elementary Music Curriculum
Elementary Education Music
Grants certification to teach in elementary grade room (K-5) and music (K-8)

General Education Requirements: 35 hrs.

Music Major: 40 hrs.
Music Convocation 101 (4 semesters) 0 Basic Music 160-161 6 Aural Comprehension 162-163-259 3 Contemporary Music 587 2 Music History and Literature 270-271 8 Conducting 215 1 Keyboard Musicianship 220-221-320-321 4

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 (320); American Music (350); NonWestern Music (352); Voice (300); or courses not taken in the Choral or Instrumental elective areas.

Voice Class 2 hrs.

Four semesters of voice, including one of Vocal Techniques for Music Educators (117) and one at 100- or 200-level Voice. Only one voice class is to be counted per semester.

Choral Ensemble 107, 106, or 112 2
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 2

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 (279); Instruments of the Classroom (280)

Teaching and Learning in Music (348) 2

Music for the Special Student (385) 2

Elementary Education Minor: 28 hrs.
Select one course from the following:
GeoG 105 4
Sci 131 4

Required Courses (to be taken in this sequence):
Math 150 4
Ed 312 3
Ed 351 3
Ed 352 3
Ed 407 3

Select one course from the following:
Engl 369 4
Engl 373 4

Required course
Additional course to be approved by education advisor (e.g. ED 200, ED 398) 3 hrs.

Professional Education Program: 17 hrs.
Ed 250 3
Ed 301 3
Ed 302 3
Ed 317 3
Ed 347 3
SpEd 527 3
Ed 369 3
Or 3
Ed 371 3
Ed 396 3

Professional Practicum: 12 hrs.
Ed 410 2
Ed 472, 471, or 472 5-10

Physical Education 2 hrs.

Physical Education for Elementary Teacher (PEPR 340) will satisfy one hour of this requirement.

174 COLLEGE OF EDUCATION
CURRICULA
Secondary Education for students majoring in

Baccalaureate Writing Requirement
Students who have chosen the Elementary
Music Curriculum major will satisfy the

Art, Health, Industrial Education, Music,

Physical Education, Secondary Education in

Baccalaureate Writing Requirement by
successfully completing ED 395 School and
Society.

Business, Vocational Education, or those who

declared Secondary Education prior to Fall
1990. (Minimum "C" grade in each course
with an overall 2.5 GPA required.)
ED

250 Human Development
3
(Must be at least a sophomore)
ED
301 Teaching of Reading
(Secondary)
3
Prerequisite: ED 250; must
be at least a junior, ED 300
not required for students
following this guide.
ED
302 Teaching and Learning
4
Prerequisite: ED 250, ED
301; must be at least a junior
ED
395 School and Society
3
Prerequisite: 70 earned hours
A "methods of teaching" course in either

Secondary Curriculum
Bachelor of Arts or Bachelor of Science

Degree
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

the major or minor (both, if required by
the respective major and minor
departments.)
ED
475 Directed Teaching
(Secondary)
Prerequisite: All of the

Secondary Education (SED) curriculum. A
minimum grade point average of 2.5 must be
attained for enrollment in Directed Teaching
and for recommendation for the teaching
certificate. PED curriculum students are not

permitted to enroll in professional education

3
10

above and successful

courses until admission requirements are met
and application is approved.

completion of all

coursewiEk. 410 Seminar in

Education . . 2
(Must be
taken concurrently
with
ED 475)
Note: ED 475 and ED 410 comprise the

General Education Requirement—Minimum
40 semester hours of credit

35 hours from General Education Programs.
5 hours from General Education Program

and/or courses in language and literature,

"directed teaching semester."

(non-professional courses only).

Baccalaureate Writing Requirement
Students who have chosen the Secondary
Curriculum will satisfy the Baccalaureate

science, or social studies areas

General Physical Education

Writing Requirement by successfully
completing ED 395 School and Society.

2 semester hours minimum; 8 semester hours

maximum. Two semester hours of general

physical education, distributed over at least
two "activity" courses are required.

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 appropriate lists of

Professional Education Program: 34 hrs.

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

acceptable majors and minors listed below.

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

ED

ED

ED

ED

300 The Adolescent and School

Learning

3

Prerequisite: ED 250
301 Teaching of Reading
(Secondary)
3
Prerequisite: ED 300, must
be at least a junior. To be
taken concurrently with ED 302.
302 Teaching and Learning
4
Prerequisite: ED 300; must
be at least a junior. To be
taken concurrently with ED 301.
303 Classroom Organization
and Management
3
Prerequisites: ED 301 and
ED 302.

395 School and Society

Prerequisite: 70 earned hours
A "methods of teaching" course in either

3

departments.)
ED

475 Directed Teaching

(Secondary)
Prerequisite: All of the

10

completion of all coursework.

410 Seminar in Education
(Must be taken

concurrently with ED 475)

Note: ED 475 and ED 410 comprise the

"directed teaching semester."

Vocational/Technical:

Drafting (DRA)
Graphic Arts (GRA)
•Home Economics (HEE)

Metalworking (MWK)

Power/Auto Mechanics (POW)
Secondary Education in Marketing (SEM)
Woodworking (WDK)
•These majors give K-12 certification in that
subject.

Minors

(At least 20 semester hours)
(Choose One)
Anthropology (ANT)
Biology (BIO)
Black Americana Studies (BAS) (only as
second minor)

Chemistry (CHM)
Communication (COM)
Computer Science (CPS)
Earth Science (EAR)
Economics (ECO)
English (ENG)
Environmental Studies (EVS)
Family Life Education (FLE)

Geography (GEG)

Health Education (HET)
History (HIS)
Industrial Education (same minor areas as
listed under major)
International/Area Studies Minors: (only as
second minor)
African Studies (AFS)
Asian Studies (AIS)
Latin American Studies (LAS)
Language Department
French (FREN)
German (GER)
Latin (LAT)
Russian (RUS)

Spanish (SPA)

Mathematics (MAT)

Majors

(only with PYE or SPED major)
Physics (PHY)

(Choose one.)

Psychology (PSY)

*Art Education (ATE)

Science (SCI) (with Biology major only )
Social Science (SOS) (with approved major
only)
Sociology (SOC)

secondary education).

(At least 30 semester hours.)
Anthropology (ANT) (Social Science Minor)
Biology (BIO) (Science Minor)

Chemistry (CHM)

Computer Science (CPS)
Earth Science (EAR)

Economics (ECO) (Social Science Minor)
English (ENG)

•Industrial Education:

Drafting (DRA)

General Industrial Ed. (GIA)

Graphic Arts (GRA)
Metal Working (MWK)

Power-Auto Mechanics (POW)

2

•Physical Education/Teacher-Coach (PYE)
Physics (PHY)
Political Science (POL) (Social Science Minor)
Psychology (PSY) (only as second major)
Secondary Education in Business (SEB)
Sociology (SOC) (Social Science Minor)
Theatre Education (THN) (only as second
major)

Approved majors and minors for the
Secondary Education Curriculum. (Only
programs listed below are acceptable for

History (HIS) (Social Science Minor)

3

Spanish (SPA)

Mathematics (MAT)
•Music Education (MUE) (includes vocal or
instrumental minor)

Occupational Child Care (OCC) (with
Vocational majors only)
Occupational Foods (OCE) (with Home
Economics major only)
Physical Education (PES)

•Health Education (HET)

above and successful

ED

categories. The candidate must satisfy the
requirements for the B.A. or B.S. degree.

Geography (GEG) (Social Science Minor)

the major or minor (both, if required by
the respective major and minor

Electives

Elective credit may be used as needed to
complete minimum graduation requirements
and/or credits that do not qualify in the above

175

Woodworking (WDK)
Language Department Majors:
French (FREN)
German (GER)
Latin (LAT)

Physical Education/Exceptional Child (PEC)
Political Science (POL)

Religions, Academic Study of (ASR)

Vocational/Technical:

Drafting (DRA)
Graphic Arts (GRA)
Metalworking (MWK)

Secondary Education in Marketing (SEM)
Power/Auto Mechanics (POW)

Woodworking (WDK)


Reading Center and Clinic
Joe Chapel, Director
3514 Sangren Hall
(616) 387-3470

The primary purpose of the Reading Center and Clinic is to provide educational and clinical experiences for students enrolled at Western Michigan University who are preparing to work with children and adults in reading. Special activities carried on by the clinic are designed to provide diagnosis and developmental and corrective instruction in reading for children and adults, and to furnish consultative services for teachers and schools in Southwestern Michigan. Furthermore, the clinic provides students in education an opportunity to observe and participate in the administration of educational and clinical tests, and the procedures employed in interviewing children, parents, and school personnel. The Center also houses the Reading Recovery Project. See Education and Professional Development course listings for reading courses offered.

Education College Course (ED)
ED 399 Field Experience (Community Participation) 2-6 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.

CONSUMER RESOURCES AND TECHNOLOGY
Linda L. Dannison, Chair
Max E. Benne
Margie J. Geasler
Gail A. Havens
Jack T. Humbird
Rebecca S. Marvin
Mary Jo Peterson
Maja Petersen
Nancy H. Steinhaus
Darrell B. Thomas
Donna R. vanWestrienen
Patricia B. Viard
Ronald J. Wilson
Carl A. Woloszyk

The Department of Consumer Resources and Technology offers education in the value and efficient use of human and material resources, and in the development of the skills and knowledge appropriate to careers that accommodate the needs of the consumers at the various levels of the economic process.

Curricula offered in the department include: Dietetics, Fashion Merchandising, Food Service Administration, Individual and Family Relationships, Industrial Education Teaching, Interior Design, Textile and Apparel Technology, Vocational Education Teaching.

Minors offered in the department include: Family Life Education (Teaching), Fashion Merchandising, Occupational Foods (Teaching), Occupational Child Care (Teaching).

Academic Advising
Charon Sanford, Room 3033, Kohrman Hall.
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 departmental advisor.

Vocational Education
Students desiring to become qualified as teachers of Vocational Home Economics, Vocational Technical Education (Drafting, Graphic Arts, Metal Working, Power/Automotive Mechanics, Woodworking), or Secondary Education in Marketing must complete the appropriate study program found under Vocational Education in the final section describing programs in the College of Education. Only persons holding the appropriate Vocational and Secondary Provisional Certificates will be qualified to teach in these reimbursed Secondary programs in Michigan Public Schools.

Work Experience Programs
Programs offered in fashion merchandising, food service administration, and interior design are designed to develop occupational competencies in their respective areas. These programs, which are sponsored jointly with industries, provide students with an opportunity to complete a four-year program leading to a Bachelor of Science degree.

Additional Information
General information regarding counseling, scholarships and special programs of interest to students in this department may be found under the beginning of the College of Education section of the catalog. Enrollment will not be honored in any course when other students are requesting that course if the student does not attend the first class meeting (lecture or lab) unless prior arrangements have been made with the instructor. Students not attending courses for whatever reasons are responsible for processing drop slips with the Registration Office if fees are to be refunded and an "X" grade avoided.

Dietetics
Bachelor of Science Degree
The Dietetics Program meets the American Dietetic Association's Standards of Education and graduates are eligible to apply for an accredited internship or an approved supervised practice program. Students must complete either the internship or the supervised practice in order to qualify for certification as Registered Dietitians. After certification, the Registered Dietitian is eligible for positions in hospitals such as those of clinical dietitian or food service administrator, for positions in commercial food establishments such as restaurants, hotels, industrial facilities, schools, colleges, universities and the armed forces, and for positions in community health agencies. The Student Dietetic Association provides an opportunity to meet dietetics professionals, learn about the profession and volunteer for pre-professional activities, as well as meet and interact with fellow dietetics students.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the dietetics major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 461 Diet and Disease or CRT 468 Advanced and Experimental Foods.

Requirements
Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. A grade of "C" or better must be earned in courses with a CRT prefix and in other specified courses presented for graduation.

REQUIRED CRT COURSES —30 hours
Minimum: "C" grade required
CRT 100 Career Seminar - Di/FSA 3
CRT 165 Food Science Principles 3
CRT 260 Nutrition 3
CRT 388 Quantity Foods 4
CRT 468 Advanced Nutrition 4
CRT 461 Diet and Disease 4
CRT 462 Community Nutrition 3
CRT 466 Institutional Management 4
CRT 468 Advanced and Experimental Foods 4

REQUIRED RELATED COURSES —34 hours
Minimum: "C" grade required
MATH 110 Algebra 3
IE 103 Technical Communications 3
CRT 255 Computers in Distribution 3
COM 170 Interpersonal Communications I 3
PSY 103 General Psychology 3
SOC 206 Principles of Social Work 3
ECON 201 Principles of Economics 3
ANTH 220 Cultural Anthropology 3
Third year fashion merchandising students

The fashion merchandising curriculum is

GENERAL EDUCATION

fashion careers in buying and/or

for one or two semesters if a 3.0 grade point

above apply toward this requirement

and various types of media are related fields

CHEM 365 Introduction to Organic

management in retail establishments.

Students who have chosen the fashion

REQUIREMENT

Bachelor of Science Degree

CHEM 101* OR

CHEM 216 General Chemistry I

BIOG 112* Introduction to Biomed

Sciences

CHEM 120 General Chemistry II

BIOG 230* Microbiology and Man

BIOG 240 Human Physiology

CHEM 355 Introduction to

Biochemistry

CHEM 365 Introduction to Organic

Chemistry

GENERAL EDUCATION —35 hours total

* above apply toward this requirement

PHYSICAL EDUCATION —2 hours

ELECTIVES —23 hours

Fashion Merchandising

Bachelor of Science Degree

The fashion merchandising curriculum is

designed for students wishing to pursue

fashion careers in buying and/or

management in retail establishments.

Manufacturing, fabrication, buying offices,

and various types of media are related fields

of interest for students with this orientation.

Third year fashion merchandising students have the option of attending the Fashion Institute of Technology, New York, New York, or the American College in London, England, for one or two semesters if a 3.0 grade point average has been maintained. See departmental advisor for details.

BACCALAUREATE WRITING

REQUIREMENT

Students who have chosen the fashion merchandising major will satisfy the Baccalaureate Writing Requirement by successfully completing BIS 340 Writing for Business.

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

REQUIRED CRT COURSES —43 hours minimum

CRT 100 Career Seminar — 1

CRT 126 The Fashion Industry — 3

CRT 155 Design Principles — 3

CRT 202 Field Experience — 3

CRT 230 Textile I — 3

CRT 221 Fashion Analysis — 3

CRT 226 Fashion/Retail Buying — 3

CRT 228 Nontextile Products — 3

CRT 229 Men's Wear — 3

CRT 320 Visual Merchandising — 3

CRT 326 History of Costume I — 3

CRT 327 History of Costume II — 3

CRT 339 Promotion and Coordinating — 3

Choose 6 hours minimum from this group:

CRT 124 Clothing Construction — 3

CRT 305 Preparing for Employment — 3

CRT 429 Internship — 3

CRT 430 Mass Merchandising — 3

REQUIRED RELATED COURSES —30 hours

CRT 225 Computers in Distribution OR

CS 105* Introduction to Computers — 3

IE 102* Technical Communication — 3

ECON 201 Principles of Economics — 3

ACTY 210 Principles of Accounting — 3

BIS 340 Business Communications — 3

MGMT 300 Fundamentals of Management — 3

MGMT 352 Personnel Management — 3

MKTG 270 Professional Selling — 3

MKTG 370 Marketing — 3

MKTG 374 Advertising — 3

GENERAL EDUCATION —40 hours total

Courses with * above apply here.

PHYSICAL EDUCATION REQUIREMENTS

—2 hours

ELECTIVES —10-16

Food Service Administration

Bachelor of Science Degree

The food service administration curriculum is scientifically oriented for in-depth study of foods in relation to the business field. Students may pursue supervisory/managerial careers in commercial food institutions in the equipment field, food research, public utility food agencies. Student Food Service Administration major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 415 Effective Parenting.

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

REQUIRED CRT COURSES —30 hours

CRT 100 Career Seminar - DIV/FA — 1

CRT 165 Food Science Principles — 3

CRT 202 Field Experience — 3

CRT 205 Topics in CRT - Breads — 1

CRT 205 Topics in CRT - Catering — 1

CRT 225 Computers in Distribution — 3

CRT 260 Nutrition — 3

CRT 368 Quantity Foods — 4

CRT 466 Institutional Management — 4

CRT 468 Advanced and Experimental Foods — 4

CRT 590 Projects/Problems in CRT — 3

REQUIRED RELATED COURSES —56 or 65 hours

ANTH 220 Cultural Anthropology — 3

IE 102* Technical Communications — 3

BIOL 101* Animal Biology — 4

BIOG 112* Biomedical Sciences — 3/4

BIOG 230* Microbiology and Man — 3

CHEM 101* General Chemistry — 3

ECON 201 Principles of Economics — 3

ECON 202 Principles of Economics — 3

MATH 110 Algebra — 3

MATH 116 Finite Math — 3

MGMT 352 Personnel Management — 3

IE 402 Supervision/Indus. Opier — 3

PSY 100* General Psychology — 3

SELECT 21 HOURS FROM:

CRT 160* Introduction to Agriculture — 3

CRT 209 Consumer Education — 3

CRT 429 Internship — 6

ACTY 210 Principles of Accounting — 3

ACTY 211 Principles of Accounting — 3

BIS 340 Business Communication — 3

FCL 320 Business Finance — 3

FCL 380 Legal Environment — 3

FCL 382 Business Law — 3

MATH 216 Business Statistics — 3

MGMT 210 Small Business

Management — 3

MGMT 300 Fundamentals of Management — 3

MKTG 370 Marketing — 3

GENERAL EDUCATION —40 hours

Courses with * above fulfill 29/28 hours of this requirement.

PHYSICAL EDUCATION —2 hours

ELECTIVES —23 hours

Individual and Family Relationships

Bachelor of Science Degree

The individual and family relationships curriculum is an interdisciplinary program designed with flexibility for students who desire leadership positions in public and private programs related to children and families. This program is also intended for those desiring to pursue a Master’s degree program in home economics, counseling, and other related fields.

BACCALAUREATE WRITING

REQUIREMENT

Students who have chosen the Individual and Family Relationships major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 415 Effective Parenting.

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

REQUIRED CRT COURSES —24 hours

CRT 209 Consumer Education — 3

CRT 210 Human Sexuality — 3

CRT 214 Human Growth and Development — 3

CRT 215 Adolescent Development — 3

CRT 266 Food and Society — 3

CRT 318 Intimate Relationships — 3

CRT 413 Marriage and Family in Maturity — 3

CRT 415 Effective Parenting — 3

REQUIRED RELATED COURSES —15 hours

SOC 122 Death, Dying and Bereavement — 3

SOC 190* Men and Women in Contemporary Society — 3

SOC 314 Ethnic Relations — 3

COM 571* Personal Interpersonal Communication — 3

CS 105* Introduction to Computers — OR

CRT 225 Computers in Distribution — 3

RELATED ELECTIVES —Choose 24 hours

BAS 300* Black Experience — 3

COM 170* Interpersonal Communication — 3

CRT 202 Field Experience — 3

CRT 575 Admin of Child Development Centers — 3
### Curriculum for the Student who desires a Bachelor of Science Degree

**EVALUATION.**

Students who have chosen the Industrial Education major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 150, CRT 156, CRT 200, CRT 251, CRT 254 and ET 131, ET 149, ET 349. CRT portfolio review is held annually during the winter semester and is the basis for selective admission to the upper level interior design sequence. A student not admitted to the upper level interior design sequence may elect to reapply and participate in portfolio review again the following winter. See the CRT academic advisor for specifics.

#### BACALAUREATE WRITING REQUIREMENT

Students who have chosen the Interior Design major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 351 Contract Design I.

#### Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

<table>
<thead>
<tr>
<th>REQUIRED COURSES</th>
<th>48 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 150 Intro to Interior Design</td>
<td>3</td>
</tr>
<tr>
<td>CRT 156 Design Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CRT 157 Sketching for Interior Design</td>
<td>3</td>
</tr>
<tr>
<td>CRT 202 Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CRT 220 Textiles I</td>
<td>3</td>
</tr>
<tr>
<td>CRT 251 Period Interiors I</td>
<td>3</td>
</tr>
<tr>
<td>CRT 252 Period Interiors II</td>
<td>3</td>
</tr>
<tr>
<td>CRT 254 Interior Design Materials</td>
<td>3</td>
</tr>
<tr>
<td>CRT 255 Lighting for Interiors</td>
<td>3</td>
</tr>
<tr>
<td>CRT 350 Textiles for Interiors</td>
<td>3</td>
</tr>
<tr>
<td>CRT 351 Contract Design I</td>
<td>3</td>
</tr>
<tr>
<td>CRT 352 Professional Practices</td>
<td>3</td>
</tr>
<tr>
<td>CRT 359 Visual Design Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CRT 450 Residential Design</td>
<td>3</td>
</tr>
<tr>
<td>CRT 451 Commercial Design I</td>
<td>3</td>
</tr>
<tr>
<td>CRT 459 Senior Studio</td>
<td>3</td>
</tr>
</tbody>
</table>

#### REQUIRED RELATED COURSES — 39 hours

<table>
<thead>
<tr>
<th>RELATED COURSES</th>
<th>39 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 131 Intro to Building Practices</td>
<td>3</td>
</tr>
<tr>
<td>ET 149 Intro to Technical Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ET 349 Residential Architectural Design</td>
<td>3</td>
</tr>
<tr>
<td>ET 330 Wood/Materials/Interior Design</td>
<td>3</td>
</tr>
<tr>
<td>CRT 225 Computers in Distribution OR CRT 105 Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201 Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>ART 220 History of Art</td>
<td>3</td>
</tr>
<tr>
<td>ART 221 History of Art</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 270 Professional Selling</td>
<td>3</td>
</tr>
<tr>
<td>COM 104* Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>IE 102* Technical Communications</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 210 Small Business Management OR MGMT 300 Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>ACTY 210 Principles of Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

### GENERAL EDUCATION/LIBERAL ARTS — 40 hours total

Courses with * above apply toward General Education; courses with ** count toward Liberal Arts.

<table>
<thead>
<tr>
<th>ELECRIVES</th>
<th>—Number of hours needed for 122 total</th>
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</thead>
</table>

### Industrial Education Curriculum

#### Bachelor of Science Degree

The Industrial Education curriculum is designed to prepare teachers of industrial education for the junior and senior high school levels. The student must select one major and one minor from the technical areas available. An industrial education teaching minor is available to students not majoring in industrial education, and includes 20 hours of technical courses plus six hours of professional vocational education courses. VE 342 and VE 344.

1. Minimum hours required for this curriculum. 122 hrs.
2. General Education Requirements* 40 hrs.
3. 3 semester hours of written communications and MATH 110 and 111 or equivalent are required.
4. Technical minor in any of the above areas other than the major. 20 hrs.
5. Professional Education Courses 21 hrs.
   - ED 250 Human Development and Learning
   - ED 301 Teaching of Reading (Secondary)
   - ED 302 Teaching and Learning 3
   - ED 305 School and Society
   - ED 475 Directed Teaching (Secondary) 10
6. Professional Vocational Education Courses 6 hrs.
   - VE 342 Course Planning and Construction
   - VE 344 Teaching Practical Arts and Vocational Education
7. Elective 3 hrs.
8. Physical Education 2 hrs.

* To include CS 105 Introduction to Computers

#### BACALAUREATE WRITING REQUIREMENT

Students who have chosen the Industrial Education major will satisfy the Baccalaureate Writing Requirement by successfully completing VE 342 Course Planning and Evaluation.

### Interior Design

#### Bachelor of Science Degree

Interior design is an interdisciplinary curriculum for the student who desires a career in residential or commercial interior design, retailing home furnishings, visual merchandising, marketing of building products, or design related sales. An active student chapter of the American Society of Interior Designers, and optional Institute of Business Designers provide additional opportunities for professional activities.

#### PORTFOLIO REVIEW REQUIREMENT

Any entering freshman or transfer student planning to major in interior design must apply for portfolio review after completing CRT 150, CRT 156, CRT 200, CRT 251, CRT 254 and ET 131, ET 149, ET 349. Portfolio review is held annually during the winter semester and is the basis for selective admission to the upper level interior design sequence. A student not admitted to the upper level interior design sequence may elect to reapply and participate in portfolio review again the following winter. See the CRT academic advisor for specifics.

### Textile and Apparel Technology

#### Bachelor of Science Degree

The textile and apparel technology curriculum is designed for students interested in careers within the manufacturing production cycle of the apparel industry. Students will develop a required career option with the department advisor. A specialized career direction may be developed through the interface of textile/apparel requirements with other academic disciplines. Students may consider choices in design, drafting, construction, quality control, manufacturing or CAD/CAM operations.

#### BACALAUREATE WRITING REQUIREMENT

Students who have chosen the Textile and Apparel Technology major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 354.

#### REQUIRED PROFESSIONAL SEQUENCE — 34 hours

<table>
<thead>
<tr>
<th>REQUIRED PROFESSIONAL SEQUENCE</th>
<th>34 hours</th>
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<tbody>
<tr>
<td>VE 342 Course Planning and Construction</td>
<td>3</td>
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<tr>
<td>VE 344 Teaching Practical Arts and Vocational Education</td>
<td>3</td>
</tr>
<tr>
<td>VE 512 Principles of Vocational Education</td>
<td>3</td>
</tr>
<tr>
<td>VE 543 Coordination Techniques in Cooperative Education</td>
<td>3</td>
</tr>
<tr>
<td>CRT 214 Human Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>ED 301 Teaching of Reading-Secondary</td>
<td>3</td>
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<tr>
<td>ED 302 Teaching and Learning</td>
<td>4</td>
</tr>
<tr>
<td>ED 410 Seminar in Education</td>
<td>2</td>
</tr>
<tr>
<td>ED 475 Directed Teaching-Secondary</td>
<td>10</td>
</tr>
</tbody>
</table>

### Secondary Education in Business

#### Bachelor of Science Degree

Candidates for the Bachelor of Science degree and Vocational and/or Secondary Provisional certification must complete the following program requirements as well as University requirements stated elsewhere in this bulletin. Minimum hours required for this curriculum—124 to 128 hours.

#### REQUIRED MAJOR SEQUENCE* — 36 hours

<table>
<thead>
<tr>
<th>REQUIRED MAJOR SEQUENCE</th>
<th>36 hours</th>
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<tbody>
<tr>
<td>CRT 209 Consumer Education</td>
<td>3</td>
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<tr>
<td>CRT 225 Computers in Distribution</td>
<td>3</td>
</tr>
<tr>
<td>CRT 305 Preparation for Employment</td>
<td>3</td>
</tr>
<tr>
<td>BIS 260 Programming and Applications with Microcomputers</td>
<td>3</td>
</tr>
<tr>
<td>BIS 350 Management Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>ACTY 210 Principles of Accountancy</td>
<td>3</td>
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<tr>
<td>ACTY 211 Principles of Accountancy</td>
<td>3</td>
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<tr>
<td>FCL 380 Legal Environment</td>
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</table>

### Electives — 17 hours

#### ELECTIVES

Select 6 hours from the following:

<table>
<thead>
<tr>
<th>ELECTIVES</th>
<th>—Number of hours needed for 122 total</th>
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</thead>
</table>

* Prerequisite for program: Keyboarding (or BIS 182 Keyboarding Content)
CONSUMER RESOURCES AND TECHNOLOGY 179

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

REQUIREMENTS—36 hours

CRT 100 Career Seminar FAS/TET 1
CRT 202 Field Experience 3
CRT 205 Topics in CRT (TET related) 1-3
CRT 209 Consumer Education 3
CRT 211 Fashion Analysis 3
CRT 224 Experimental Clothing (R) 3
CRT 300 Visual Merchandising 3
CRT 324 Flat Pattern Design II 3
CRT 324 Dressmaker Tailoring 3
CRT 329 Promotion and Coordination 3
CRT 350 Textiles for Interiors 3
CRT 405 Travel/Study Seminar 1-4
CRT 429 Internship 6
CRT 522 Topics in CRT (TET related) 1-3

CHOOSING A CAREER DIRECTION

18-23 hours

 REQUIRED RELATED—22 hours

CS 100* Introduction to Computers 3
CRT 225 Computers in Distribution 3
IE 102* Technical Communications 3
ECON 201* Principles of Economics 3
CHEM 107* Chemistry, Textiles/Design 4
COM 170* Interpersonal Communications 3
PSY 100* General Psychology 3
SOC 122 Death, Dying and Bereavement 3
SOC 190* Minority Women in Contemporary Society 3
SOC 200* Principles of Sociology 3
SOC 210 Modern Social Problems 3
SOC 320 Introduction to Social Psychology 3

GENERAL EDUCATION—40 hours

Two courses with * above apply toward General Education credit.

 ELECTIVES—6 hours

Choose six hours from the following.

ANTH 220* Cultural Anthropology 3
BIOS 101* Animal Biology 4
BIOS 240* Human Physiology 4
BAS 314 The Black Community 3
BAS 320 Ecology and The Black Community 3
COM 170* Interpersonal Communication 3
CRT 202 Field Experience 3
CRT 209 Consumer Education 3
CRT 225 Computers in Distribution 3
CRT 266 Food and Society 3
CRT 413 Marriage and Family in Maturity 3
CRT 524 Socio-Psychological Aspects of Clothing 3
CRT 575 Administration of Child Development Centers 3
PSY 160 Social Psychology 3
PSY 100* General Psychology 3
SOC 122 Death, Dying and Bereavement 3
SOC 190* Minority Women in Contemporary Society 3
SOC 200* Principles of Sociology 3
SOC 210 Modern Social Problems 3
SOC 320 Introduction to Social Psychology 3

Required Related Courses—17 hours

CRT 100 Career Seminar FAS/TET 1
CRT 126 The Fashion Industry 3
CRT 155 Design Principles 3
CRT 220 Textiles 3
CRT 320 Visual Merchandising 3
CHEM 107 Chemistry of Textiles and Technology 4

 ELECTIVES—6 hours*

Choose six hours from the following.

CRT 202 Field Experience 3
CRT 209 Consumer Education 3
CRT 225 Computers in Distribution 3
CRT 266 Food and Society 3
CRT 413 Marriage and Family in Maturity 3
CRT 524 Socio-Psychological Aspects of Clothing 3
CRT 575 Administration of Child Development Centers 3
PSY 160 Social Psychology 3
PSY 100* General Psychology 3
SOC 122 Death, Dying and Bereavement 3
SOC 190* Minority Women in Contemporary Society 3
SOC 200* Principles of Sociology 3
SOC 210 Modern Social Problems 3
SOC 320 Introduction to Social Psychology 3

Minors

Requirements

Students should consult with the department advisor to plan one of the following minors.

Family Life Education

(TEACHING)

REQUIREMENTS—18 hours

CRT 210 Introduction to Human Sexuality 3
CRT 214 Human Growth and Development 3
CRT 215 Adolescent Development 3
CRT 319 Intimate Relationships 3
CRT 410 Teaching of Sex Education in the School 3
CRT 415 Effective Parenting 3

VOCATIONAL EDUCATION

Bachelor of Science Degree

The vocational education teaching curriculum (VET) prepares students to qualify as vocational education teachers in Michigan Area Skill Centers and Secondary Institutions in selected subject areas of vocational education under the provisions of the Michigan State Plan for Vocational Education Areas of vocational education that may be selected by a student are business education, secondary marketing education, home economics, vocational technical education, and health occupations.

Eligibility

Secondary Education in Marketing

Home Economics Education

Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)

Minors

Occupational Child Care

Occupational Foods

(TEACHING)

REQUIREMENTS—24 hours

CRT 165 Food Science Principles 3
CRT 202 Field Experience 4
CRT 260 Nutrition 3
CRT 368 Quantity Foods 4
CRT 466 Institutional Management 4
CRT 589 Independent Study in Consumer Resources and Technology 1
VE 542 Occupational Education (Foods) 2
VE 543 Coordination Techniques in Occupational Education 2

Elective courses, if needed, to complete the 24 semester hours:

ACTY 201 Accounting Concepts and Applicability 3
MGMT 352 Personal Management 3
ECON 201* Principles of Economics 3
PSY 100* General Psychology 3
SOC 200* Principles of Sociology 3
VE 512 Principles of Vocational Education 3

Additional requirement:

4000 clock hours of relevant work experience in food service industry within the past 5 years which can be documented.

Information about vocational certification to teach business or business education courses may be obtained by contacting the vocational coordinator at 387-3755.

Minors

Occupational Child Care

Occupational Foods

Secondary Education in Marketing

Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)

Vocational Advising

The advisor is available to assist in individual program planning. Recommend electives appropriate to the career objective of a vocational teacher. Discuss employment opportunities. Substitutions and transfer credit must be approved by the departmental vocational advisor.

Majors

Secondary Education in Marketing

Home Economics Education

Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)

Minors
Vocational Educational Teaching Curriculum

Requirements

Candidates for the Bachelor of Science degree and Vocational and/or Secondary Provisional certification must complete the following program requirements as well as University requirements stated elsewhere in this bulletin.

A. Minimum hours required for this curriculum—124 to 128 hours

B. General Education requirement—40 hours

C. Major Sequence—30 to 36 hours

Choose one of the following three major sequences.

1. Secondary Education in Marketing—36 hours
   (4,000 work hours required; may necessitate internship or work experience)
   CRT 126 The Fashion Industry
   CRT 155 Design Principles
   CRT 225 Computers in Distribution
   OR
   CRT 105* Introduction to Computers
   ECON 201 Principles of Economics (Micro)
   ACTY 210 Principles of Accounting
   MKTG 270 Professional Selling
   CRT 305 Preparation for Employment
   CRT 320 Visual Merchandising
   CRT 329 Promotion and Coordination
   MKTG 370 Marketing
   MKTG 374 Advertising
   CRT 430 Mass Merchandising

2. Home Economics Education—36 hours
   CRT 165 Food Science Principles
   CRT 210 Human Sexuality
   CRT 215 Transitions to Adulthood
   CRT 260 Nutrition
   CRT 318 Intimate Relationships
   CRT 410 Teaching Human Sexuality
   CRT 413 Marriage and Family in Maturity
   CRT 415 Effective Parenting

Select 6 hours from:
   CRT 209 Consumer Education
   CRT 225 Computers in Distribution
   CRT 305 Preparation for Employment

Select 6 hours from:
   CRT 124 Clothing Construction
   CRT 155 Design Principles
   CRT 221 Fashion Analysis
   CRT 209 Consumer Education
   CRT 214 Human Growth and Development
   CRT 260 Nutrition
   CRT 415 Effective Parenting
   VE 542 Occupational Education
   CRT Electives (advisor planned)
   (200 work hours required; this may be voluntary or paid work experience and must be completed in three of the following areas: family services, child/young services, consumer services, or educational services.)

3. Vocational Technical—30 hours
   Technical course sequence is planned in consultation with an advisor in one of the following areas: drafting, graphic arts, metalworking, power/auto, woodworking.
   (4,000 work hours required; may necessitate internship or work experience.)

D. TEACHABLE MINOR—20 hours

E. PROFESSIONAL VOCATIONAL EDUCATION—11 hours
   VE 342 Course Planning and Construction

VE 344 Teaching Practical Arts and Vocational Education
VE 512 Principles of Vocational Education
VE 542 Occupational Education
F. PROFESSIONAL TEACHER EDUCATION—20 hours
   CRT 214 Human Growth and Development
   ED 301 The Teaching Reading (Secondary)
   ED 302 Teaching and Learning (Secondary)
   ED 410 Seminar in Education
   ED 475 Directed Teaching (Secondary)

G. ELECTIVES—Based on MAJOR SEQUENCE requirements

H. PHYSICAL EDUCATION—2 hours

Vocational-Technical Curriculum

Bachelor of Science Degree

Minimum hours required for this curriculum 122 hrs.

Course Requirements

1. General Education Requirements 35 hrs.

2. Mathematics (110 and 111) 6 hrs.

3. Technical Major in one of the following areas: 30 hrs.
   Drafting
   Graphic Arts
   Metalworking
   Power/Automotives
   Woodworking

4. Technical Minor in any one of the above areas other than the major: 20 hrs.
   Professional Education Courses 22 hrs.
   ED 250 Human Growth and Development
   ED 301 Secondary Reading
   ED 302 Teaching and Learning
   ED 410 Seminar in Education
   ED 475 Directed Teaching

Professional Vocational Courses 9 hrs.
   VE 342 Course Planning and Construction
   VE 344 Teaching Practical Arts
   VE 512 Principles of Vocational Education

6. Option II (Technical Education without teaching certificate) 30 hrs.
   VE 342 Course Planning and Construction
   COM 104 Public Speaking
   VE 543 Coordinating Techniques in Coop Education
   IE 422 Conference Leadership
   IE 402 Conference Leadership
   VE 512 Principles of Vocational Education
   PSY 100 General Psychology
   Elective
   Physical Education 2 hrs.

Vocational Endorsement requires 4,000 clock hours of work experience in the major or the minor.

Vocational Minors

SECONDARY EDUCATION IN MARKETING
   24 hours
   (4,000 work hours required; may necessitate internship or work experience)
   CRT 126 The Fashion Industry
   CRT 320 Visual Merchandising
   CRT 430 Mass Merchandising
   MKTG 370 Marketing
   MKTG 374 Advertising
   ECON 201 Principles of Economics
   MKTG 270 Professional Selling
   ACTY 210 Principles of Accounting

FOOD OCCUPATIONS—24 hours

See departmental advisor in the Department of Consumer Resources and Technology for course requirements and work hours required.

OCCUPATIONAL CHILD CARE—23-24 hours

See advisor in Department of Consumer Resources and Technology for course requirements and work hours required.

VOCATIONAL TECHNICAL—20 hours

See the departmental advisor for planning courses in the areas of drafting, graphic arts, metalworking, power/auto, and woodworking.

Majors in non-vocational teacher preparation programs may earn vocational certification by completing one of the foregoing vocational minor sequences in consultation with the advisor.

Consumer Resources and Technology Courses (CRT)

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-laboratory hours).

CRT 100 Career Seminar (1-0)
1 hr. Fall, Winter
Orientation to special career opportunities in fashion, textile, or foods and dietetics, featuring resource guest speakers. Specific sections per area of emphasis.

CRT 124 Clothing Construction (2-3)
3 hrs. Fall, Winter
Basic construction techniques, pattern alteration, fitting and design as related to the individual construction of garment. Test available for those desiring placement in upper level courses.

CRT 126 The Fashion Industry (3-0)
3 hrs. Fall
An introduction to the manufacturing and merchandising of apparel. This course includes the business, environment, movement, and market centers of fashion. An emphasis on designers, specialty fashion retailers, and auxiliary services is explored.

CRT 155 Introduction to Interior Design (2-3)
3 hrs. Fall, Winter
Basic study of the elements and principles of designing and furnishing interiors.

CRT 155 Design Principles
3 hrs. Fall, Winter
Introduction to basic principles and elements of design and color fundamentals, with application particularly in the fields of fashion and textiles.
CRT 156 Design Fundamentals
3 hrs. Fall, Winter
A focused introductory study of the basic elements and principles of design for the interior design major. Emphasis will be placed on concept development, color theory and presentation skills.

CRT 157 Sketching for Interior Designers
3 hrs. Fall
Development of freehand drawing skills pertinent to Interior Designers by emphasizing non-mechanical perspective, controlled line quality and presentation. Prerequisites: CRT 156 and ET 149.

CRT 160 Introduction to Agriculture (4-0)
4 hrs. Fall, Winter
An introduction to the principles and practices of food and fiber production, and agriculture’s role in today’s society and economy.

CRT 161 Animal Industry (4-0)
4 hrs. Fall
Fundamental concepts of livestock and poultry production in the United States. An introduction to types, breeds, selection, and management of livestock and poultry.

CRT 165 Food Science Principles (2-3)
3 hrs. Fall
Relationship of food science principles to basic food preparation techniques. Prerequisite: CHEM 101.

CRT 202 Field Experience
1-3 hrs. Fall, Winter, Spring, Summer
On-the-job experience under supervision of department with cooperating organizations. Written materials and performance appraisal required. Department majors only.

CRT 205 Topics in Consumer Resources and Technology
1-3 hrs. Fall, Winter, Spring
Individual topics in five/ten/fifteen week formats, ranging in 1-3 hours of credit. Prerequisite: CRT 124 or consent of instructor. Department majors only. Corequisite: CRT 124, 224, or consent of instructor.

CRT 209 Consumer Education (3-0)
3 hrs. Fall, Winter
A study of the information available to consumers in our economy with emphasis on personal decision making in money management and product and services choices, and consumer protection.

CRT 210 Sex Education—An Introduction to Human Sexuality (3-0)
3 hrs. Fall, Winter, Spring
Covers various aspects of human sexuality, trends in moral values and behavior patterns, anatomy and physiology of human reproduction, and current issues in sex education.

CRT 214 Human Growth and Development (2-3)
3 hrs. Fall
A study of physical, social, emotional, and intellectual growth of young people. Three hours per week required participation and observation in youth-oriented centers. (Hours are arranged)

CRT 215 Adolescent Development (3-0)
3 hrs. Winter
A study of interpersonal relationships and the physical and emotional development of the person in early and later adolescence. Prerequisite: CRT 214.

CRT 220 Textiles I (3-0)
3 hrs. Fall, Winter
Consumer-oriented textiles emphasizing fibers, yarns, fabric constructions and finishes as related to use, serviceability, and care. Prerequisite: CHEM 107 or equivalent.

CRT 221 Fashion Analysis (3-0)
3 hrs. Fall, Winter
Investigation and evaluation of elements comprising the total fashion appearance most appropriate in individual apparel selections and/or customer recommendations.

CRT 222 Flat Pattern Design I (2-3)
3 hrs. Winter Odd Years
A study of the drafting techniques employed in the flat pattern method for designing clothing. Prerequisite: CRT 124, Completion of Computer Literacy requirement.

CRT 224 Experimental Clothing Techniques (2-3)
3 hrs. Fall
Experiences in clothing construction with emphasis on special problems relative to varied fabrics and design. May be repeated once. Prerequisite: CRT 124.

CRT 225 Computers in Distribution
3 hrs. Fall, Winter
A course intended to develop the awareness of the use of computers in areas of distribution such as agriculture, fashion, petroleum, food, and vocational teacher preparation and to increase the student’s skill in using microcomputers for financial records and planning, market analysis, inventory, and equipment control and production planning. Credit can not be earned for both CRT 225 and either CS 105, BIS 102, or SOC 182.

CRT 226 Fashion/Retail Buying (3-0)
3 hrs. Winter
Fundamentals of merchandising mathematics, its relationship to buying, and use in the fashion/retail industry. Includes elements of profit and loss statements, purchase discounts, dating, markup, markdown, turnover, and open-to-buy. Also includes sources of buying information, and responsibilities of buyers in various types of firms.

CRT 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. Select section according to curriculum.

CRT 229 Menswear (3-0)
3 hrs. Fall
The course includes history, terminology, fabrics, garments, accessories, and the organizational structure peculiar to this industry.

CRT 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.

CRT 252 Period Interiors II (3-0)
3 hrs. Winter
Influences and characteristics in period decoration and furniture of historical interiors and exteriors from Early American through contemporary.

CRT 254 Interior Design Materials
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: CRT 150, ET 149.

CRT 255 Lighting for Interiors (2-3)
3 hrs. Winter
Considers light as an element of design and investigates its role in designing interiors. Material covered will emphasize the practicalities of appropriate fixture location and specification, blueprint reading and budgets. Prerequisites: CRT 157 and CRT 254, and ET 349.

CRT 260 Nutrition (3-0)
3 hrs. Fall
A study of the essential nutrients and their function in the human body. Prerequisites: CHEM 101 or BIOS 101 or 107, 112.

CRT 261 Agronomy (Crop Production) (4-0)
4 hrs. Fall, Winter
The principles of crop production, management, breeding, weed control, and crop quality are considered as they relate to field crops.

CRT 266 Food and Society (3-0)
3 hrs. Fall, Winter
Study of the effects of culture and environment on the problems of food production and meeting nutrient needs in western and non-western countries.

CRT 305 Preparing for Employment (3-0)
3 hrs. Fall, Winter
Extensive investigation of basic elements involved in a job search, including job resume, letter of application, career resources and establishing contacts, and questions and kinetics in the job interview. Prerequisite: Junior standing.

CRT 318 Intimate Relationships: Friends, Family, and Marriage (3-0)
3 hrs. Fall, Winter, Spring
Exploration of literature, family and culture issues related to formation and maintenance of interpersonal relationships in adolescence and adulthood. Includes study of communication and conflict negotiation strategies for marriage and other relationships.

CRT 320 Visual Merchandising (3-0)
3 hrs. Fall, Winter
Specific development of display fundamentals in composition, lighting, color, signing, motion, ideas, organization and management, installation, budget, tools, props, materials, mannequins, store planning, point of purchase, exhibits, showrooms, and special promotion. Prerequisite: CRT 155.

CRT 322 Flat Pattern Design II (5-0)
3 hrs. Fall, Winter Even Years
A study of advanced drafting techniques, including computer-aided design, employed in the flat pattern method for designing clothing. Prerequisite: CRT 222.

CRT 324 Dreammaker Tailoring (2-3)
3 hrs. Winter
Construction of tailored garments using time-saving methods. A minimum of two garments will be completed. Prerequisite: CRT 124, 224, or consent of instructor.

CRT 326 History of Costume I (3-0)
3 hrs. Fall
Survey of the development of costume from prehistoric to the French Revolution with its application to contemporary dress.

CRT 327 History of Costume II (3-0)
3 hrs. Winter
Survey of the development of costume from the French Revolution to present day with emphasis on 20th century designers and analysis of historic fashion cycles and current trends as a basis for future prediction and design.

CRT 329 Promotion and Coordination (3-0)
3 hrs. Fall, Winter
Principles and special techniques and sources of information important in presenting fashion products. Prerequisites: CRT 126, CRT 155.

CRT 350 Textiles for Interiors (3-0)
3 hrs. Fall
Evaluation and analysis of carpets, drapery and upholstery fabrics, and decorative fabric.
products with regard to quality, selection, performance, and maintenance for home and office. Special attention devoted to material estimating and installation. Prerequisite: CRT 150, CRT 155, CRT 220

CRT 351 Contract Design I (2-3) 3 hrs. Winter Introduces the design of the business environment. Concentrates on offices and the use of systems products. Prerequisites: CRT 250, CRT 350, and ET 349 (CRT 255 and CRT 350 may be taken concurrently with CRT 351).

CRT 352 Professional Practices 3 hrs. Winter An analysis of the professional procedures and practices used in the interior design industry. A survey of the diversified career opportunities in both residential and commercial fields. Prerequisite: CRT 351

CRT 359 Visual Design Techniques (1-6) 3 hrs. Winter Course involves the designing or specifying of store furnishings, fixtures and lighting necessary in coordinating promotional exhibits. Course also addresses signage development, prop construction, showroom design and layout. Prerequisites: CRT 255

CRT 361 Introduction to Soils (4-0) 4 hrs. Fall, Winter The origin and development of soils as natural entities with certain inherent characteristics. Basic relationships between soils and plants and the principles involved in the practical use and conservation of the soil. Prerequisites: CHEM 100 or one unit H.S. Algebra and Chemistry

CRT 362 Landscape Gardening (3-0) 3 hrs. Winter or Spring Care and planting of trees, flowers and shrubs, lawn establishment and care, identification and selection of planting materials.

CRT 363 Landscape Design (3-0) 3 hrs. Winter or Spring Emphasis in this course will be placed on the environmental approach to landscaping. This concept considers the relationship between a house and its lot and consequently their relationship to the neighborhood, the community, and ultimately the whole region.

CRT 364 Land Use and Soil Conservation (4-0) 4 hrs. Winter A study of the utilization of land by individuals and ways and means of promoting better use of various land types, including recommended practices for conservation of the productivity of our lands.

CRT 365 Agricultural Management (4-0) 4 hrs. Winter A study of the management of agricultural businesses, from those entities supplying inputs to food and fiber producers to those buying and handling their products.

CRT 368 Quantity Foods (3-3) 4 hrs. Winter Course emphasizes quantity food purchasing techniques, safety and sanitation, and quantity foods preparation in residence hall kitchens, school lunchrooms, and other quantity foods institutions. Prerequisites: CRT 165, CRT 260.

CRT 405 Travel/Study Seminar 1-4 hrs. Winter, Spring Student participation in departmentally sponsored travel/study program in U.S. and/or abroad. Written assignments and planned itinerary. Maximum 2-3 foreign, 1-2 domestic, not to exceed 4 in total. Prerequisite: Department approval

CRT 410 Teaching Sex Education in the School (3-0) 3 hrs. Fall, Winter, Spring Methods, materials and curriculum development at various grade levels in sex education in the school program. Prerequisite: CRT 210 or approval of the instructor

CRT 413 Marriage and Family in Maturity (3-0) 3 hrs. Fall Marital and family interaction in middle and later years.

CRT 415 Effective Parenting (3-0) 3 hrs. Winter Preparation for parenthood. Study of the relationships between the child, his/her development, the process of parental development, school, and family relationships. Special attention to the systems theory as it applies to the family.

CRT 420 Textiles II (2-0) 2 hrs. Winter-Even Years Investigation of recent fiber developments, new construction techniques and finishes in the textile field. Opportunity for individual investigation and research. Prerequisite: CRT 220

CRT 429 Internship 6 hrs. Fall, Winter, Spring Off-campus, supervised experience. Specific sections per area of interest. Prerequisite: Department junior or senior

CRT 430 Mass Merchandising (3-0) 3 hrs. Fall, Winter Mass merchandising competences of profit economics, merchandising, space allocation, supervision, pricing, inventory control, advertising, sales ratios, and merchandise security developed through performance objectives. Prerequisite: Junior standing

CRT 450 Residential Design (1-6) 3 hrs. Fall Creation of artistic home interiors with materials of interior design, including the preparation of renderings and purchasing data for residential work. Prerequisites: CRT 252, CRT 350, CRT 359

CRT 451 Contract Design II (1-6) 3 hrs. Winter Continues investigating the design of business/commercial interiors with an emphasis on the total design process in developing complex architecturally oriented projects. Prerequisites: CRT 351.

CRT 459 Senior Studio (1-6) 3 hrs. Winter Capstone course in investigation and execution of special problems and projects in the field of interior design. Prerequisite: CRT 450 which may be taken concurrently.

CRT 460 Advanced Nutrition (3-2) 4 hrs. Fall Recent developments in nutrition through readings and experiences. Students will be required to work as peer educators in the Sindicuse Health Center’s Weight Control Program. Prerequisites: CRT 260, BIOS 240, CHEM 365.

CRT 461 Diet and Disease (3-2) 4 hrs. Winter 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: CRT 460, dietician major or consent of instructor

CRT 462 Community Nutrition (3-0) 3 hrs. Winter-Even Years Explores 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.

CRT 466 Institutional Management (4-0) 4 hrs. Fall-Odd Years Application of institutional administration principles, including job analyses, labor policies, personnel problems, cost control, and food service equipment to different food service systems. Prerequisite: CRT 260.

CRT 468 Advanced and Experimental Foods (3-3) 4 hrs. Fall Concentrated study of advanced principles of food preparation, development of experimental techniques, and opportunities for individual studies. Prerequisites: CHEM 101, CRT 165.

CRT 469 Home Management and Equipment (3-0) 3 hrs. Winter-Even Years A study of principles, functions, care, and application of home equipment as related to theory and principles of home management.

CRT 522 Topics in Consumer Resources and Technology 1-3 hrs. A study of the current issues impacting the areas of study in consumer Resources and Technology: dietetics and human nutrition, family life education and home economics education, textile and apparel technology, or vocational education. Students may elect up to six (6) hours if topics vary. Topics to be announced. Prerequisite: Seniors and graduate students only

CRT 524 The Socio-Psychological Aspects of Clothing (3-0) 3 hrs. Winter-Even Years Study of dress and adornment as related to human behaviors. An interdisciplinary approach to clothing-related research and non-verbal communication, person perception, and group conformity.

CRT 565 Problems in Nutrition (3-0) 3 hrs. Summer A discussion of current problems in nutrition. Not open to dietetics majors. Prerequisite: CRT 260 or equivalent

CRT 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.

CRT 590 Project/Problems in Consumer Resources and Technology Variable 1-4 hrs. Fall, Winter, Spring Directed independent project in specialized curricula within Consumer Resources and Technology. Prerequisite: Department approval

CRT 598 Independent Study in Consumer Resources and Technology 1-6 hrs. Fall, Winter, Spring, Summer Directed independent advanced study in subject matter area not otherwise treated in departmental courses. Department approval required prior to enrollment.
Vocational Education Courses (VE)

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture-hours/laboratory hours).

VE 342 Course Planning and Construction (3-0)
3 hrs. Fall, Winter
Principles of analyzing, selecting, and arranging instructional materials for instruction purposes. Lesson plans, unit plans, and complete courses of study are included.

VE 344 Teaching Practical Arts and Vocational Education (3-0)
3 hrs. Fall, Winter
Covers all aspects of teaching unique to practical subject laboratory instruction included are the teacher's role, laboratory instruction material, laboratory teaching methods, evaluation techniques, and laboratory administration and management.

VE 512 Principles of Vocational Education (3-0)
3 hrs. Fall
The place and function of the practical arts and vocational education in the modern school and the fundamental principles upon which this work is based. For teachers of business, distributive education, home economics, industrial subjects, office subjects, and for administrators. For upperclass and graduate students.

VE 513 Technical Education Methods (3-0)
3 hrs.

VE 514 Workshop in Vocational-Technical Education 1-3 hrs.
Designed to assist vocational education personnel meet vocational education program standards of quality mandated by the vocational-technical education service. Workshop topics will vary to meet vocational education personnel needs. Students may enroll for more than one topic, but in each topic only once, to a maximum of three hours credit. Prerequisites: Vocational certification or consent.

VE 542 Occupational Education (2-0)
2 hrs. Summer
Planning for wage earning programs at the secondary and adult levels.

VE 543 Coordination Techniques in Cooperative Education (3-0)
3 hrs. Winter
This is a study of duties and responsibilities of the teacher-coordinator. The organization and establishment of training programs, supervision of trainees on the job, development of individual training programs, establishing working relationships between school, business, and home, and participation in activities in the community, especially adapted to prospective coordinators.

Counselor Education and Counseling Psychology

The Department of Counselor Education and Counseling Psychology offers professional education in the fields of counseling psychology, community agency counseling, counselor education and supervision, student personnel services in higher education, and school counseling and guidance. Most of the courses are open to graduate students only, but the following courses are open to qualified undergraduates.

Counselor Education and Counseling Psychology (CECP)

CECP 483 Treating Diverse Clients in Employee Assistance Programs 3 hrs.
This course emphasizes increasing knowledge, understanding, and awareness of diversity among course participants and the contemporary American work force. Significant attention is devoted to treating racial minorities, women, gay/lesbian/bisexuals, older adults, persons with various religious affiliations, and the disabled within the context of Employee Assistance Programs. Open only to Employee Assistance Academic Program majors.

CECP 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.

Education and Professional Development 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. Credit for this course will not apply to the number of credits needed for graduation. Course is graded on a credit/no credit basis.
ED 106 Effective College Reading for International Students
2 hrs.
This course focuses on vocabulary development and comprehension, including an emphasis on correct pronunciation, word analysis, factual and inferential thinking, and synthesis of ideas. Course is graded on a credit/no credit basis. Prerequisite: Results of TOEFL or MTEL.

ED 200 Introduction to American Education
3 hrs.
This course is designed to explore some of the major educational issues that have provoked public debate and institutional reform in America. The purpose of the course is to achieve an understanding of these issues and the functions of education through the use of historical, sociological and philosophical concepts. The course provides an opportunity for pre-education students to explore their interest in education and teaching.

ED 230 The Nature of Creativity
3 hrs.
This course explores the nature of creativity—its processes, its products, its characteristics, its values, and its relationship to human beings and society. Growth in aesthetic sensitivity, personal interaction, self-confidence, and ability to solve problems creatively are the objectives of this course. Open to all students.

ED 250 Human Development
3 hrs.
This course traces the psychological and social development of human beings from conception through adolescence. Consideration is given to those factors which facilitate or inhibit normal progress in the areas of physical, emotional, social, intellectual, and moral development. Attention is also given to the development of the self-concept for purposes 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.

ED 260 The Cognitive Development of the Child
2 hrs.
This course focuses on the physical, social, emotional, and cognitive development of the child, birth through 12 years. Special attention is given to Piagetian framework. Applications to the teaching of language arts are emphasized. (This course is required for the Integrated Language Arts Minor and in that program must be taken concurrently with SPPA 260.)

ED 300 The Adolescent and School Learning
3 hrs.
Course includes adolescent psychology and development, cultural differences, the exceptional learner, introduction to cognitive psychology, motivation the adolescent learner. Prerequisite: ED 250, admission to professional program in education.

ED 301 Secondary Reading
3 hrs.
Secondary reading in the content areas; meeting the instructional needs of culturally diverse students and exceptional learners. Continuation of cognitive psychology. Prerequisites: ED 250, ED 300, admission to professional program in education.

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 motivate students and enable learners to retain information and transfer learning, and designing assessment strategies. Requires a minimum of one (1) day per week participating in a classroom. Prerequisite: ED 300. May be taken concurrently with ED 301.

ED 303 Class Organization and Management
3 hrs.
Human relations skill building, small- and large-group class organization and management. Study of motivation. Prerequisites: ED 300, ED 301, and ED 302.

ED 309 Educational Psychology of Early Childhood
3 hrs.
This course will develop an understanding of how children learn, from birth through early adolescence. Emphasis will be placed on the learning styles of young children, aged 0 through 9. Emphasis will be placed on major learning theories, on the growth of positive self-concepts, and on the cognitive styles of these age levels. Students will examine the effects of cultural and gender differences and of discrimination on learning. Concurrent enrollment with ED 312 is encouraged. 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. Concurrent enrollment with ED 312 is encouraged. Prerequisite: Admission to the Early Childhood Emphasis or minor.

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, and the role of teaching reading 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, will also be presented. Prerequisite: Admission to professional program in education. Concurrent enrollment with ED 309 and ED 310 is encouraged.

ED 347 Technology for Elementary Education
2 hr.
An introduction to the contributions of instructional technology to learning and teaching in elementary education. The course will provide a survey of critical use of technology appropriate for elementary education and instruction, helping students to acquire basic skills in producing and using computers, video, and other instructional technologies in educational applications. Concurrent enrollment with ED 351 is encouraged.

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 Reading and Related Communication Skills for Early Childhood
3 hrs.
A study of young children's verbal and nonverbal language and how they record and interpret language. An awareness of the relationship of experience to language development and of the many approaches to reading. Emphasis will be placed on the implication of current research as it affects reading programs and reading instruction for young children, as well as on experiences in selecting books, storytelling, writing for and with children, and the production of a wide variety of audiovisual materials to be used with children. Participation will be required in school settings. Prerequisite: ENGL 282, ED 312. Concurrent enrollment with ED 347 is encouraged.

ED 352 Reading and Related Communication Skills for Middle and Upper Grades
3 hrs.
A study of the multi-ethnic language of this age group and of how these learners record and interpret language. Emphasis will be placed on the implications of current research as it affects reading programs and reading instruction. Grouping for learning skills for reading in the content fields, testing, and remedial techniques will be stressed. Emphasis will be placed on book selection, storytelling, creative writing, and the production of a wide variety of audiovisual materials to be used in selected classrooms. Participation will be required in school settings. Prerequisite: ENGL 282, ED 312. Elementary Education Minors must complete ED 351 prior to registering for ED 352.

ED 359 Early Childhood Classroom Organization and Management
3 hrs.
Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task; appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Emphasis will be placed on organization and management in early childhood classrooms and on appropriate learning experiences for young children. Requires a minimum of one (1) day per week participation in a classroom. Prerequisites: ED 309; admission to the Early Childhood Emphasis or minor.

ED 371 Elementary Classroom Organization and Management
3 hrs.
Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task; appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an
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, and scientifically oriented society. Content issues include inquiry as to how social, historical, political, philosophically, economically, and legally factors influence educational policy and practice. The role of individuals in the change process in education is examined. An interdisciplinary approach is used. Prerequisite: Minimum of 70 earned semester credit hours. This course satisfies the University's baccalaureate level writing requirement.

ED 398 Special Studies in Education

This capstone course is required of all students teaching and observation experiences on a 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 410. Prerequisites: ED 310 and program requirements except Directed Teaching and ED 410 must be completed prior to Directed Teaching. Credit/no credit only.

ED 472 Directed Teaching: Upper Elementary/Middle School 5 or 10 hrs.

Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the 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 410. Prerequisites: ED 310 and program requirements except ED 410 must be completed prior to Directed Teaching. Credit/no credit only.

ED 474 Directed Teaching in Special Education 10 hrs.

Only for students specializing in Special Education. Candidates must be approved by the Chair of the Special Education Department. The student shall present documented evidence of successful field experience with children or young people prior to beginning the Directed Teaching assignment. Credit/no credit only.

ED 475 Directed Teaching: Secondary 5 or 10 hrs.

Students devote a minimum of five days per week for one semester to Directed Teaching. They are expected to have experience in both the curricular and extra curricular programs of the school in which they teach. Prerequisite: All courses and program requirements except ED 410 must be completed prior to Directed Teaching. Credit/no credit only.

ED 500 In-service Professional Development 1 hr.

This course develops specific professional skills related to current school responsibilities of teachers and other school personnel. May be repeated but only three credit hours may be applied toward meeting professional program requirements. No more than six hours of 502 may be applied toward a Master's degree.

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 concurrently with ED 410.
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 role 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 abilities. Motivation as prerequisite for high-level wellbeing and problem solving will be studied.

ED 506 Teaching in Adult Education
3 hrs.
This course is designed to present the basic concepts incurred in the teaching of adults. Included are techniques of interpersonal communication with adults, as well as a practical exercise in the designing of learning experiences for adults. 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 in 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 509 Parent Education for Teachers of Young Children
3 hrs.
Presents a variety of techniques for teachers to use in working together with parents. Teachers will study child-rearing factors which parents most need to know. The course will help teachers to develop their own record-keeping systems, ways of involving parents in their children's education, and ways of making meaningful reports to parents. The education of parents as aides is included.

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 517 Reading in the Content Areas
3 hrs.
Designed to acquaint elementary, middle school, and high school teachers with reading strategies used in the process of reading to learn. Participants will consider the text factors which affect student learning, and develop and evaluate strategies and materials to enhance the students’ learning in specific content areas.

ED 521 Piaget and Young Children
3 hrs.
Examines significant contributions of Piaget to our understanding of young children’s learning. Knowledge of how young children think will be applied to early childhood curriculum. Teachers will apply Piagetian tasks and will be able to improve curriculum for young children with a growing understanding of these children’s minds.

ED 548 Audiovisual Media I
3 hrs.
An introduction to audiovisual media as effective means for achieving instructional and communication objectives using simple skills and equipment. Emphasizes evaluation, selection, production and use of commercially-available and locally-produced instructional materials. Students are expected to participate in laboratory experiences in which they produce materials such as mounted and laminated pictures and displays, overhead projection transparencies, audiotapes and photographic prints and slides, and to demonstrate proficiency in the operation of audiovisual equipment. In addition to texts each student should plan to spend $50 or more for supplies and have the use of a simple camera.

ED 549 Audiovisual Media II
3 hrs.
A parallel to ED 548 which emphasizes those simple media techniques which require more equipment or collaboration with one or more other people. Laboratory experiences may include production of a synchronized photographic slide/tape presentation, an edited audiotape and a one-camera videotape presentation, design of printed handouts and brochures, computer graphics and design of a free-standing display. A systematic production planning process is emphasized, with consideration given to evaluating effectiveness of media. In addition to texts, each student should expect to spend $50 or more for supplies and should have the use of a versatile camera.

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 a field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental advisor and instructor.

EDUCATIONAL LEADERSHIP
Patricia First, Chair
Robert O. Brinkerhoff
David J. Cowden
Patrick Jenink
Ulrika Smitschers
Eugene W. Thompson
Charles C. Warfield

This department offers curricula in line administration, staff administration, human resource development, and program leadership, leading to a degree of Master of Arts, Specialist in Education, Doctor of Education, or Doctor of Philosophy. While most of the department’s courses, seminars, and studies, are intended for graduate students, programs of studies may be outlined and pursued by advanced undergraduate students whose career goals include positions as leaders in the many and varied educational agencies that are operative in society today. Courses are listed under the prefix EDLD. Interested students should see The Graduate College Catalog for more detail.

Educational Leadership (EDLD)

EDLD 420 Employee Assistance Program Education and Training
3 hrs.
This course is designed for the student who is preparing for a career as an employee assistance professional and for persons currently working as employee assistance professionals. The course provides an overview of the training function in an EAP professional training roles studied include the EAP professional as a planner, designer, facilitator, program manager, and evaluator. Open only to Employee Assistance Academic Program majors. Prerequisite: SCHS 220.
Alternative Careers
The student may select a student planned curriculum to pursue a career in sports business; sports management; sports journalism, etc. The student must see an advisor for approval prior to completing 75 credit hours.

General Education Requirement
Each student must complete 36 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 5 hours in the College of Arts and Sciences.

Majors
Health Education Major
45 credit hours
Bachelor of Science Degree
The major in health education allows students to choose one of two professional preparation options:
1. School emphasis
2. Community emphasis
Successful completion of the school emphasis leads to K-12 certification for the teaching of health education. Students must complete the education sequence required by the Department of Education and Professional Development including the directed teaching experience. 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. All health education majors are expected to have a valid first aid certificate at the time of graduation.

BACCALAUREATE WRITING REQUIREMENTS
Students who have chosen the Health Education major will satisfy the Baccalaureate Writing Requirement by successfully completing PEPR 450 Cultural Bases of Physical Education or ED 395 School and Society.

Transfer Students
Transfer courses from four year schools and appropriate lower division courses from community colleges may be included in majors and minors. However, a minimum of one-half of the required semester hours for a major or a minor must be taken at Western Michigan University. The PEPR teaching methods course(s) must be included in the hours at WMU. Transfer students must participate in HPER entry skill and fitness assessments.

Physical Education Major
45 credit hours
Bachelor of Science Degree
The major in physical education allows the student to choose one of two professional preparation options:
1. Teacher-Coach Emphasis
2. Community Emphasis
Successful completion of the Teacher-Coach emphasis leads to K-12 certification for the teaching of physical education. Students must complete the education sequence required by the Department of Education and Professional Development including the directed teaching experience. The Teacher-Coach emphasis prepares students to assume careers in non-school settings such as public, and private adult fitness programs. Students completing the Teacher-Coach emphasis must see an advisor for approval prior to completing 75 credit hours.

Recommended Electives
8-17 Courses must be selected with the consent of advisor.

Suggested Courses
SDC 122 Death, Dying and Bereavement 3
BIS 210 Small Business Management 3
CRT 215 Transition to Adulthood 3
MGMT 270 Professional Development 3
CRT 318 Male Selection and Marriage 3
COM 335 Leadership 3
SOC 352 Introduction to Social Gerontology 3
MGMT 352 Personal Management 3
SOC 373 Sociology of Health and Ilnesses 3
BIS 388 Records Management 3
PEPR 390 Exercise Physiology 3
CRT 410 Teaching Sex Education in the Schools 3
PEPR 400 Field Experience 1-8
BIOS 495 Medical Genetics 3

Physical Education Major
45 credit hours
Bachelor of Science Degree
The major in physical education allows the student to choose one of two professional preparation options:
1. Teacher-Coach Emphasis
2. Community Emphasis
Successful completion of the Teacher-Coach emphasis leads to K-12 certification for the teaching of physical education. Students must complete the education sequence required by the Department of Education and Professional Development including the directed teaching experience. The Teacher-Coach emphasis prepares students to assume careers in non-school settings such as public, and private adult fitness programs. Students completing the Teacher-Coach emphasis must see an advisor for approval prior to completing 75 credit hours.

BACCALAUREATE WRITING REQUIREMENTS
Students who have chosen the Physical Education major will satisfy the Baccalaureate Writing Requirement by successfully completing PEPR 450 Cultural Bases of Physical Education.
HOURS REQUIRED .......................... 130
*Indicates courses applicable to General Education requirement.

General Education Requirement:
Teacher-Coach Emphasis .................. 40
Teacher-Exercise Science Emphasis ....... 35

TEACHER-COACH EMPHASIS ............. 45
K-12 State Provisional Certificate

Required Cognates:
1B 101 Animal Biology .......................... 4
1B 112 Introduction to Biomedical Sciences .... 3
BIOS 211 Human Anatomy ................... 4
BIOS 240 Human Physiology .................. 4
1PEPR 100 Health-Better Living ............. 4

Professional Core Requirements ........... 23
PEPR 101 Basic Exercise Concepts .......... 1
PEPR 150 Foundations of HPER .............. 2
PEPR 181 First Aid ............................ 2
PEPR 200 Biomechanical Analysis of Activity ... 2
PEPR 320 Physical Education for the Exceptional Child ... 3
PEPR 345 Nature and Bases of Motor Skills .... 2
PEPR 390 Physiology of Motor Activity ....... 2
PEPR 392 Measure and Evaluation in HPER .... 2
PEPR 444 Administration and Development of Instructional Systems in Physical Education (PEX) ... 2
PEPR 445 P.E. Teaching Skills and Strategies (PEX) ... 2
PEPR 450 Cultural Bases of Physical Education .... 2

Theory Emphasis Requirements .......... 12-13
PEPR 380 Foundation of Sports Injuries ...... 2
PEPR 490 Adult Fitness—Exercise Prescription .... 2
PEPR 500 Studies in HPER—Business Procedures .... 2
PEGR 516 Issues in Health—Cardiovascular Health . 2
PEGR 572 Recreation for the Aging ...... 2
PEPR 400 Field Experience/Internship in HPER .... 2-3

Activity Emphasis Requirements ........ 9
PEPR 102 Cycling: Relaxation/Stress Management ... 1
PEPR 106 Recreational Dance .................. 1
PEPR 205 Cross-Country Skiing: Weight Training ...... 1
PEPR 210 Racket Sports ....................... 1
PEGN 252 Swimming Conditioning .......... 1

Required Teaching Assistant ................ N/C

Recreation
45 credit hours
Bachelors of Arts Degree or
Bachelors of Science Degree

The Recreation major is designed to prepare students to assume leadership and/or administrative roles in public or private recreation agencies and organizations. The hours of electives within this course of study allow the student flexibility in preparing for a specific emphasis area in recreation. Students will also complete a supervised internship of at least three consecutive months duration.

BACCALAUREATE WRITING REQUIREMENTS
Students who have chosen the Recreation major will satisfy the Baccalaureate Writing Requirement by successfully completing PEPR 450 Cultural Bases of Physical Education.

HOURS REQUIRED ..................... 122
General Education Courses .............. 35
Physical Education ........................ 2

Required Professional Courses .......... 29
(please note in course descriptions when courses are offered and the suggested sequence of course work.)
PEPR 170 Introduction to Recreation .......... 3
PEPR 178 Playground Administration .......... 2
PEPR 181 First Aid .......................... 2
PEPR 270 Recreation Leadership (Prerequisite 170) .... 2
PEPR 370 Recreation Programming (Prerequisite 270) ...... 3

PEPR 370 Recreation Practicum (Prerequisite 372) .... 3
PEPR 375 Organization and Administration of Recreation .... 3
PEPR 470 Recreational Facilities and Areas .......... 3

Elective Courses ........................ 16

*Advisor will arrange a substitute course.

Group I: Program Skills

* Group A: Aquatics Area (Not more than 4 courses)
PEGN 349 Lifeguard Training ............... 2
PEGN 350 Water Safety Instructors ....... 2
PEGN 107 Canoeing ........................ 1
PEGN 141 241 Sailing ........................ 1

Sports Area (Not more than 8 courses)
PEGN/PEGR Team Sports (Not more than 4—no repeats) ...... 4
PEGN/PEGR Ind. and Dual Sports (Not more than 4—no repeats) ...... 4
PEPR 236 Sports Officials (Not more than 4) ...... 4

Group II: Administrative Skills

* Group C: Creative Arts for the Classroom Teacher (Not more than 4 courses)
MUS 140 Music for the Classroom Teacher ...... 3
MUS 289 Music Therapy Children .......... 2
MUS 290 Music Therapy Adults ...... 2

Group III: Administrative Skills

* Group D: General Electives (Not more than 4 courses)
ART 201 (104) Drawing ...................... 3
ART 206 Ceramics .......................... 3
ART 227 Jewelry ............................ 3

Music and Drama Area (Not more than 4 courses)

MUS 140 Music for the Classroom Teacher ...... 3
MUS 289 Music Therapy Children .......... 2

Group IV: Administrative Skills

* Group E: Administrative Skills

All courses must be completed.

 arts and Crafts Area (Not more than 4 courses)
COM 549 Public Relations/Organizations .......... 3

Outdoor Skills Area (Not more than 4 courses)
PEGN 106 Canoeing ........................ 1
PEGN 108 Backpacking ........................ 1
PEGN 110 Cross-Country Ski Camp .......... 1
PEGN 135 Outdoor Challenge ............... 1
PEGN 143 Cross-Country Skiing .......... 1
PEGN 167 Winter Camping ............... 1
PEGN 172 Camp Leadership ............... 3
PEGN 276 Outdoor Education ............... 2
BIOS 234 Outdoor Science .................. 4
BIOS 125 Envir Biology .................... 3

Group V: Administrative Skills

* Group F: Administrative Skills

All courses must be completed.

Group VI: Administrative Skills

* Group G: Required Professional Courses

All courses must be completed.

Group VII: Administrative Skills

* Group H: Required Professional Courses

All courses must be completed.
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Group III: Community Organization Skills
Not more than four courses.

- SWRK 572 Community Agency Organization
- SWRK 562 Community Organizations in Urban Areas
- SOC 210 Modern Social Problems
- SWRK 464 Problem Solving in Aging
- SOC 352 Introduction to Gerontology

Group IV: General Electives

- PEGR 500 Studies in H.P.E.R. 1-3
- PEGR 598 Readings in H.P.E.R. 1-2

Minors

Health Education Minor
25 credit hours

A minor in health education is offered. Students have the option of choosing either a school emphasis or a community emphasis within the minor. The school emphasis is especially appropriate for those specializing in middle/junior high school education, in special education, and in secondary education with majors in such areas as biology, home economics, physical education, psychology, and sociology. Students completing requirements are certified to teach health education in grades 7-12. The community emphasis prepares students to provide health instruction in community and private agencies.

Cognates

- BIOS 107 Biological Science 4
- BIOS 211 Human Anatomy 4
- BIOS 212 Human Anatomy 4
- BIOS 240 Human Physiology 4
- PSY 101 General Psychology 4
- PSY 150 Introduction to Human Behavior 3
- SOC 200 Principles of Sociology 3

Hours required for this minor 25

- PEPR 155 Foundations of Health Education 3
- PEPR 181 First Aid 2
- PEPR 220 Basic Health Concepts 1
- PEPR 221 Basic Health Concepts 1
- CRT 260 Nutrition 3
- PEPR 392 Measurement and Evaluation 2
- PEGR 330 Community Health I 3
- PEGR 430 Community Health II 3
- PEGR 316 Issues in Urban Health Education 2
- PEGR 412 Adm. and Dev. of Instr. Systems 2
- PEGR 412 Teaching Skills and Strategies 2
- PEGR 400 Field Experience 1

Activity Required: 9

Elementary Physical Education Minor

(Must be taken as part of Elementary Group Minor)

Cognates

- BIOS 107 Biological Science 4
- BIOS 112 Introduction to Biomedical Sciences 3
- BIOS 211 Human Anatomy 4
- ED 230 The Nature of Creativity 3

Required Professional Courses

- PEPR 101 Basic Exercise Concepts 1
- PEPR 210 Recreational Dance 1
- DANC 290 Teaching Dance in the Elementary School 3

Elective Courses

- Elect from the following courses and/or other PEPR/PEGN courses with permission of advisor.

Secondary Physical Education Minor

23 credit hours

Required Professional Courses 14

- PEPR 101 Basic Exercise Concepts 1
- PEPR 150 Foundations of Health, Physical Ed. and Recreation 3
- PEPR 295 Biomech. Analysis of Activity 2
- PEPR 390 Physical of Motor Activity 2
- PEPR 392 Measurement and Evaluation in Physical Education 2
- PEPR 444 Administration and Development of Instructional Systems 2
- PEPR 445 Physical Education Teaching Skills and Strategies 2

Activity Required: 9

Special Physical Education Minor

23 credit hours

Designed to prepare special education and physical education majors in the areas of recreation, physical education, swimming, health, and dance for the exceptional child. 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

- BIOS 107 Biological Science 4
- BIOS 211 Human Anatomy 4

Required Professional Courses 14

- PEPR 101 Basic Exercise Concepts 1
- PEPR 150 Foundations of Health, Physical Ed. and Recreation 3
- PEPR 295 Biomech. Analysis of Activity 2
- PEPR 390 Physical of Motor Activity 2
- PEPR 392 Measurement and Evaluation in Physical Education 2
- PEPR 444 Administration and Development of Instructional Systems 2
- PEPR 445 Physical Education Teaching Skills and Strategies 2

Athletic Training Minor (Non-Teaching)
16-21 credit hours

If a student majors in exercise science, he/she should not select the athletic training minor.

Required Cognates

- BIOS 112 Introduction to Biomedical Sciences 3
- BIOS 211 Human Anatomy 4

Required Professional Courses

- PEPR 101 Basic Exercise Concepts 1
- PEPR 210 Recreational Dance 1
- DANC 290 Teaching Dance in the Elementary School 3

Elective Courses

- Elect from the following courses and/or other PEPR/PEGN courses with permission of advisor.

Athletic Training Minor (Teaching)
18-21 credit hours

If a student majors in exercise science, he/she should not select the athletic training minor.

Required Cognates

- BIOS 112 Introduction to Biomedical Sciences 3
- BIOS 211 Human Anatomy 4

Required Professional Courses

- PEPR 101 Basic Exercise Concepts 1
- PEPR 210 Recreational Dance 1
- DANC 290 Teaching Dance in the Elementary School 3

Elective Courses

- Elect from the following courses and/or other PEPR/PEGN courses with permission of advisor.

Athletic Training Minor (Non-Teaching)
18-21 credit hours

If a student majors in exercise science, he/she should not select the athletic training minor.

Required Cognates

- BIOS 112 Introduction to Biomedical Sciences 3
- BIOS 211 Human Anatomy 4

Required Professional Courses

- PEPR 101 Basic Exercise Concepts 1
- PEPR 210 Recreational Dance 1
- DANC 290 Teaching Dance in the Elementary School 3

Elective Courses

- Elect from the following courses and/or other PEPR/PEGN courses with permission of advisor.
Coaching Series—Prerequisites: Must have had first level course(s) or permission of Professional Electives.

- PEPR 380 Foundations Spts. Injuries
- CRT 260 Nutrition
- PEGR 535 Principles, Problems
- PEPR 380 Foundations of Sports
- PEPR 295 Biomech. Analysis of Act
- PEPR 390 Physiology of Motor Act

Teach physical education. The coaching of volleyball, softball, golf, and gymnastics, which are currently emphasized by the student. Experience.

Electives: 3-6

1. Basic Sciences
- CHEM 101 or 102 Gen. Chemistry
- GSCI 133 Issues in Social Biology
- PHYS 106 Elementary Physics

2. Behavioral Sciences
- COM 170 Interpersonal Communication
- PSY 100 General Psychology
- SOC 200 Principles Sociology
- SWRK 210 Social Work Stud. and Prof. Role
- ED 350 Young Child, Fam. and Society

3. Health Education Aspects of Man and His Environment
- BIOS 512 Environment and Health
- CRT 210 Intro. Human Sexuality
- PEPR 235 Theory of Coaching
- PEPR 320 P.E. Exceptional Child
- PEGR 516 Issues in Health Education
- PEGR 580 Studies in Sports Medicine
- BIOM 240 Human Physiology
- BIOS 211 Human Anatomy
- BIOS 234 Outdoor Science

Additional Requirement:
Eight hundred (800) clock hours of clinical experience.

Coaching Minor (Non-Teaching)

24 credit hours

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.

Required Cognates
- BIOS 112 Introduction to Biomedical Sciences
- BIOS 211 Human Anatomy
- BIOS 240 Human Physiology

Required Courses
- PEPR 235 Theory of Coaching
- PEPR 295 Biomech. Analysis of Act
- PEPR 390 Physiology of Motor Act
- PEGR 535 Principles, Problems Coaching
- PEGR 380 Foundations of Sports Injuries (Prereq.—First Aid)
- PEGR 400 Field Experience (Prereq. Coaching and Adv. Tech. Course)
- PEGN 400 Varsity Athletic Series

Professional Electives
- PEPR 337 Advanced Techniques and Coaching Series—Prerequisites: Must have had first level course(s) or permission of

instructor. Elect 6 hours (must be one team sport and one individual sport)

TEAM Basketball
Baseball or Softball
Volleyball
Football
Soccer
Ice Hockey

INDIVIDUAL Gymnastics
Swimming
Tennis
Track and Field

PEPR 236 Officiating—Select two of the following officiating courses to complete the 11 hrs. of Professional Electives

Basketball
Gymnastics
Baseball
Volleyball
Softball
Football

PEPR 105-310 professional activity courses

Recreation Minor (Non-Teaching)

24 credit hours

The recreation minor is designed to prepare students to assume leadership roles in public or private recreation agencies and organizations. The 10 hours of electives within this course of study allows the student flexibility in preparing for a specific emphasis area in recreation.

Required Professional Courses

(Prereq. 170, 270, 372) 3
(Prereq. 170) 2
(Prereq. 170) 2
(Prereq. 170, 270, 372) 3
(Prereq. 170, 270, 372) 3

Elective Courses (From not more than two groups)

Group I: Program Skills

Aquatics Area (Not more than 4 courses)
PEN 349 Lifeguard Training 2
PEN 350 Water Safety Instructors 2
PEN 107 Canoeing 1
PEN 141 Sailing 1

Sports Area (Not more than 8 courses)
PEPR/TEAM Sports (Not more than 4—no repeats)
PEPR/TEAM Ind. and Dual Sports (Not more than 4—no repeats)
PEPR 236 Sports Officiating (Not more than 4)
PEPR 337 Adv. Techniques and Coaching (Not more than 2)

Arts and Crafts Area (Not more than 4 courses)
ART 201 (104) Drawing 3
ART 206 Ceramics 3
ART 207 Jewelry 3

Music and Drama Area (Not more than 4 courses)
MUS 140 Music for the Classroom Teacher 3
MUS 289 Music Therapy Children 2

MUS 290 Music Therapy Adults 2
PEPR 106 Recreational Dance 2
COM 564 Creative Drama for Children 4
THEA 100 Intro. to Theatre 3

Outdoor Skills Area (Not more than 4 courses)
PEGR 106 Canoe Camping 1
PEGR 108 Backpacking 1
PEGR 110 Cross-Country Ski Camp 1
PEGR 135 Outdoor Challenge 1
PEGR 143 Cross Country Skiing 1
PEGR 167 Winter Camping 1
PEPR 172 Camp Leadership 3
PEPR 276 Outdoor Education 2
BIOS 234 Outdoor Science 4
BIOS 105 Envr. Biology 3

Group II: Administrative Skills

Not more than four courses
PEPR 368 Organization and Administration of Intramurals 3
COM 104 Public Speaking 3
COM 335 Leadership 3
COM 549 Public Relations/Organization 3
COM 550 Public Relations/Organization 3
SWRK 464 Introduction to Gerontology 3
GEOG 240 Geology of National Parks 3
GEOG 350 Conservation/Environmental Management 3
BIS 388 Records Management 2
BIS 560 Office Management 3
BIS 142 Business Communications 3
BIS 102 Intro to Information Processing 3
ACCT 201 Accounting 3
ACCT 312 Geology of National Parks and Monuments 2-3
GEOG 541 Environmental Geology 3
ECON 319 Environmental Economics 3
CRP 463 Landscape Design 3

Group III: Community Organization Skills

Not more than four courses
PEGR 516 Issues in Health Education 2
COM 123 Discussion 3
COM 148 Communication Processes in the Organization 3
SWRK 572 Community Agency Resources 3
SWRK 562 Community Organizations in Urban Areas 3
SOC 210 Social Problems 3
SWRK 464 Problem Solving in Gerontology 3
PEGR 057 Recreation for the Aging 3
SOC 352 Introduction to Gerontology 3

Group IV: General Electives

PEGR 500 Studies in H.P.E.R. 1-3
PEGR 598 Readings in H.P.E.R. 1-2

Courses By Topic

PROFESSIONAL ACTIVITY COURSES (PEPR)

- 102 Cycling: Relaxation/Stress Management
- 105 Baseball/Soccer: Volleyball
- 110 Swimming: Basketball
- 115 Tennis: Apparatus
- 200 Football: Wrestling
- 205 Cross Country Ski: Weight Training
- 210 Racquet Sports
- 215 Aerobic Conditioning
- 305 Golf: Archery: Bowling
- 310 Track and Field

HEALTH EDUCATION ACADEMIC COURSES (PEPR)

- 100 Health for Better Living
- 155 Foundations of Health Education
- 181 First Aid
- 220 Basic Health Concepts

100 COLLEGE OF EDUCATION
PROFESSIONAL HEALTH, PHYSICAL EDUCATION, AND RECREATION

221 Basic Health Concepts II
312 Administration and Development of Instructional Systems
316 Issues in Health Education
330 Community Health I
400 Field Experience in Health
412 Teaching Skills and Strategies in Health
430 Community Health II
510 Modern Health for Teachers and Health Professionals
512 Principles, Practices, and Methods in Health Education
514 Methods and Materials in Health Education
516 Issues in Health Education

PHYSICAL EDUCATION ACADEMIC COURSES (PEPR)
101 Basic Exercise Concepts
150 Foundations of Health, Physical Education and Recreation
181 First Aid
235 Theory of Coaching
236 Officiating Series
239 Biomechanical Analysis of Activity
300 Seminar Series
320 Physical Education for the Exceptional Child
321 Therapeutic Needs and Programs for the Exceptional Child
325 Swimming for the Exceptional Child
337 Coaching and Advanced Techniques
345 Nature and Bases Motor Skills
368 Administration and Organization of Intramural Sports
380 Foundations of Sports Injuries
386 Physiology of Motor Activity
392 Measurement and Evaluation in Physical Education
400 Field Experience/Internship in HPER
420 Testing and Developmental Programs for the Exceptional Child
444 Administration and Development of Instructional Systems in Physical Education
445 Teaching Skills and Strategies
450 Cultural Bases of Physical Education
490 Adult Fitness and Exercise Prescription

PROFESSIONAL RECREATION COURSES (PEPR)
170 Introduction to Recreation
172 Camp Leadership
178 Playground Administration
270 Recreational Leadership
276 Outdoor Education
270 Recreation Practicum
372 Recreational Programming
375 Organization and Administration of Recreation
400 Field Experience/Internship in HPER
470 Recreational Facilities and Areas
572 Recreation for the Aging
Open to Upperclass and Graduate Students (PEGR)
500 Studies in Health, Physical Education and Recreation
520 Physical Activities for Exceptional Children
521 Therapeutic Trends for Exceptional Children
530 Practicum in Teaching and Coaching
535 Principles and Problems of Coaching
540 Movement Education
560 Administration of Physical Education
562 Administration of Athletics
580 Studies in Athletic Training
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

Professional Health, Physical Education and/or Recreation (PEPR/PEGR)
(Courses described in italics are approved for General Education. Course descriptions preceded by t are open to all students.)

PEPR 100 Health for Better Living
4 hrs. Fall, Winter
The focus of this introductory health course is to assist students in achieving an awareness of optimal physical, mental, and social health in a changing environment. Guest lectures from the community will present some of the topics considered important to the health of modern people. Preference is given to freshmen and sophomores.

PEPR 101 Basic Exercise Concepts
1 hr. Fall, Winter
Basic developmental, biomechanical, physiological, and nutritional concepts concerning wellness and exercise will be presented.

PEPR 102 Cycling: Relaxation/Stress Management
1 hr. Fall

PEPR 105 Baseball/Softball : Volleyball
1 hr. Fall

PEPR 106 Recreational Dance
1 hr. Fall

PEPR 150 Foundations of Health, Physical Education and Recreation
3 hrs. Fall, Winter
An introduction to the University, the profession, and an attempt to assist the student in making a realistic appraisal of his/her own aptitudes and capabilities relevant to the profession via actual testing of personal competencies. Taken in conjunction with PEPR 101.

PEPR 155 Foundations of Health Education
3 hrs. Fall, Winter
This course will provide students with the philosophical background in the development of health education. History and philosophy of health education/health promotion, professional competencies, ethics, organizations and future issues.

PEPR 170 Introduction to Recreation
3 hrs. Fall
An introduction to the field of recreation and the role of leisure in modern society including current trends, job opportunities in various settings, programming, and leadership.

PEPR 172 Camp Leadership
3 hrs. Fall (even)
The investigation of the responsibilities of the counselor in the camp. Exploration of the aims and values of the total camp program are emphasized.

PEPR 178 Playground Administration
2 hrs. Fall, Winter
This course is designed to give administrative and leadership skills for summer playgrounds. All areas of playground organization, operation, program planning, and a wide range of activities will be covered.

PEPR 181 First Aid
2 hrs. Fall, Winter, Spring
The standard course in first aid techniques leading to Red Cross certification. Open to all students.

PEPR 200 Football : Wrestling
1 hr. Fall

PEPR 205 Cross Country Ski : Weight Training
1 hr. Winter

PEPR 210 Racquet Sports
1 hr. Fall

PEPR 215 Aerobic Conditioning
1 hr. Winter

PEPR 220 Basic Health Concepts I
3 hrs. Fall, Winter
Designed to provide students with basic health content. Topics to be discussed include: health and wellness, stress and mental health, aging and death, physical fitness, weight control, and substance use and abuse.

PEPR 221 Basic Health Concepts II
3 hrs. Fall, Winter
Designed to provide students with basic health education content. Topics to be discussed include: consumer health, chronic diseases, infectious diseases, environmental health, safety, and accident prevention.

PEPR 235 Theory of Coaching
2 hrs. Fall, Winter
Introduction to coaching includes basic principles, covers State Athletic Handbook, budgets, scheduling, facilities, liability, public relations, relationships with staff, faculty, students, parents, press, etc.

PEPR 236 Officiating Series
1 hr. Fall, Winter
The discussion and application of rules and officiating techniques. The student is required to officiate in out-of-class athletic programs. Prerequisites: Must have had the first level activity or permission of instructor. Open to all students.

Fall Semester: Basketball Football
Winter Semester: Basketball Volleyball Softball/Baseball Track and Field

PEPR 241 Physical Education and Recreation for Teachers
2 hrs.
This course is open only to teachers. Topics included in the course are: Program planning, making of games and equipment, accident prevention, basic motor skills. Practice in games, stunts, rhythms and recreational activities will be included. Offered by extension only.

PEPR 270 Recreational Leadership
2 hrs. Winter only
A course studying the skills, knowledge and techniques necessary to conduct social recreational programs for all ages. Creative and effective leadership stressed through observations, participation and the leading of activities. Prerequisite: PEPR 170 or permission of instructor.

PEPR 276 Outdoor Education
2 hrs. Winter only
A course in the philosophy, methods, and materials of outdoor education emphasizing outdoor education activities for children and youth.

PEPR 295 Biomechanical Analysis of Activity
2 hrs. Fall, Winter
The analysis and measurement of human performance. Includes the examination and application of biomechanical principles to
Designed to provide experiences which will enable the student to develop management, administrative and instructional skills required to plan and implement a contemporary health education program in school and community settings. Prerequisite: PEPR 100 or 220, 221, PEPR 155, CRT 210 and 260.

PEPR 316 Issues in Health Education
2 hrs. Fall, Winter
This course will focus on current health issues. May be designed to deal with one issue or several. Prerequisite: PEPR 220, 221.

PEPR 320 Physical Education for the Exceptional Child
3 hrs. Fall, Winter
The activities and games used in corrective, adaptive, and developmental programs for children with mental or physical handicaps and those with learning disabilities. An emphasis will also be placed on activities for children with perceptual handicaps and on activities to augment academic learning.

PEPR 321 Therapeutic Needs and Programs for the Exceptional Child
3 hrs. Fall
The evaluation, interpretation and planning of therapeutic and rehabilitation programs for the handicapped child. Emphasis is placed on programs for the orthopedically handicapped, the cerebral palsied, the epileptic, the blind and such conditions as multiple sclerosis, muscular dystrophy, rheumatic fever and cardiac disorders. Prerequisites: BIOS 211, PEPR 320, SPED 530.

PEPR 325 Swimming for the Exceptional Child
3 hrs. Fall, Winter
The study of physical and learning disabilities, values of swimming, and teaching techniques for these disabilities. Includes experience teaching exceptional children. Prerequisite: PEGN 350 WSI.

PEPR 330 Community Health I
3 hrs. Fall
This course deals with the historical development of the principles of organized public health activities and their application to present day life. The student is introduced to the scope of public health programs. Prerequisites: PEPR 155, PEPR 220, and PEPR 221.

PEPR 337 Coaching and Advanced Technique
2 hrs. Fall, Winter
Coaching and advanced skills, selection of a team, preparation, officiating and conducting competitive events. Prerequisites: Must have had first level course(s). Fall: Tennis, Soccer Odd Years: Baseball Even Years: Football, Softball Winter: Basketball, Track/Field, Volleyball Odd Years: Wrestling Even Years: Gymnastics

PEPR 340 Physical Education for the Elementary Classroom Teacher
2 hrs. Fall, Winter, Spring
This course is structured for the future elementary classroom teacher and/or special education teacher. It provides experience in the participation and teaching of basic elementary physical education movement activities in the areas of basic skills, stunts and tumbling, simple games and sports, rhythms and classroom correlated activities. This course is not for physical education majors or minors.

PEPR 345 Nature and Bases of Motor Skills
2 hrs. Fall, Winter
Describes and analyzes the characteristic motor development patterns and evaluates the potential of children’s motor performance. Emphasis will be placed on the introduction and explanation of the psychomotor domain. Prerequisite: BIOS 240 or permission of instructor.

PEPR 363 Development and Organization of Intramural Sports
2 hrs. Fall only
The problems, policies, finances, eligibility, awards, officiating, publicity, and procedures related to the intramural program.

PEPR 370 Recreation Practicum
3 hrs. Fall, Winter, Spring
The practical field experiences in recreation. Enrollment by permission of instructor and acceptance of practicum proposal. Prerequisite: PEPR 372.

PEPR 372 Recreational Programming
3 hrs. Winter only
A study of the goals development and evaluation of programs in recreational settings. Practical experience in ascertaining needs and planning activities to meet goals will be emphasized. Prerequisite: PEPR 270.

PEPR 375 Organization and Administration of Recreation
3 hrs. Fall odd years
The study or methods of organization in recreation programs and agencies at local, state and federal levels with emphasis on administrative procedures concerning personnel, supervision, legalities, financing, and supervision. Prerequisite: PEPR 370.

PEPR 380 Foundations of Sports Injuries
2 hrs. Fall, Winter
Basic first aid and emergency concepts, prevention, recognition, and follow-up care are studied. Principles/techniques are presented in a lecture and laboratory instructional format. Prerequisite: BIOS 211, PEPR 181.

PEPR 390 Physiology of Motor Activity
2 hrs. Fall, Winter
The effects on systems of the body under stress of motor activity—cardiorespiratory function, metabolism, neuromuscular system. Practical application of principles to strenuous physical exercise. Prerequisite: BIOS 240.

PEPR 392 Measurement and Evaluation in Physical Education
2 hrs. Fall, Winter
Covers 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 the field and techniques for developing knowledge and skills tests.

PEPR 400 Field Experience/Internship in HPER
1-8 hrs. Fall, Winter, Spring, Summer
This course will provide in-depth field experience or internships for undergraduate majors or minors in recreation, health, coaching, exercise science, or exceptional child. Students will be assigned to classes or positions according to their selected area of emphasis. Enrollment by permission of curriculum advisors for major or minor. Prerequisite varies with area of emphasis and requires departmental approval.

PEPR 412 Teaching Skills and Strategies
2 hrs. Fall, Winter
Designed to provide information and experiences that enable students to design and implement effective health education strategies in a school setting. Prerequisite: PEPR 312.

PEPR 420 Testing and Developmental Programs for the Exceptional Child
3 hrs. Winter
A study of the developmental programs of various leaders in the field and the adaptation of these theories to practical situations in the local community. The various methods of assessing the exceptional child will be discussed and practiced. Students will be involved with testing children, establishing programs for children and assessing the results of the program. Prerequisites: BIOS 211, PEPR 320, SPED 530, 586.

PEPR 430 Community Health II
3 hrs. Winter
This course deals with the analysis of principles of program planning in public health education. Topics include: needs assessment, community analysis and organization, program selection, program coordination, and program evaluation. Prerequisite: PEPR 330.

PEPR 444 Administration and Development of Instructional Systems in Physical Education 2 hrs. Fall, Winter (PYE); Fall only (PEX)
This course is designed to provide information and experience which will enable the learner to develop the skills necessary to plan and construct a comprehensive physical education curriculum based on a developmental model. Prerequisites for majors: 100 series, PEPR 295, 345, 390, 392. Education students should enroll in ED 370/320 during the same semester.

PEPR 445 Teaching Skills and Strategies 2 hrs. Fall, Winter (PYE), Winter only (PEX)
This course is designed to provide information and experiences which will enable the student to implement effective physical education curricula based on a developmental model. Prerequisite: PEPR 444.

PEPR 450 Cultural Bases of Physical Education 2 hrs. Fall, Winter
The application of history, principles, sociology and philosophy of HPER to the current movements and trends in the profession. Prerequisite: PEPR 150.

PEPR 470 Recreational Facilities and Areas 3 hrs. Fall (odd)
The study of the design, use, and maintenance of recreational areas in relation to community needs, program objectives and physical surroundings.

PEPR 490 Adult Fitness and Exercise Prescription 2 hrs. Winter
Principles of exercise testing and prescription are presented to undergraduate students when marked in the course.
PROFESSIONAL HEALTH, PHYSICAL EDUCATION, AND RECREATION

Schedule of Classes as "Undergraduate Students Only":

PEGR 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.

PEGR 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 fitness of children and adolescents. This course is not open to health education majors and minors who have had PEGR 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 PGR 100 or 412. Prerequisite: 510 or equivalent.

PEGR 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: PGR 312, 412 or 512 or consent of department.

PEGR 516 Issues in Health Education 1-3 hrs.
The focus will be placed on current health issues. May be designed to deal with one issue or several. Topics may include: Substance Abuse, Biofeedback, Aids and Other Sexually Transmitted Diseases, Stress Management, Cardiovascular Health, Parenting/Reproductive Health, Patient Education, Health Careers, Consumer Health, Women’s Health Issues.

PEGR 520 Physical Activities for Exceptional Children 3 hrs.
Physical and recreational activities and games used in corrective, adaptive and general physical education programs for special education children.

PEGR 521 Therapeutic Trends for Exceptional Children 3 hrs.
A study of past, present and future trends in habilitation and rehabilitation programs for handicapped people.

PEGR 530 Practicum in Teaching and Coaching 1-2 hrs.
Demonstrations, participation and evaluation on teaching and coaching fundamentals in selected sports. A graduate student may apply a maximum of four credits from 530 courses toward the Master's Degree Program. Sports include: Archery, Badminton, Baseball, Basketball, Football, Golf, Field Hockey, Gymnastics, Ice Hockey, Judo, Karate, Soccer, Swimming, Track and Field, Volleyball, Wrestling, Yoga.

PEGR 535 Principles and Problems of Coaching 2 hrs.
Various dimensions and forces affecting coaching are identified and explored including educational implications of sport and coaching, characteristics of coaches and athletes, vital relationships, motivation, emotions, behavior, discipline, selecting and evaluating personnel, scientific principles and systems of training, the organization and planning of practices and total programs.

PEGR 540 Movement Education 2 hrs.
A concept in physical education which deals with the way children learn the basic principles of how their bodies move.

PEGR 560 Administration of Physical Education 2 hrs.
For administrative officers, as well as for teachers and directors of physical education. Includes a study of representative programs for physical education and discussion of standards for evaluating such programs.

PEGR 562 Administration of Athletics 2 hrs.
Discusses administrative procedures and problems connected with athletic programs, including scheduling, facilities, personnel problems, school law and liability, eligibility, finance, safety, and the conduct of athletic events.

PEGR 572 Recreation for the Aging 2 hrs. Fall
An overview of aging especially as it relates to leisure pursuits and organized recreation. Includes observation, participation and leadership of recreational activities or programs for retirees, nursing homes, senior citizens housing units and clubs. Suggested Prerequisite: SOC 352.

PEGR 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 sport type injuries. Prerequisites: BIOS 211, 240, PGR 380.

PEGR 590 Exercise Physiology 2 hrs.
The mechanics of muscular contraction, nerve impulse conduction, oxygen exchange, and circulatory efficiency are discussed. Basic principles concerning the adaptation of the human body to stress in the form of strenuous physical exercise are applied to the training and conditioning of competitive athletics. Prerequisites: BIOS 211, 240. Open to graduate students only.

Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests. Open to graduate students only.

PEGR 595 Analysis of Movement in Sport 2 hrs.
The study of movement of muscles and the application of kinesiology to physical activity. Prerequisite: BIOS 211. Open to graduate students only.

PEGR 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. Open to graduate students only.

General Physical Education
All undergraduate students must participate in general activity physical education beginning with the first semester or session of residence, until a minimum of 2 hours is completed. Classes meet two hours weekly for one semester of credit. Exceptions:

1. Any student 30 years of age or older is not required to take physical education. (122 hours required for graduation.)
2. A student in the marching band may count band participation towards two semesters of general physical education.
3. A veteran (defined as one having served one year’s continuous active duty) will be exempt from the general physical education requirement.
4. A transfer student must enroll in general physical education during the first semester or session of residence at Western and thereafter each semester or session until the 2 hour requirement is completed.
5. Only a student with a severe physical disability will receive a medical waiver from the requirement. A student with a temporary or permanent physical disability may receive counseling concerning selection of courses suited to his/her disability. A physical examination by a Health Center physician is the first step in the counseling procedure. The procedure does not have to be followed if the student feels he/she can select two courses without medical advice. The physical examination must be given during the first semester of residence if a student wishes to follow the Medical Recommendation procedure. A copy of the procedure may be obtained from the Sindecuse Health Center.
6. A varsity team member may receive up to 2 credits in general physical education by enrolling in the appropriate course in the PEGR 400 series (List follows 300 level courses.)
7. Only one dance course may be used to fulfill the general physical education graduation requirement. (List follows PEGR 100 listing.)
8. ROTC Cadets are to enroll in PEGR 132 Military Fitness I to fulfill the general physical education graduation requirement. Permission required from ROTC.
RESTRICTIONS
1. Up to 8 hours of general physical education will be accepted as credits toward graduation.
2. A freshman or sophomore student may not enroll in more than 1 hour of general physical education in any one semester.
3. A course cannot be repeated for credit without written authorization from the Coordinator of the General Physical Education Program to the Academic Records Office. PEGN 175 Special Activities may be repeated under different course titles, i.e. 175 Aquatic Fitness, 175 Kayaking, etc.
4. One of the following DANCE courses may be used:
   - 101 Beginning Ballet
   - 102 Beginning Jazz Dance
   - 103 Beginning Modern
   - 104 Beginning Tap
   - 111 Beginning Ballet II
   - 112 Beginning Jazz Dance II
   - 114 Beginning Tap II
   - 151 Dance Improvisation

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 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)

PEGN 100 Adapted P.E. Med. Rec
1 hr.
PEGN *101 Archery
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. Terminates with a weekend camping trip by canoe.
PEGN 107 Canoeing
1 hr.
PEGN 108 Backpacking
1 hr.
PEGN 109 Cycling
1 hr.
PEGN 110 Cross Country Ski Camp
1 hr.
This course combines Cross Country skiing with outdoor living experiences.
PEGN *120 Fencing
1 hr.
PEGN *122 Golf I
1 hr.
PEGN 123 Gymnastics—Apparatus
1 hr.
PEGN 124 Gymnastics—Tumbling
1 hr.
PEGN 128 Jogging
1 hr.
PEGN *129 Ice Hockey
1 hr.
PEGN 130 Judo
1 hr.
PEGN *131 Karate
2 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 Racketball
1 hr.
PEGN 138 Rock Climbing
1 hr.
This course, taught in cooperation with Pretty Lake Camp, gives the student fundamentals of rock climbing and includes a weekend trip to cap off the experience.
PEGN 139 Relaxation
1 hr.
PEGN 140 Rifflery
1 hr.
PEGN *141 Sailing
1 hr.
PEGN *142 Skating—Ice
1 hr.
PEGN 143 Skiing—Cross Country
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 161 Track and Field
1 hr.
PEGN 163 Volleyball
1 hr.
PEGN 166 Weight Training
1 hr.
Course consists of individualized weight training programs.
PEGN 167 Winter Camping
1 hr.
Course includes winter survival as well as winter camping for the hardy outdoor person.
PEGN 175 Special Activities, e.g., Wind Surfing, Kayaking, Aquatic Fitness
1 hr.
PEGN 200 Physical Education Learning Lab Activities
1 hr.
Guided individual instruction in a variety of physical education activities. Resources such as films, books and workshops are available to aid the student to learn in a manner and rate suitable to the individual skill and knowledge. Competency testing will be used to determine achievement and place individuals at beginning, intermediate or advanced levels. Course is repeatable for up to 8 hours credit (University limit) under 200 number, with different course titles. Prerequisite: GPA of 3.0 overall.
PEGN 204 Intermediate Basketball
1 hr.
PEGN 205 Bowling—Intermediate
1 hr.
PEGN 208 Intermediate Backpacking
1 hr.
PEGN 220 Fencing—Intermediate
1 hr.
PEGN 222 Golf II
1 hr.
PEGN 229 Ice Hockey—Intermediate
1 hr.
PEGN 236 Intermediate Physical Fitness
1 hr.
This course is for the student desiring a higher level of fitness, training for marathons, triathlons, and/or weight competition.
PEGN 237 Racketball—Intermediate
1 hr.
PEGN 241 Sailing—Intermediate
1 hr.
PEGN 242 Skating—Ice-Figure
1 hr.
PEGN 244 Intermediate Alpine Skiing
1 hr.
PEGN 246 Intermediate Soccer
1 hr.
PEGN 249 Swimming—Intermediate
1 hr.
PEGN 250 Swimmer
1 hr.
Students will build on skills learned in Intermediate Swimming and learn to develop these skills in order to enter the Life Saving 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 260 Tennis II
1 hr.
PEGN 263 Volleyball Intermediate
1 hr.
**SPECIAL EDUCATION**

Alonzo E. Hannaford, Chair  
Christine M. Bahr  
Virginia Baulofh  
George Haus  
Dora Gordon Icabone  
Elizabeth Lawrrence-Patterson  
Barbara L. Loss Harris  
Abraham W. Nicolou

The Department of Special Education offers undergraduate programs for the preparation of teachers in the areas of emotionally impaired, mentally impaired, and visually impaired at either the elementary or secondary level of special education. Students completing the undergraduate curricula earn an Elementary Teaching Certificate with an endorsement in one of the above areas.

**Admission**

Students who desire to major in Special Education must be admitted to the pre-education curriculum of the College of Education. This status, however, does not assure admission to the Professional Education Curriculum of the department. The selection of students to the Professional Education Curriculum in Special Education occurs in January each year after review of all applications by a departmental faculty committee.

Each year the Department of Special Education establishes the maximum number of new students who can be admitted to each of the curricula for the following year. The minimum criteria for admission consideration include:

1. Completion of the Western Michigan University College of Education Pre-Education Curriculum.
2. Attainment of junior status (at least 56 semester hours completed or in process at the time of application).
3. Completion of a minimum of 30 clock hours of contact with a person(s) with disabilities.
4. Submission of an application for admission to the Special Education Professional Education Curriculum by the announced date.

All completed applications will be evaluated using the following specific criteria:

1. Forty percent weighting based on grade point average at the time of application.
2. Thirty percent weighting based on performance on the Basic Skills Test (state required literacy test).
3. Ten percent weightings each for semester hours completed, under-represented group membership, and other (subjective) criteria.

Students selected for admission will comprise a cohort which will be beginning taking courses in the Special Education sequence the following fall semester. Courses must be taken in the prescribed sequence. Six semesters (course work plus student 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.

**Directed Teaching**

Students complete two semesters of directed teaching, one in General Education and one in Special Education. Directed Teaching placement is only made within prescribed areas in Southwest Michigan. Directed Teaching placement in or near home school districts should not be anticipated or expected.

**Special Education Curriculum**

Bachelor of Science Degree State Elementary Provisional Certificate

Baccalaureate Writing Requirement

Students who have chosen the Special Education Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society.

Endorsement — Elementary Emotionally Impaired

For the preparation of teachers of elementary-level students with Emotional Impairment.

Minimum Hours Required for this Curriculum

Course Requirements

A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Elementary Emotionally Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement

An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curriculum listed earlier in this catalog).

Curriculum Requirements

**OR**

- ART 150 Art Education Workshop 3
- COM 170 Interpersonal Communication I
- COM 104 Public Speaking 3
- ED 250 Human Development 3
- ED 312 Foundations of Reading Instruction 3
- ED 351 Reading and Related Communication Skills for Early Childhood 3
- ED 395 School and Society 3
- ED 410 Seminar in Education 2
- ED 471 Directed Teaching Elementary 10
- ENGL 282 Children's Literature 4*
- MATH 150 Number Concepts for Elementary/Middle School Teachers 4
- MUS 141 Music in Special Education 4
- MUS 140 Music for the Classroom Teacher 3
To be selected from the following minors approved for Elementary Education.

**Academic Minor 20-24 hrs.**

Curricula listed earlier in this catalog.

A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Elementary Physically and Otherwise Health Impaired. Those marked with "*" are approved for General Education and are not included in the hour totals for the following requirements.

**Endorsement—Elementary Physically and Otherwise Health Impaired**

For the preparation of teachers of elementary level students with Physical and Otherwise Health Impairments.

**Minimum Hours Required for this Endorsement 130 hrs.**

**Course Requirements**

An additional five hours in Elementary Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification. (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

**Curriculum Requirements**

Art Education Workshop 3

**Elementary Classroom Teacher**

Interpersonal Communication 3

**Or**

Public Speaking 3

Human Development 3

Foundations of Reading Instruction 3

Reading and Related Communication Skills for Early Childhood 3

School and Society 3

Foundations of Reading Instruction 2

Directed Teaching: Elementary 10

Children's Literature 4

Number Concepts for Elementary/Middle School Teachers 4

Music in Special Education 3

Music for the Classroom Teacher 3

Physical Education for the Classroom Teacher 3

General Psychology 3

Academic Minor 20-24 hrs.

To be selected from the following minors approved for Elementary Education certification: Art, Creative Arts, English, Group Social Science, Language, Science, and Mathematics Teaching Minor, Special Physical Education.

**Courses in Emotionally Impaired Major—Elementary**

NOTE: Students entering the curriculum must have met an experience requirement with a person(s) with disabilities of at least thirty clock hours duration. Students must contact the department to secure the appropriate forms for documenting this experience or to secure assistance in meeting this requirement.

**NOTE:** Students must see a department advisor regarding the sequence in which the courses must be completed.

**SPED 504 Teaching Practicum in Special Education:**
- Elementary 1

**SPED 530 Education of Exceptional Persons**
- 3

**SPED 531 Classroom Practicum in Special Education**
- 1

**SPED 537 Technology in Special Education**
- 3

**SPED 538 Introduction to Classroom Management**
- 3

**SPED 570 Introduction to Emotional Disturbance**
- 2

**SPED 571 Program Practicum in Special Education: EI**
- 1

**SPED 533 Assessment and Prescription in Special Education**
- 3

**SPED 539 Consultation and Communication in Special Education**
- 3

**SPED 575 Education of Emotionally Disturbed Persons**
- 2

**SPED 534 Curriculum and Instruction in Special Education: Elementary**
- 3

**SPPO 200 Communication Disorders**
- 3

**SPED 474 Directed Teaching in Special Education: Elementary Level EI Students**
- 10

**Electives to reach 130 hour total**

The student must satisfy the requirements for the B.S. or B.A. degree and successfully pass the state competency examination.

**Endorsement—Elementary Mentally Impaired**

For the preparation of teachers of elementary level students with mental impairment.

**Minimum Hours Required for this Endorsement 130 hrs.**

**Course Requirements**

A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Elementary Mentally Impaired. Those marked with "*" are approved for General Education and are not included in the hour totals for the following requirements:

**General Education Requirement . . . . . . . . 35 hrs.**

An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification. (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

**Curriculum Requirements**

Art Education Workshop 3

**Elementary Classroom Teacher**

Interpersonal Communication 3

**Or**

Public Speaking 3

Human Development 3

Foundations of Reading Instruction 3

Reading and Related Communication Skills for Early Childhood 3

School and Society 3

Foundations of Reading Instruction 2

Directed Teaching: Elementary 10

Children’s Literature 4

Number Concepts for Elementary/Middle School Teachers 4

Music in Special Education 3

Music for the Classroom Teacher 3

Physical Education for the Classroom Teacher 3

General Psychology 3

**Academic Minor 20-24 hrs.**

To be selected from the following minors approved for Elementary Education certification: Art, Creative Arts, English, Group Social Science, Integrated Language Arts, Language, Science, and Mathematics Teaching Minor, Special Physical Education.

**Courses in Mentally Impaired Major—Elementary**

NOTE: Students entering the curriculum must have met an experience requirement with a person(s) with disabilities of at least thirty clock hours duration. Students must contact the department to secure the appropriate forms for documenting this experience or to secure assistance in meeting this requirement.

**NOTE:** Students must see a department advisor regarding the sequence in which the courses must be completed.

**SPED 504 Teaching Practicum in Special Education:**
- Elementary 1

**SPED 530 Education of Exceptional Persons**
- 3

**SPED 531 Classroom Practicum in Special Education**
- 1

**SPED 537 Technology in Special Education**
- 3

**SPED 538 Introduction to Classroom Management**
- 3

**SPED 570 Introduction to Emotional Disturbance**
- 2

**SPED 571 Program Practicum in Special Education: EI**
- 1

**SPED 533 Assessment and Prescription in Special Education**
- 3

**SPED 539 Consultation and Communication in Special Education**
- 3

**SPED 575 Education of Emotionally Disturbed Persons**
- 2

**SPED 534 Curriculum and Instruction in Special Education: Elementary**
- 3

**SPPO 200 Communication Disorders**
- 3

**SPED 474 Directed Teaching in Special Education: Elementary Level EI Students**
- 10
Endorsement — Elementary Visually Impaired

For the preparation of teachers of elementary level students with Visual Impairment:

Minimum Hours Required for this Curriculum .................................. 130 hrs.

Course Requirements

A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Elementary Visually Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement .................................. 35 hrs.

An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

Curriculum Requirements

ART 150 Art Education Workshop .................................. 3
COM 170 Interpersonal Communication I

ED 410 Seminar in Education .................................. 2

Electives to reach 130 hour total

The student must satisfy the requirements for the B.S. or B.A. degree.

Endorsement — Secondary Emotionally Impaired

For the preparation of teachers of secondary level students with Emotional Impairment:

Minimum Hours Required for this Curriculum .................................. 130 hrs.

Course Requirements

A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Secondary Emotionally Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement .................................. 35 hrs.

An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

Curriculum Requirements

ART 150 Art Education Workshop .................................. 3
COM 170 Interpersonal Communication I

ED 410 Seminar in Education .................................. 2

Electives to reach 130 hour total

The student must satisfy the requirements for the B.S. or B.A. degree and successfully pass the state competency examination.

Endorsement — Secondary Mentally Impaired

For the preparation of teachers of secondary level students with Mental Impairment:

Minimum Hours Required for this Curriculum .................................. 130 hrs.

Course Requirements

A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Secondary Mentally Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement .................................. 35 hrs.

An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

Curriculum Requirements

ART 150 Art Education Workshop .................................. 3
COM 170 Interpersonal Communication I

ED 410 Seminar in Education .................................. 2

Electives to reach 130 hour total

The student must satisfy the requirements for the B.S. or B.A. degree and successfully pass the state competency examination.
### General Education Requirement
- **Total:** 35 hrs.  
- An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See 'Degree Requirements' under Degree and Curricula listed earlier in this catalog).

### Core Curriculum Requirements

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<tr>
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<th>Course Title</th>
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<td>Art Education Workshop</td>
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<td>ED 300</td>
<td>Education of Exceptional Persons</td>
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<tr>
<td>ED 312</td>
<td>Direct Teaching: Upper Elementary/Middle Schools</td>
<td>10</td>
</tr>
<tr>
<td>ENGL 282</td>
<td>Children’s Literature</td>
<td>4*</td>
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<td>MATH 150</td>
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</tr>
<tr>
<td>PEPR 340</td>
<td>Physical Education for the Elementary Classroom</td>
<td>2</td>
</tr>
<tr>
<td>PSY 100</td>
<td>General Psychology</td>
<td>3*</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>20-24 hrs.</strong></td>
</tr>
</tbody>
</table>

**Academic Minor** — **20-24 hrs.**  
To be selected from the minors approved for Secondary Education certification. See Secondary Minors section of this catalog.

### Courses in Mentally Impaired Major — Secondary

**NOTE:** Students entering the curriculum must have met an experience requirement with a person(s) with disabilities of at least thirty clock hours duration. Students must contact the department to secure the appropriate forms for documenting this experience or to secure assistance in meeting this requirement.

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**Note:** Students must see a department advisor regarding the sequence in which the courses must be completed.

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<tbody>
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<td>SPED 506</td>
<td>Teaching Practicum in Special Education</td>
<td>Secondary</td>
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<tr>
<td>SPED 530</td>
<td>Education of Exceptional Persons</td>
<td>3</td>
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<tr>
<td>SPED 531</td>
<td>Classroom Practicum in Special Education</td>
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<td>SPED 532</td>
<td>Technology in Special Education</td>
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<td>SPED 591</td>
<td>Braille and Other Areas of Communication</td>
<td>2</td>
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<td>SPED 533</td>
<td>Assessment and Prescription in Special Education</td>
<td>3</td>
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<td>SPED 534</td>
<td>Curriculum and Instruction in Special Education</td>
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<td>SPED 538</td>
<td>Consultation and Communication in Special Education</td>
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<td>BLRH 590</td>
<td>Physiology and Function of the Eye</td>
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<td>BLRH 592</td>
<td>Education of the Blind and Partially Sighted</td>
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<tr>
<td>BLRH 594</td>
<td>Principles of Orientation and Mobility</td>
<td>3</td>
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<tr>
<td>SPED 474</td>
<td>Directed Teaching in Special Education</td>
<td>Secondary Level VI</td>
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<td>Students</td>
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</tbody>
</table>

**Electives to reach 130 hour total**

The student must satisfy the requirements for the B.S. or B.A. degree and successfully pass the state competency examination.

**Special Education Courses (SPED)**

**SPED 474 Directed Teaching in Special Education**

- 4-10 hrs.
- See Description under Education and Professional Development, the College of Education.

**SPED 504 Teaching Practicum in Special Education: Elementary**

- 1 hr.
- This course will provide the student with a structured assignment working with a disabled, at-risk, or mainstreamed pupil at the elementary level. It is intended to enable the student to demonstrate skills in assessment and prescription in the implementation and evaluation of a tutorial plan of instruction for a specific at-risk or disabled student in a mainstreamed or self-contained setting. Graded on a credit/no credit basis. Concurrent enrollment in SPED 534.

**SPED 506 Teaching Practicum in Special Education: Secondary**

- 1 hr.
- This course will provide the student with a structured assignment working with a disabled, at-risk or mainstreamed pupil at the secondary level. It is intended to enable the student to demonstrate skills in assessment and prescription and in the implementation and evaluation of a tutorial plan of instruction for a specific at-risk or disabled student in a mainstreamed or self-contained setting. Graded on a credit/no credit basis. Concurrent enrollment in SPED 536.

**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 and special schools. A variety of instructional experiences are provided, including conferences. Credit not applicable toward a graduate degree in Special Education.

**SPED 514 Introduction to Learning Disabilities**

- 2 hrs.
- This course focuses on basic knowledge in the area of learning disabilities. Historical perspectives, definitions, and major issues will be explored. Service delivery systems and evaluation procedures will be examined and evaluated. Prerequisite: Consent of department.

**SPED 527 Exceptional Learners in Regular Elementary Programs**

- 3 hrs.
- This course is designed for prospective elementary teachers. Emphasis is placed on the types of exceptional learners found in elementary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisite: Consent of department. Not acceptable for Special Education majors or for an Endorsement Program in Special Education.

**SPED 529 Exceptional Learners in Regular Secondary Programs**

- 3 hrs.
- This course is designed for prospective secondary teachers. Emphasis is placed on the types of exceptional learners found in secondary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisite: Consent of department. Not acceptable for Special Education majors or for an Endorsement Program in Special Education.

**SPED 530 Education of Exceptional Persons**

- 3 hrs.
- This course deals primarily with the problems of individuals who are atypical in terms of their sensory, physical, mental, emotional, and learning characteristics. Emphasis is placed on developing an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of exceptionality, including education in the Least Restrictive Environment. Prerequisite: Consent of department.

**SPED 531 Classroom Practicum in Special Education**

- 1 hr.
- This course will provide the student with an opportunity to work within a classroom setting with a particular disability group — EI, MI, VI — at the elementary or secondary level. It is intended to provide the student with an awareness of the nature and needs of these students with disabilities and the role of the teacher in working with such students. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 530.

**SPED 533 Assessment and Prescription in Special Education**

- 3 hrs.
- The major focus of this course is understanding the Clinical Teaching Model. Emphasis is placed on the relevance of assessment and prescription to the teaching of learners with disabilities. Prerequisite: Consent of department.

**SPED 534 Curriculum and Instruction in Special Education: Elementary**

- 3 hrs.
- The major focus of this course is the application of the Clinical Teaching Model to the education of elementary and preadolescent students with mild and moderate disabilities. Additional topics include: service delivery systems, roles of teachers and ancillary personnel, legal requirements, and major issues confronting the field of elementary special education. The course is a continuation of SPED 533 with focus on the elementary level. Prerequisite: Consent of department.

**SPED 536 Curriculum and Instruction in Special Education: Secondary**

- 3 hrs.
- The major focus of this course is the application of the Clinical Teaching Model to the education of adolescents and young adults with mild and moderate disabilities. Topics include: understanding of handicapped adolescents and young adults, educational, curricular and instructional approaches, and interventions, and transition programming. Prerequisite: Consent of department.

**SPED 537 Technology in Special Education**

- 3 hrs.
- This course is designed to provide specific information, exposure, and experience related to a variety of ways that current and emerging technologies may be used to improve the education and lives of learners with disabilities. Prerequisite: Consent of department.

**SPED 538 Introduction to Classroom Management**

- 3 hrs.
- This course deals with methods of managing classroom behavior and dealing with specific behavior problems. Classroom management strategies will be discussed and related to the establishment of a positive classroom climate. Diagnostic and prescriptive techniques will be applied to problems of aggression, conduct, withdrawal, hyperactivity, distractibility, and impulsivity. Prerequisite: Consent of department.

**SPED 539 Consultation and Communication in Special Education**

- 3 hrs.
- This course will provide an introduction to consultation and communication skills needed by special educators as they work with other professionals and parents. Prerequisite: Consent of department.

**SPED 540 Introduction to Mental Retardation**

- 2 hrs.
- This course provides an introduction to the field of mental retardation. Emphasis is placed on the interpretation of mental retardation in home, school, and community settings. Although primarily intended for those preparing to become teachers of persons with mental retardation, it is also recommended for counselors, psychologists, social workers, and other allied professionals. Prerequisite: Consent of department.

**SPED 541 Program Practicum in Special Education: MR**

- 1 hr.
- This course will provide the student with guided observations of school and community agencies serving individuals with mental retardation. This course is intended to provide the student with an awareness of a continuum of special education placements and the roles of non-school agencies serving retarded persons and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 540.

**SPED 543 Technology and Function of the Eye**

- 2 hrs.
- This course will provide the student with an understanding of the various aspects of special education at appropriate levels. Additional topics include: service delivery systems, roles of teachers and ancillary personnel, legal requirements, and major issues confronting the field of elementary special education. The course is a continuation of SPED 533 with focus on the elementary level. Prerequisite: Consent of department.

**SPED 545 Program Practicum in Special Education: MR**

- 1 hr.
- This course will provide the student with guided observations of school and community agencies serving individuals with mental retardation. This course is intended to provide the student with an awareness of a continuum of special education placements and the roles of non-school agencies serving retarded persons and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 540.
SPED 542 Introduction to Severe Impairments 3 hrs.
This course is designed to provide basic knowledge about individuals who are severely impaired, including mental, physical, emotional, and sensory impairments. The problems of severe impairment are examined in light of biomedical, legal, sociological, and educational perspectives. Special emphasis within the perspective of education includes information regarding management, assessment, instruction, and organization. Prerequisite: Consent of department.

SPED 544 Educating Individuals with Severe Impairments 3 hrs.
This course develops specific skills in the assessment, prescription, and evaluation of educational programs for persons with severe impairments. Course content focuses upon the areas of mobility, communication, sensorimotor development, self-help skills, cognition, and adaptive behavior. Prerequisite: Consent of department.

SPED 545 Education of Moderately and Severely Retarded Persons 2 hrs.
This course follows SPED 540 and focuses on understanding the ways in which teachers can organize curriculum and implement assessment and instruction to ensure maximum learning for students with mental retardation. Prerequisite: Consent of department.

SPED 550 Introduction to the Orthopedically and Otherwise Health Impaired 2 hrs.
This course provides an introduction to the field of the orthopedically and otherwise health impaired. Topics include the medical conditions leading to orthopedic impairment, and the educational, therapeutic, psycho-social, and vocational implications of such impairments. Prerequisite: Consent of department.

SPED 551 Program Practicum in Special Education: POHI 1 hr.
This course will provide the student with guided observations of school and community agencies serving the POHI population. This course is intended to provide the student with an awareness of a continuum of special education placements and the role of non-school agencies serving POHI individuals and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 550.

SPED 555 Education of Physically and Multiply Handicapped Students 2 hrs.
This course focuses on the educational needs of physically and multiply disabled students and the implementation of educational programs through curriculum development and instructional adaptations. Special attention will be given to communication needs, self-care needs, and the life management needs of these students. In addition, recreational and vocational programs will be explored. Prerequisite: Consent of department.

SPED 570 Introduction to Emotional Disturbance 2 hrs.
This course is intended to provide a basic foundation for understanding the condition of emotional impairment and appropriate educational and management provisions. Prerequisite: Consent of department.

SPED 571 Program Practicum in Special Education: EI 1 hr.
This course will provide the student with guided observations of school and community agencies serving the emotionally disturbed population. The course is intended to provide the student with an awareness of a continuum of special education placements and the role of non-school agencies serving emotionally disturbed persons and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 570.

SPED 575 Education of Emotionally Disturbed Persons 2 hrs.
This course is to be taken following SPED 570 and focuses on understanding curriculum organization and the application of the clinical teaching model to instruction in order to assure maximal learning by students with emotional impairments. Prerequisite: Consent of department.

SPED 577 Program Practicum in Special Education: EI 1 hr.
This course will provide the student with guided observations of school and community agencies serving the emotionally disturbed population. The course is intended to provide the student with an awareness of a continuum of special education placements and the role of non-school agencies serving emotionally disturbed persons and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 570.

SPED 579 Readings in Special Education 1-4 hrs.
This course is designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and head of the department. May be repeated for credit. Prerequisite: Consent of department.
The mission of the College of Engineering and Applied Sciences supports the three fundamental goals of the University mission of education, research, and service. The College recognizes that its primary clientele are the people and industries of the State of Michigan.

The education goals are to provide balanced undergraduate and graduate programs designed to prepare individuals for professional careers, and to inculcate in students the ability to continue to learn on their own. Each academic degree program is structured to achieve these goals and to encourage student growth through participation in a wide range of extracurricular opportunities.

The research goals are to generate knowledge and to develop new technologies. Applied research is emphasized and is structured to assist industry in design and development. Modern laboratory and research facilities enhance the undergraduate educational experience.

The service goals are to apply the extensive human and physical resources of the College to the needs of the community, state, and nation, and to assist in economic development. It also includes a commitment to serve the various professions represented by the disciplines of the College.

The College of Engineering and Applied Sciences offers undergraduate programs in several curricula and majors that prepare graduates for productive careers in a wide variety of fields. Students should refer to the programs listed throughout the College section of this Catalog for specific information relative to the academic program of interest.

The College also offers graduate programs leading to Master’s degrees in Engineering Management, Operations Research, Electrical Engineering, Industrial Engineering, Mechanical Engineering, and Paper Science and Engineering. Students interested in a graduate program should see the WMU Graduate Catalog for more information.

Institutes

APPLIED MECHANICS INSTITUTE
Meshulam Groper, Director

The Applied Mechanics Institute (AMI) is a facility for research and for academic and industrial collaboration in applied mechanics and for instructional support of the graduate and undergraduate programs in the Department of Mechanical Engineering. It is a resource for basic and applied research in energy related areas. Its activities focus on alternative energy forms with a particular emphasis on solar energy. ERI works with commercial and residential clients designing and testing energy systems, and sponsors community programs for teachers, heating contractors, lending institutions and other interested parties. Its facilities include an experimental residential laboratory. Services are available under contract.

ENERGY RESEARCH INSTITUTE
Richard C. Schubert, Director

The Energy Learning Institute (ERI) is a facility for research and for academic and industrial collaboration in energy and for instructional support of the graduate and undergraduate programs in the Department of Mechanical Engineering. It is a resource for basic and applied research in energy related areas. Its activities focus on alternative energy forms with a particular emphasis on solar energy. ERI works with commercial and residential clients designing and testing energy systems, and sponsors community programs for teachers, heating contractors, lending institutions and other interested parties. Its facilities include an experimental residential laboratory. Services are available under contract.

HUMAN PERFORMANCE INSTITUTE
Robert Wygant and Bob White, Associate Directors

The Human Performance Institute conducts research and consulting including ergonomics and motion analysis. Goals of the institute are to optimize human performance in the workplace and to minimize occupational injury.

INSTITUTE OF TECHNOLOGICAL STUDIES
Molly W. Williams, Director

The Institute of Technological Studies has been established to permit the College of Engineering and Applied Sciences to better serve commerce and industry in Southwestern Michigan. Services include providing engineering consultation for specific problems; programming and delivery of short courses, symposia, and workshops, as well as the design and conducting of experimental tests. The institute has access to all of the research and testing facilities of the college.

MATERIALS INSTITUTE FOR INNOVATION AND ENTERPRISE
Jay Easwaran, Director

The Materials Institute for Innovation and Enterprise (MIE) is a facility for research and for academic and industrial collaboration in materials including metals, polymers, and analysis facilities. Services are available under contract.
opportunities, and to help with general academic problems. Transfer credit and all appropriate to the student's educational course substitutions must be recommended by the advisor and approved by the department no later than the end of the "add" period of the semester or session.

Enrollment
Enrollment will not be honored in any course when other students are requesting that course if the student does not attend the first class meeting (lecture or lab) unless prior arrangements have been made with the instructor. Students are responsible for processing drop/add requests in the Registration Office before the end of the drop/add period if fees are to be refunded.

Credit Hour Definition for the College of Engineering and Applied Sciences
An undergraduate credit hour is a unit of academic measurement nominally equivalent to 3 hours of work per week on the part of the student. Thus, for a course in which 3 credits are earned, a student can expect to work 9 hours per week (4 credits, 12 hours per week, etc.) in various combinations of lecture hours (50 minutes), laboratory hours, and home study.

Standard of Academic Honesty
All courses offered by the College will be conducted in concert with the high standards of the University as stated in the Student Guide to Academic Honesty. Each student is expected to support these standards by neither giving nor accepting assistance on tests, and by submitting only his or her own work for credit. Violations of the standard of academic honesty will result in appropriate disciplinary action. Such disciplinary action may include a failing grade in the course, reassignment of work, dismissal from the curriculum, probation, or dismissal from the University.

Computer Use in College Programs
Most degree programs offered in the College of Engineering and Applied Sciences require extensive use of computers. This is particularly true in engineering and engineering related disciplines. Although Western Michigan University and the College provide adequate computer 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 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. A listing may be found in the "Financial Aid and Scholarships" section of this catalog.

Engineering Programs
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 one or more of the several professional organizations that have student chapters on campus. Such involvement enhances the "textbook learning" by providing students with opportunities to interact with other students having similar interests, to gain a closer look at the profession they have chosen to enter, and to plan and direct programs and projects.

Engineering Graduates
Undergraduate engineering programs offered by the College of Engineering and Applied Sciences prepare graduates for immediately productive careers and for continued professional practice in industry. A survey of graduates indicated WMU engineering alumni held positions of president, vice president, owner, plant manager, chief engineer, senior design engineer, sales manager, and lawyer. Students interested in advanced studies in engineering may pursue a Master of Science degree in 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 all catalogs in effect during the four year period immediately prior to the date of graduation.
Professional Registration

Graduates of engineering programs are encouraged to seek professional registration. Eligibility requirements in Michigan are established by the State Board of Professional Engineers. In general, only graduates of EAC/ABET accredited engineering programs are eligible to be licensed in Michigan. Students interested in professional registration should consult with their department advisor.

Admission to Engineering Programs

ADMISSION TO PRE-ENGINEERING

Admission

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)
- Computer Systems Engineering (CSE)
- Electrical Engineering (EE)
- Industrial Engineering (IE)
- Mechanical Engineering (ME)
- Paper Engineering (PAE)

University admission standards are used for enrollment in PE. Students admitted for PE 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 curricular area.

Common Core Courses Required For All Curricula

<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>12 cr. hr.</td>
</tr>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>CHEM 101 OR 102</td>
<td>General Chemistry</td>
<td>4 cr. hr.</td>
</tr>
<tr>
<td>OR IV</td>
<td>General Education AREA I, II</td>
<td>3-4 cr. hr.</td>
</tr>
<tr>
<td>OR IV</td>
<td>General Education AREA I</td>
<td>3-4 cr. hr.</td>
</tr>
</tbody>
</table>

Additional Courses Required by Curriculum

**Aeronautical Engineering**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 306, EE 210, IE 102, ME 256, PHY 205 and 206, PHY 207 and 208, and PHY 309 and PHY 310 OR CHEM 120</td>
<td>120 cr. hr.</td>
<td></td>
</tr>
<tr>
<td>ENGR 324, OR CHEM 120</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>ENGR 324</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>ENGR 324 OR CHEM 120</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
</tbody>
</table>

**Computer Systems Engineering**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 106, EE 210, EE 260, IE 102, PHY 205 and PHY 206, PHY 207 and PHY 208, and PHY 309 and 310</td>
<td>120 cr. hr.</td>
<td></td>
</tr>
<tr>
<td>CS 306</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>CS 306</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
</tbody>
</table>

**Electrical Engineering**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 200, EE 210, IE 102, ME 256, PHY 205 and PHY 206, PHY 207 and PHY 208, and PHY 309 and 310</td>
<td>120 cr. hr.</td>
<td></td>
</tr>
<tr>
<td>EE 306, EE 324, OR CHEM 120</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>EE 306</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>EE 306 OR CHEM 120</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
</tbody>
</table>

**Industrial Engineering**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE 200, IE 210, IE 260, and PHY 205 and PHY 206, PHY 207 and PHY 208, and PHY 309 and 310</td>
<td>120 cr. hr.</td>
<td></td>
</tr>
<tr>
<td>IE 324, OR CHEM 120</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>IE 324</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>IE 324 OR CHEM 120</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
</tbody>
</table>

**Mechanical Engineering**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 232, ME 256, PHY 205 and PHY 206, PHY 207 and PHY 208, and PHY 309 and 310</td>
<td>120 cr. hr.</td>
<td></td>
</tr>
<tr>
<td>ME 324, OR CHEM 120</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>ME 324</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>ME 324 OR CHEM 120</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
</tbody>
</table>

**Paper Engineering**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAE 102, ME 253, PHY 205, PHY 207, and PAPR 204</td>
<td>120 cr. hr.</td>
<td></td>
</tr>
<tr>
<td>PAE 324</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
<tr>
<td>PAE 324</td>
<td>Advanced General Chemistry</td>
<td>12 cr. hr.</td>
</tr>
</tbody>
</table>

**Programs**

The College of Engineering and Applied Sciences offers several undergraduate degree programs (see the College of Engineering and Applied Sciences catalog for complete lists of courses). The Production Technology degree program is offered to students who can attend classes only on a part-time basis. These programs are not available on the Grand Rapids Regional Center. Additional information can be obtained by contacting the Director of Engineering and Technical Programs at the WMU Grand Rapids Regional Center, (616) 458-8274.

Off Campus Degree Programs

The Production Technology degree program is offered to students who can attend classes only on a part-time basis. These programs are not available on the Grand Rapids Regional Center. Additional information can be obtained by contacting the Director of Engineering and Technical Programs at the WMU Grand Rapids Regional Center, (616) 458-8274.

Production Technology

Bachelor of Science Degree

This manufacturing-oriented program is especially designed for the individual with a two-year associate degree in a technical field from an accredited institution, who may be working in industry, and who wants to earn a Bachelor of Science degree. This degree provides the technological background necessary for growth and advancement.

The program builds on the 60 semester hours of academic credit from the associate degree with an additional 60 semester hours of academic credit from Western Michigan University. Two semester hours of physical education (which can be substituted with two hours of course work for those over age 30) is also required, bringing the total hours needed for the degree to 122.

The entering student is expected to have taken a total of six courses in the following areas as part of the associate degree work:

- Engineering graphics
- General physics
- Humanities
- Social studies (two courses)
- English composition

A student lacking any courses in the above areas will be required to complete them in addition to the 60 hours needed at Western Michigan University.

The entering student must also have had three years of full-time work experience in an area related to studies for the associate degree. A student lacking this experience must obtain it before the bachelor's degree is awarded. Alternatively, each year of experience may be substituted by registering for and successfully completing 3 hours of IE 300 Cooperative Education. The cooperative education credits generated will not count as part of the 60 hours required at Western Michigan University.

PROGRAM REQUIREMENTS

To earn a Bachelor of Science degree in Production Technology, the following courses must be completed in addition to meeting other University requirements applicable to transfer students.

**Industrial Engineering** (18 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE 200</td>
<td>Report Preparation</td>
<td>3</td>
</tr>
<tr>
<td>IE 320</td>
<td>Engineering Cost Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IE 326</td>
<td>Operations Planning and Control</td>
<td>3</td>
</tr>
<tr>
<td>IE 328</td>
<td>Quality Assurance and Control</td>
<td>3</td>
</tr>
<tr>
<td>IE 402</td>
<td>Supervision of Industrial Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

**Engineering Technology** (17 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 256</td>
<td>Properties of Materials</td>
<td>4</td>
</tr>
<tr>
<td>ET 281</td>
<td>Statics and Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>ET 387</td>
<td>CAD/CAM Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ET 459</td>
<td>Maintenance in Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>ET 487</td>
<td>Manufacturing Productivity Techniques</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other** (25 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 136</td>
<td>Introduction to Statistics</td>
<td>4</td>
</tr>
<tr>
<td>*Humanities Elective (Area I)</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>*Non-Western World Elective (Area IV)</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Approved electives (the courses in this group must be approved in advance by the program advisor to meet University General Education/Computer Literacy program requirements as listed in the current undergraduate catalog)</td>
<td>14-15</td>
<td></td>
</tr>
</tbody>
</table>

* At least one of these courses must be at the 300-400 level.
Baccalaureate Writing Requirement
Students who have chosen the Production Technology program will satisfy the Baccalaureate Writing Requirement by successfully completing IE 316 Report Preparation.

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.

Engineering and Applied Sciences College Courses (ENGR)
ENGR 101 Introduction to Engineering and Technology 1 hrs.
Exploration of the career opportunities and demands of the engineering and engineering technology professions. Includes activities to strengthen student communication, problem-solving, leadership and study skills, while surveying the various engineering disciplines.
ENGR 497 General University Studies (Variable Credit)
Evaluation of work experience and/or course work relevant to the area of specialty in the Technical-Scientific area studies. Prerequisite: Permission of the Technical-Scientific Studies advisor. Room 2038, Kohrman Hall.

Related Academic Programs
COOPERATIVE EDUCATION PROGRAM
Lawrence A. Williams, Coordinator
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 course. Additional information may be obtained from the Coordinator in Room 2038 Kohrman Hall.
Students are usually selected in pairs and alternate by semester between campus and industry. While on the job, the student must be enrolled in the course IE 300, Cooperative Education. During their employment period, 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 closely 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 coordinator of Engineering 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.

INTEGRATED SUPPLY MANAGEMENT MAJOR
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.

AVIATION SCIENCES
Joseph Dunlap, Director Aviation Operations
Robert Aardema
Patrick Benton
Thomas Deckard
Ronald Sackett
Terry Michmerhuizen
Curtis Swanson
Leard Wylie

Adjunct Faculty
Ronald Qusling

The School of Aviation Sciences offers the following curricula:
- Aviation Technology and Operations (Technical Management, Option A) — B.S. degree
- Aviation Technology and Operations (Professional Pilot, Option B) — B.S. degree
- Aviation Technology and Operations (Maintenance Management, Option C) — B.S. degree
- Aircraft Maintenance Engineering Technology — B.S. degree

These programs are designed to produce graduates who think critically, communicate effectively, and participate meaningfully and ethically in the dynamic profession of aviation.

Enrollment
Enrollment will not be honored in any course if the student does not attend the first class meeting (lecture or lab), when other students are requesting that course unless prior arrangements have been made with the instructor. Students not attending courses, for whatever reason, are responsible for processing drop slips with the Registration Office if fees are to be refunded. Enrollment in flight courses may be subject to a waiting list which is maintained by the department and according to established criteria for seniority.

Transfer Credit
Transfer credit for FAA certification may be accepted providing the courses were taken at another accredited collegiate institution. Flight students with experience and certificates obtained outside of an accredited collegiate institution must take AVS 305 and AVS 302 to qualify for graduation from the Professional Pilot option. Additionally the multi-engine course, AVS 402 must be taken at WMU unless prior approval is granted.

Academic Advising
Students should contact an advisor as early as possible. The advisor is available to assist in the individual program planning, recommend electives appropriate to a students’ 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 director. The academic advisor is located in room 2038, Kohrman Hall, phone (616) 387-4033. Because of the prerequisites and the limited offering times, students must consult an academic advisor for proper course sequence.
Approved Electives
Electives must be approved by the department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide depth and add strength to the individual’s program. Non-related courses will not normally be approved.

Gate Courses
Certain courses are considered gate courses and are required to be completed with a grade of “C” or better prior to enrolling in upper division courses. Upon proper completion of the gate courses, students must contact an advisor to be allowed to enroll in upper division courses. This is not an automatic process.

Airway Science Management Recognition
A special program sponsored and approved by the FAA in Airway Science Management is available for aviation students who are enrolled in either the Technical Management Option or the Professional Pilot Option of the Aviation Technology and Operations curriculum.

Students should contact an advisor if interested in enrolling the Airway Science designation.

Additional Costs
Special lab fees are in effect for all flight courses to cover the cost of flight instruction and aircraft operations. The fee is subject to change without notice due to fluctuations in operating costs. Current fees range from approximately $800 to $2,500, depending on the course. Flight fees are based on the average flight time required to complete the course. Students may require additional or less instruction. Refund of flight fees is subject to departmental refund policy, depending on whether a student completes a course of instruction or withdraws. Flight fees are due at the beginning of the semester.

Students are required to have their own tools for courses required for the Airframe and Powerplant Certificate. A basic set of required tools may be purchased for approximately $150.

Class-related charges are assigned for some laboratory courses to help cover the cost of materials and services. Current non-flight lab fees range from $10-20.

Airframe Maintenance Engineering Technology
Bachelor of Science Degree
The airframe maintenance engineering technology curriculum provides preparation for a variety of positions in the demanding field of aircraft maintenance including such areas as: performance testing, engineering/maintenance liaison, maintenance logistics, flight test engineering, product technical support, and aircraft maintenance engineering. Satisfactory completion of all requirements prepares one to take the Airframe and Powerplant written and practical examinations from the Federal Aviation Administration.

Baccalaureate Writing Requirement
Students who have chosen the Aircraft Maintenance Engineering Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 313 Aircraft Electrical Systems and ET 415 Aircraft Turbine Powerplants.

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in the bulletin:

1. A “C” average or better must be earned in required courses with an AVS, EE, ET, or ME prefix.
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 141 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, plus two spring sessions and a summer session.

Courses listed in darker italic print must be complete with at least a “C” prior to enrolling in upper level Engineering Technology courses.

First Semester — 15 hours
AVS 101 Aeroscience .................. 3
CS 105 Introduction to Computers .... 3
MATH 118 Pre-Calculus Mathematics ... 4
PHYS 113 General Physics I .......... 4
PHYS 114 General Physics I Lab .... 1

Second Semester — 18 hours
AVS 118 Aircraft Structures .......... 3
ET 142 Engineering Graphics .......... 3
IE 102 Technical Communication .... 3
MATH 200 Calculus with Applications ... 4
PHYS 115 General Physics II .......... 4
PHYS 116 General Physics II Lab .... 1

Third Semester — 15 hours
AVS 117 Aircraft Reciprocating Engine Powerplant .... 4
EE 100 Fundamentals of Circuits and Electronics ........ 3
CHEM 103 General Chemistry I ........ 4
ARE 104 Maintenance Regulations .... 2
PEGN Physical Education .......... 1

Fourth Semester — 17 hours
AVS 213 Airframe Hydraulic, Pneumatic and Auxiliary Systems .... 4
ET 256 Properties of Materials .... 4
ET 222 Fuels and Lubricants .......... 3
COM 170 Interpersonal Communication I .......... 3
EE 101 Fundamentals of Electronics and Machines .... 3

Spring — 5 hours
AVS 119 Reciprocating Powerplant Overhaul .... 2
AVS 216 Aircraft Structural Repair .... 3

Fifth Semester — 15 hours
ET 281 Statics and Strength of Materials .......... 3
AVS 313 Aircraft Electrical Systems .... 4
ECON 201 Principles of Economics .......... 3
MATH 260 Elementary Statistics .... 4
PEGN Physical Education .......... 1

Sixth Semester — 16 hours
AVS 116 Aircraft Propellers ........ 2
AVS 311 Powerplant Systems .... 5
ET 381 Thermo-Fluid Dynamics .... 4
AREA II Social/Behavioral Science* .... 3

Spring/Summer — 10 hours
AVS 312 Powerplant Service and Management .... 5
AVS 318 Aircraft Service and Management .... 5

Seventh Semester — 15 hours
AVS 315 Propulsion System Performance .... 3
AVS 415 Aircraft Turbine Powerplants .... 4
AVS 416 Maintenance Regulations .... 2
AVS 418 Aircraft Reliability and Maintainability .... 3
AVS 419 Advanced Maintenance Systems .... 3

Eighth Semester — 15 hours
IE 422 Conference Leadership .......... 3
ME 375 Experimental Stress Analysis .... 3
ET 104 Advanced Elective .......... 3
AREA I Humanities/Fine Arts* .... 3
AREA IV Non-Western World* .... 3

* At least two of these courses must be at the 300-400 level.

Aviation Technology and Operations
Bachelor of Science Degree
The aviation technology and operations curriculum provides preparation for a variety of positions in operations management or technical support areas of the aviation industry. The technical management option leads to careers in areas such as technical sales or service, production, and general aviation management. The professional pilot option prepares general aviation pilots who are competitive in both technical and business backgrounds. The aviation maintenance management option emphasizes aircraft systems, reliability and maintainability, licensing requirements, and repair facility management.

Baccalaureate Writing Requirement
Students who have chosen the Aviation Technology and Operations curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 313 Aircraft Electrical Systems and ET 415 Aircraft Turbine Powerplants.

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:

1. A “C” average or better must be earned in required courses with an AVS, EE, ET, or ME prefix.
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 141 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, plus two spring sessions and a summer session for the aviation maintenance management option.

Courses listed in darker italic print must be completed with at least a “C” prior to enrolling in upper level Engineering Technology courses.

A. TECHNICAL MANAGEMENT OPTION—128 hours
Fall Semester — 16 hours
AVS 110 Aeroscience ........ 3
MATH 200 Calculus with Applications .... 4
PHYS 107 Elementary Physics .......... 4
PHYS 108 Elementary Physics Basic .......... 1
IE 102 Technical Communication .... 3

Spring/Spring — 10 hours
AVS 312 Powerplant Service and Management .... 5
AVS 318 Aircraft Service and Management .... 5

AVIATION SCIENCES 205
Winter Semester — 16 hours
AVS 118 Aircraft Structures 3
ET 142 Engineering Graphics 3
CHEM 103 General Chemistry I 4
CS 106 BASIC for Engineers 1
MATH 260 Elementary Statistics 4
PEGN Physical Education 1

Fall Semester — 16 hours
AVS 117 Aircraft Reciprocating Powerplants 4
EE 100 Fundamentals of Circuits and Electronics 3
ACTY 201 Accounting Concepts and Applications 3
COM 104 Public Speaking 3
AREA IV Non-Western World* 3

Winter Semester — 18 hours
AVS 205 Aviation Safety 2
AVS 213 Airframe Hydraulics, Pneumatic and Auxiliary Systems 4
ET 222 Fuels and Lubricants 3
EE 101 Fundamentals of Electronics and Machines 3
ECON 201 Principles of Economics 3
AREA I Humanities/Fine Arts* 3

Fall Semester — 17 hours
AVS 280 Transportation in the U.S. 3
AVS 311 Powerplant Systems Evaluation and Testing 4
BIS 340 Business Communication 3
AREA II Social/Behavioral Science* 3
General Education Elective* 4

Winter Semester — 15 hours
AVS 317 Air Transportation 3
AVS 311 Powerplant Systems Evaluation and Testing 4
AREA I Humanities/Fine Arts* 3
AREA II Social/Behavioral Science* 3
General Education Elective* 4

Fall Semester — 16 hours
AVS 405 Flight Operations Analysis 3
AVS 402 Multi-Engine Flight 1
AVS 415 Aircraft Turbine Powerplants 4
AREA I Humanities/Fine Arts* 3
AREA II Social/Behavioral Science* 3
MGMT 300 Fundamentals of Management 3

Fall Semester — 16 hours
AVS 415 Aircraft Turbine Powerplants 4
IE 320 Engineering Cost Analysis 3
MGMT 360 Quantitative Methods for Business Decisions 3
ECON 400 Managerial Economics 3
IE 326 Operations Planning and Control 3
IE 402 Supervision of Industrial Operations 3
FCL 380 Legal Environment 3
MGMT 300 Fundamentals of Management 3

Winter Semester — 16 hours
IE 422 Conference Leadership 3
MKTG 370 Marketing 3
AREA I Humanities/Fine Arts* 3
AREA II Social/Behavioral Science* 3

Winter Semester — 16 hours
AVS 110 Aeroscience 3
AVS 118 Aircraft Structures 3
MATH 200 Calculus with Applications 4
PHYS 107 Elementary Physics Lab 1
PHYS 108 Elementary Physics Lab 1
IE 102 Technical Communication 3
PEGN Physical Education 1

Winter Semester — 17 hours
AVS 117 Aircraft Reciprocating Powerplants 4
CHEM 103 General Chemistry I 4
CS 106 BASIC for Engineers 1
GEOG 105 Our Physical Environment 4
MATH 260 Elementary Statistics 4

Fall Semester — 16 hours
AVS 118 Aircraft Structures 3
AVS 280 Transportation in the U.S. 3
EE 100 Fundamentals of Circuits and Electronics 3
COM 104 Public Speaking 3
GEOG 225 Introduction to Meteorology and Climatology 4

Winter Semester — 18 hours
AVS 205 Aviation Safety 2
AVS 213 Airframe Hydraulics, Pneumatic and Auxiliary Systems 4
ET 222 Fuels and Lubricants 3
EE 101 Fundamentals of Electronics and Machines 3
ACTY 201 Accounting Concepts and Applications 3
ECON 201 Principles of Economics 3

Spring — 5
AVS 119 Reciprocating Powerplant Overhaul 2
AVS 216 Aircraft Structural Repair 3

Fall Semester — 14 hours
AVS 311 Powerplant Systems Evaluation and Testing 4
AVS 313 Aircraft Electrical Systems 3
AREA I Humanities/Fine Arts* 3
AREA II Social/Behavioral Science* 3
PEGN Physical Education 1

Winter Semester — 17 hours
AVS 116 Aircraft Propellers 2
AVS 316 Avionics Systems 3
AVS 310 Airport Management 3
OR
AVS 317 Air Transportation 3
MATH 200 Calculus with Applications 4
PHYS 107 Elementary Physics Lab 1
PHYS 108 Elementary Physics Lab 1
IE 102 Technical Communication 3
CHEM 103 General Chemistry I 4

Fall Semester — 15 hours
AVS 301 Commercial Flight I 3
AVS 302 Aircraft Systems and Operations 4
AVS 311 Powerplant Systems Evaluation and Testing 4
AREA I Humanities/Fine Arts* 3
AREA II Social/Behavioral Science* 3
PEGN Physical Education 1

Winter Semester — 15 hours
AVS 300 Navigation Systems 3
AVS 303 Commercial Flight II 3
AVS 317 Air Transportation 3
BIS 340 Business Communication 3
MGMT 300 Fundamentals of Management 3

Winter Semester — 16 hours
AVS 400 Aerodynamics and Flight Principles 2
AVS 402 Multi-Engine Flight 1
AVS 405 Flight Operations Analysis 3
AVS 415 Aircraft Turbine Powerplants 4
IE 402 Supervision of Industrial Operations 3
AREA I Humanities/Fine Arts* 3

Winter Semester — 14 hours
BIS 340 Business Communication 3
MKTG 370 Marketing 3
AREA IV Non-Western World* 3
General Education Elective* 4
PEGN Physical Education 1

B. PROFESSIONAL PILOT OPTION — 128 hours

Enrollment in flight courses may be subject to a waiting list. A private pilot certificate is required to enroll in flight courses in this curriculum. Candidates for flight courses must complete an application at the aviation building to be considered for enrollment in these courses. Registration is administered by the School of Aviation Sciences.

Fall Semester — 16 hours
AVS 110 Aeroscience 3
AVS 118 Aircraft Structures 3
MATH 200 Calculus with Applications 4
PHYS 107 Elementary Physics Lab 1
PHYS 108 Elementary Physics Lab 1
CS 106 BASIC for Engineers 1

Winter Semester — 14 hours
AVS 117 Aircraft Reciprocating Powerplants 4
ET 142 Engineering Graphics 3

AVIATION SCIENCE COURSES (AVS)

AVS 100 Private Pilot Ground School (3-0) 3 HS
A beginning course for students engaged in primary flight instruction or interested in such instruction. Topics include flight theory, federal aviation regulations, aviation weather, navigation, performance factors, and weight and balance. Upon completion, the student may take the Federal Aviation Administration written examination for private pilots.

Fall Semester — 17 hours
AVS 205 Aviation Safety 2
ET 226 Fuels and Lubricants 3
EE 101 Fundamentals of Circuits and Electronics 3
MATH 260 Elementary Statistics 4
AREA I Humanities/Fine Arts* 3

Winter Semester — 15 hours
AVS 205 Aviation Safety 2
ET 256 Properties of Materials 4
EE 101 Fundamentals of Circuits and Electronics 3
ACTY 201 Accounting Concepts and Applications 3
ECON 201 Principles of Economics 3

Spring — 5
AVS 119 Reciprocating Powerplant Overhaul 2
AVS 216 Aircraft Structural Repair 3

Fall Semester — 14 hours
AVS 311 Powerplant Systems Evaluation and Testing 4
AVS 313 Aircraft Electrical Systems 3
AREA I Humanities/Fine Arts* 3
AREA II Social/Behavioral Science* 3
PEGN Physical Education 1

Winter Semester — 17 hours
AVS 116 Aircraft Propellers 2
AVS 316 Avionics Systems 3
AVS 310 Airport Management 3
OR
AVS 317 Air Transportation 3
MATH 200 Calculus with Applications 4
PHYS 107 Elementary Physics Lab 1
PHYS 108 Elementary Physics Lab 1
IE 102 Technical Communication 3
CHEM 103 General Chemistry I 4

Fall Semester — 15 hours
AVS 305 Commercial Flight III 3
AVS 313 Aircraft Electrical Systems 3
FCL 380 Legal Environment 3
MKTG 370 Marketing 3
AREA IV Non-Western World* 3

Winter Semester — 16 hours
AVS 400 Aerodynamics and Flight Principles 2
AVS 402 Multi-Engine Flight 1
AVS 405 Flight Operations Analysis 3
AVS 415 Aircraft Turbine Powerplants 4
IE 402 Supervision of Industrial Operations 3
AREA I Humanities/Fine Arts* 3

Winter Semester — 14 hours
BIS 340 Business Communication 3
MKTG 370 Marketing 3
AREA IV Non-Western World* 3
General Education Elective* 4
PEGN Physical Education 1

* At least two of these courses must be at the 300-400 level.

C. AVIATION MAINTENANCE MANAGEMENT OPTION — 137 hours

Fall Semester — 16 hours
AVS 110 Aeroscience 3
AVS 118 Aircraft Structures 3
MATH 200 Calculus with Applications 4
PHYS 107 Elementary Physics Lab 1
PHYS 108 Elementary Physics Lab 1
CS 106 BASIC for Engineers 1

Winter Semester — 14 hours
AVS 117 Aircraft Reciprocating Powerplants 4
ET 142 Engineering Graphics 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits/Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVS 100</td>
<td>Aerospace Science</td>
<td>3 hrs.</td>
<td>A first course in aviation including a review of aviation history, theory of flight, aerodynamics, performance, weight and balance, helicopter theory, and regulatory structure of the industry. Prerequisite: PHYS 107 and PHYS 108 or taking concurrently.</td>
</tr>
<tr>
<td>AVS 116</td>
<td>Aircraft Propellers (1-3)</td>
<td>2 hrs.</td>
<td>Theory, operation, troubleshooting, and servicing of aircraft propeller systems for reciprocating and turbine engines. For students seeking the A and P certificate. Prerequisite: AVS 110 or consent of department.</td>
</tr>
<tr>
<td>AVS 117</td>
<td>Aircraft Reciprocating Powerplants (3-2)</td>
<td>4 hrs.</td>
<td>Reciprocating aircraft engine principles, designs, and operations. Laboratory work includes disassembly and inspection of engine components and engine operation. Prerequisite: AVS 110 or concurrent.</td>
</tr>
<tr>
<td>AVS 118</td>
<td>Aircraft Structures (2-2)</td>
<td>3 hrs.</td>
<td>Airframe structures and coverings including fabric, sheet metal, honeycomb, plastics, and hardware. Laboratory practice in preventive maintenance and inspection. Prerequisite: AVS 110 or taking concurrently.</td>
</tr>
<tr>
<td>AVS 205</td>
<td>Aviation Safety (2-0)</td>
<td>2 hrs.</td>
<td>Physiological and psychological factors relating to flight safety emphasizing cause and effect of airplane accidents and related problem-solving processes. Includes a systems approach to safety program development and management. Prerequisite: AVS 117.</td>
</tr>
<tr>
<td>AVS 213</td>
<td>Airframe Hydraulic, Pneumatic, and Auxiliary Systems (2-4)</td>
<td>4 hrs.</td>
<td>Classroom and laboratory study of aircraft hydraulic and pneumatic components and systems, air conditioning and pressurization, fire detection and extinguishing systems and other auxiliary systems. Prerequisites: AVS 110, CS 106 or concurrently.</td>
</tr>
<tr>
<td>AVS 216</td>
<td>Aircraft Structural Repair (0-6)</td>
<td>3 hrs.</td>
<td>Major structural repair methods including procedures for metal, plastics, composites, and welded structures. Prerequisites: AVS 118, ET 256.</td>
</tr>
<tr>
<td>AVS 280</td>
<td>Transportation in the United States (3-0)</td>
<td>3 hrs.</td>
<td>A survey of transportation in the U.S. including ground, air, and sea transport systems. Historical origins, current status and problems, and alternatives for the future are discussed.</td>
</tr>
<tr>
<td>AVS 297</td>
<td>Elementary Flight (0-3)</td>
<td>1 hr.</td>
<td>Flight instruction leading to private pilot certification. Adjusted to meet individual needs. May be repeated as necessary. Credit/No Credit only. Prerequisite: AVS 100 or concurrent.</td>
</tr>
<tr>
<td>AVS 300</td>
<td>Navigation Systems (3-0)</td>
<td>3 hrs.</td>
<td>Advanced navigation systems and equipment including area navigation, pictorial displays, flight directors, and airborne radar application and interpretation. Prerequisites: AVS 205, MATH 200, CS 106.</td>
</tr>
<tr>
<td>AVS 301</td>
<td>Commercial Flight I (0-5.5)</td>
<td>3 hrs.</td>
<td>Initial flight, ground, and simulator instruction in aeronautical skills and knowledge necessary for commercial flying application. Includes introduction to high performance aircraft and instrument flight. Prerequisites: Private pilot certificate and second class medical certificate.</td>
</tr>
<tr>
<td>AVS 302</td>
<td>Aircraft Systems and Operations (1-0)</td>
<td>1 hr.</td>
<td>Aircraft pre-flight and post-flight requirements, specifications, equipment requirements, maintenance systems, airworthiness determination, special operation needs,dispatching, winter operations, and related topics.</td>
</tr>
<tr>
<td>AVS 303</td>
<td>Commerical Flight II (0-5.5)</td>
<td>3 hrs.</td>
<td>Continuing flight, ground, and simulator instruction in aeronautical skills, knowledge, and experience pursuant to commercial-instrument pilot certification. Includes flight, ground, and simulator instruction. Prerequisites: AVS 303, AVS 300 or taking concurrently.</td>
</tr>
<tr>
<td>AVS 305</td>
<td>Commercial Flight III (0-5.5)</td>
<td>3 hrs.</td>
<td>Completion of instruction and experience requirements for commercial and instrument pilot certification. Includes flight, ground, and simulator instruction. Prerequisites: AVS 303, AVS 300 or taking concurrently.</td>
</tr>
<tr>
<td>AVS 309</td>
<td>Air Traffic Control (2-0)</td>
<td>2 hrs.</td>
<td>An overview of the existing and proposed national airspace system. Includes basic air traffic control procedures, the role of the air route traffic control center, approach control, control towers, and flight service stations.</td>
</tr>
<tr>
<td>AVS 310</td>
<td>Airport Management (3-0)</td>
<td>3 hrs.</td>
<td>An introduction to airport operation and the duties of the airport manager. Topics studied will include the relationship between airport and community, legislation affecting airports, and planning, organizing, financing, and developing programs and services. Prerequisite: Junior standing in aviation curricula or approval of instructor.</td>
</tr>
<tr>
<td>AVS 312</td>
<td>Powerplant Service and Management (2-10)</td>
<td>5 hrs.</td>
<td>Aircraft powerplant inspection, repair and overhaul procedures including reciprocating engines, turbine engine hot section, propellers, and drive systems. Emphasis on repair station procedures, organization, and management. Prerequisites: AVS 311, MGMT 300, and consent of department.</td>
</tr>
<tr>
<td>AVS 313</td>
<td>Aircraft Electrical Systems (2-3)</td>
<td>3 hrs.</td>
<td>A review of basic electricity, study and laboratory practice in aircraft electrical components and systems, electrical instrumentation, and auto pilot systems. Prerequisites: AVS 110, EE 101.</td>
</tr>
<tr>
<td>AVS 315</td>
<td>Propulsion System Performance (0-6)</td>
<td>3 hrs.</td>
<td>Operation, testing, and diagnosis of aircraft engines and accessory systems. Application of instrumentation, dynamometers, and service test equipment. Prerequisites: AVS 312, EE 101.</td>
</tr>
<tr>
<td>AVS 316</td>
<td>Avionics Systems (2-2)</td>
<td>3 hrs.</td>
<td>Advanced topics in airborne electrical and electronics systems including multiplexing, flight control, and navigation applications. Prerequisite: AVS 313.</td>
</tr>
<tr>
<td>AVS 317</td>
<td>Air Transportation (3-0)</td>
<td>3 hrs.</td>
<td>Regulation, organization, and operations peculiar to the air transportation industry. Includes a study of legal aspects of air transportation and fundamentals of the air traffic control system.</td>
</tr>
<tr>
<td>AVS 318</td>
<td>Aircraft Service and Management (2-10)</td>
<td>5 hrs.</td>
<td>Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operation. Prerequisite: AVS 305 or equivalent.</td>
</tr>
<tr>
<td>AVS 399</td>
<td>Field Experience (1-3)</td>
<td>1 hr.</td>
<td>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. Credit/No Credit status only. Prerequisite: Consent of department.</td>
</tr>
<tr>
<td>AVS 402</td>
<td>Multi-Engine Flight (0-1.3)</td>
<td>1 hr.</td>
<td>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 305 or equivalent.</td>
</tr>
<tr>
<td>AVS 403</td>
<td>Flight Instructor Fundamentals (2 hrs.)</td>
<td>2 hrs.</td>
<td>An introduction to techniques and responsibilities of flight instruction. Includes classroom reparation in fundamentals of learning and teaching theory. Features instruction in proper supervision of instructional scenarios and flight situations.</td>
</tr>
<tr>
<td>AVS 404</td>
<td>Instrument Flight Instructing (1-1)</td>
<td>1 hr.</td>
<td>Techniques of flight instruction applied to instrument flying. Designed to upgrade an airplane flight instructor to an instrument instructor. Instructional techniques of attitude instrument flying, flight simulator utilization, instrument enroute procedures, radio navigation, critical situations, and performance analysis. After certification, supervised teaching experience is required. Prerequisite: AVS 406.</td>
</tr>
</tbody>
</table>
AVS 405 Flight Operations Analysis (3-0)
3 hrs.
Advanced topics in aircraft operations with consideration of human factors, efficiency, air traffic control, environmental problems, and equipment constraints. Prerequisites: AVS 300, AVS 305, AVS 400 or concurrent.

AVS 406 Flight Instructor Certification (2-2)
2 hrs.
A study and application of airplane performance skills, flight maneuvers, and pilot operations pursuant to qualification as a flight instructor. Involves flight and ground instruction, lesson planning and execution, and analysis of common student errors. Prerequisite: AVS 403, which must be completed at grade "C" or above.

AVS 415 Aircraft Turbine Powerplants (3-3)
4 hrs.
Reaction engine principles, gas turbine engine construction, design and operation. Includes testing and operation of jet aircraft powerplant systems. Prerequisites: CS 106, MATH 200 and AVS 313.

AVS 416 Maintenance Regulations (2-0)
2 hrs.
Regulatory Impact on Maintenance Practices, legal considerations, specific requirements for licensing and certification of airmen, repair stations, and aircraft. Prerequisites: AVS 312, AVS 316.

AVS 418 System Reliability and Maintainability (3-0)
3 hrs.
A review of aircraft maintenance practices. Monitoring and control procedures, analysis of data essential for planning and quality control. Database management applications. Prerequisites: AVS 311, AVS 318, MATH 260, CS 106.

AVS 419 Advanced Maintenance Systems (2-2)
3 hrs.
This is the final course taken prior to FAA certification of the airframe and powerplant mechanic. Each subject area required for certification will be studied and the student will demonstrate competence by passing an FAA written, oral, and practical examination administered by a designated mechanic examiner. Students electing this course must have completed or be currently completing all courses required in the special program.

AVS 497 Special Flight Instruction (1-3)
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. Credit/No Credit only. May be repeated.

AVS 499 Studies in Aviation Sciences 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.

**ELECTRICAL ENGINEERING**

Thomas P. Pietakowski, Chair
Charles A. Davis
Raghvendra Gejji
John W. Gesink
Garrison R. Greenwood
Xiaobo Hu
Dean Johnson
Joseph Kelemen
John L. Mason
S. H. Moussavian
Frank Severance
Richard W. Taylor
Lambert R. VanderKooi

The Department of Electrical Engineering offers curricula designed primarily to prepare personnel for professional careers in computer engineering or electrical engineering.

**Cooperative Education**

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of classroom study with a semester of compensated industrial experience. Students may work in any area in which computer engineers or electrical engineers may be found.

**Academic Advising**

Students should contact the electrical engineering academic advisor as early as possible. The advisor is available to assist in individual program planning, to recommend electives appropriate to a student’s educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, curriculum committee, and department chair. The academic advisor is located in Room 3038, Kohrman Hall, (616) 367-4033.

**Additional Information**

General information regarding advising, scholarships, and special programs of interest to students in this department may be found under the beginning of the Engineering and Applied Sciences’ section of the catalog.

Enrollment will not be honored in any course when other students are requesting that course if the student does not attend the first class meeting (lecture or lab) unless prior arrangements have been made with the instructor or chair. Students not attending courses are responsible for processing drop slips with the Registration Office if fees are to be refunded.

Prerequisites are designed to both increase the probability of successful completion of each course as well as to insure the proper conduct of the course. Prerequisites will be strictly enforced in all departmental courses. Exceptions must be accepted by the department no later than the end of the add period of the semester or session.

**Baccalaureate Writing Requirement**

Students who have chosen the Computer Systems Engineering program or the Electrical Engineering program will satisfy the Baccalaureate Writing Requirement by successfully completing both EE 481: Electrical Engineering Design I and EE 482: Electrical Engineering Design II.

**Computer Systems Engineering**

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Candidates for the Bachelor of Science in Engineering (Computer Systems) 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 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, 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 “C” average or better must be earned in courses presented for graduation with an EE, IE, 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 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** — 15 hours

MATH 122 Calculus I 4

CHEM 101 /102 General Chemistry 4

EE 210 Circuits 4

Second Semester — 17 hours

MATH 123 Calculus II 4

EE 211 Computer Science I 3

AREA I General Education* 3

AREA II General Education* 3

Third Semester — 17 hours

MATH 272 Vector and Multivariate Calculus 4

EE 205 Digital Logic II 3

AREA I General Education* 3

Fourth Semester — 16 hours

MATH 374 Introduction to Linear Alg. and Diff. Equations 4

EE 310 Computer Organization and Assembly Language 4

Fifth Semester — 16 hours

MATH 145 Discrete Mathematical Structures 3

EE 221 Electronics I 4

EE 310 Network Analysis 3

EE 355 Digital Logic II 3

CS 223 Computer Organization and Assembly Language 3

Departmental courses. Exceptions must be accepted by the department no later than the end of the add period of the semester or session.
Sixth Semester — 16 hours

EE 350 Digital Electronics ................................. 4
EE 357 Computer Architecture .......................... 3
EE 371 Linear Systems ................................. 3
EE 380 Probabilistic Methods in Signal and Systems Analysis ................................. 3
CS 331 Design and Analysis of Algorithms and Data Structures ................................. 3

Seventh Semester — 17 hours

EE 481 Electrical Engineering ............................ Design I ................................. 2
CS 554 Operating Systems ................................. 3
CS 485 Programming Languages ............................. 3
AREA I General Education* ............................ 3
AREA II General Education* ............................ 3
EE 331 Design and Analysis of Algorithms and Data Structures ................................. 3
ME Engineering Science ................................. Elective ................................. 3

Eight Semester — 16 hours

EE 455 Digital Signal Processing ............................. 3
EE 451 Digital Systems II ................................. 3
EE 482 Electrical Engineering ............................ Design II ................................. 3
AREA IV General Education* ............................ 4
Department Approved Electives ** ................................. 3

*At least two of these courses must be at the 300-400 level. Item "1" above must also be satisfied.

**Three hours must satisfy the "in depth" humanities and social science requirement if not otherwise satisfied.

Electrical Engineering Program

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology

Candidates for the Bachelor of Science in Engineering (Electrical) degree must satisfy the following requirements in addition 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 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 Area I, II, 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 "C" average or better must be earned in courses presented for graduation with an EE, IE, 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 130 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in darker italic print.

First Semester — 15 hours

MATH 122 Calculus I ........................................ 4
CHEM 101 General Chemistry .............................. 4
ET 142 Engineering Graphics ................................. 3
IE 102 Technical Communications ......................... 3
PEGN Physical Education ................................ 1

Second Semester — 17 hours

MATH 123 Calculus II ....................................... 4
PHY1 205 Mechanics and Heat .............................. 4
PHY1 206 Modern and Heat Lab. .............................. 1
EE 250 Digital Logic I .................................... 3
CS 306 Introductory Programming—FORTRAN .... 2
AREA I General Education* ............................ 3

Third Semester — 16 hours

MATH 272 Vector and Multivariate Calculus ................................. 4
PHY1 207 Electricity and Light .............................. 4
PHY1 208 Electricity and Light Lab. .............................. 1
EE 251 Digital Systems I ................................. 4
AREA II General Education* ............................ 3

Fourth Semester — 16 hours

MATH 374 Introduction to Linear Alg. and Diff. Equations ................................. 4
PHY1 309 Introductory Modern Physics ................................. 3
PHY1 310 Introduction to Modern Physics Lab. ................................. 1
EE 210 Circuit Analysis ................................. 4
ME 256 Statics ........................................ 3
PEGN Physical Education ................................ 1

Fifth Semester — 17 hours

EE 221 Electronics I ................................. 4
EE 310 Network Analysis ................................. 3
EE 361 Electromagnetic Fields ............................... 4
ME 258 Dynamics ........................................ 3
AREA II General Education* ............................ 3

Sixth Semester — 17 hours

EE 320 Electronics II ................................. 4
EE 330 Electrical Machinery ............................... 4
EE 371 Linear Systems ..................................... 3
EE 380 Probabilistic Methods in Signal/Systems Analysis ................................. 3
ME Engineering Science ................................. Elective ................................. 3

Seventh Semester — 17 hours

EE 470 Feedback Systems ................................. 3
EE Electrical Engineering Elective Group*** ........ 6
IE 310 Engineering Economy ............................... 3
EE 481 Electrical Engineering Design I .............. 4
AREA I General Education* ............................ 2

Eighth Semester — 15 hours

EE Electrical Engineering Elective Group*** ........ 3
EE 482 Electrical Engineering Design II .............. 3
AREA IV General Education* ............................ 4
Departmental Approved Electives ** ................................. 5

*At least two of these courses must be at the 300-400 level. Item "1" above must also be satisfied.

**Three hours must satisfy the "in depth" humanities and social science requirement if not otherwise satisfied.

***Electrical Engineering Elective Group

EE 420 Power Electronics ................................. 3
EE 430 Electrical Power Systems ............................. 3
EE 451 Digital Systems II ................................. 3
EE 455 Digital Signal Processing ............................. 3
EE 460 Communication Systems ............................. 3

EE 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 EE courses except 101. Cannot be used as credit in engineering curricula. Prerequisite: MATH 111 or equivalent and high school physics.

EE 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 EE courses. Cannot be used as credit in engineering curricula. Prerequisite: EE 101.

EE 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: PHY1 207 or taken concurrently, MATH 123.

EE 211 Machines and Electronic Circuits (2-3) ................................. 3 hrs.

Introduction to machines and electronics for non-electrical engineering students. Principles of operation, characteristics, ratings, and applications of transformers, alternators, motors, diodes, and transistors. EE and CSE students may not use credit in EE 211 toward graduation. Prerequisite: EE 210.

EE 221 Electronics I (3-3) ................................. 4 hrs.

Analysis and design of electronic circuits and systems, diode circuits, transistor biasing and stabilization, small and large signal models. Computer-aided analysis and design of multi-stage circuits. Prerequisites: EE 210, PHY1 207.

EE 250 Digital Logic I (2-3) ................................. 3 hrs.

Analysis and design of combinational and sequential logic systems. Prerequisite: MATH 111 or equivalent.

EE 251 Digital Systems I (3-3) ................................. 4 hrs.

Machine and assembly language programming of small computers. Introduction to microcomputer architecture and interfacing. Prerequisites: EE 250, CS 106 or CS 111 or CS 306.

EE 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: EE 210, CS 111 or CS 306, MATH 374, PHY1 207.

EE 320 Electronics II (3-3) ................................. 4 hrs.

Analysis, design, and construction of modern electronic circuits using solid-state devices and integrated circuits. Field effect transistors, basic logic gates, multivibrators, operational amplifiers, frequency response analysis and photodevices. Prerequisites: EE 221, EE 310.

EE 330 Electrical Machinery (3-4) ................................. 4 hrs.

Three-phase analysis. Analysis and design of transformers, electromechanical devices, and machines. Prerequisites: EE 310, EE 361.

EE 350 Digital Electronics (3-3) ................................. 4 hrs.

The electrical and logic aspects of digital integrated circuits and their applications. Prerequisites: EE 221, EE 250.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 355</td>
<td>Digital Logic II (3-0)</td>
<td>3 hrs.</td>
<td>Systems level design of digital logic circuits using hardwired and programmable system controllers. Introduction to asynchronous sequential logic circuits. Prerequisite: EE 250.</td>
</tr>
<tr>
<td>EE 357</td>
<td>Computer Architecture (3-0)</td>
<td>3 hrs.</td>
<td>Structural organization and hardware design of digital computers. Processing and control units, arithmetic algorithms, input-output systems, and memory systems. Prerequisites: CS 223 or EE 251.</td>
</tr>
<tr>
<td>EE 361</td>
<td>Electromagnetic Fields (4-0)</td>
<td>4 hrs.</td>
<td>Static and time-varying electric and magnetic fields, plane waves, guided waves, transmission lines, radiation and antennas. Prerequisites: MATH 374, EE 210.</td>
</tr>
<tr>
<td>EE 371</td>
<td>Linear Systems (3-0)</td>
<td>3 hrs.</td>
<td>Systems and their models, state variable formulation. Convolution, feedback systems and their analysis, S-plane and frequency response. Prerequisite: EE 310.</td>
</tr>
<tr>
<td>EE 380</td>
<td>Probabilistic Methods of Signal and System Analysis (3-0)</td>
<td>3 hrs.</td>
<td>Introduction to probability, random variables, random processes, correlation functions, spectral density, response of linear systems to random inputs, optimum linear systems. Prerequisite: EE 310.</td>
</tr>
<tr>
<td>EE 420</td>
<td>Power Electronics (3-0)</td>
<td>3 hrs.</td>
<td>Analysis and design of industrial electronic systems, power sources, motor controls, timing and sequencing circuits. Prerequisites: EE 250, EE 320, EE 330.</td>
</tr>
<tr>
<td>EE 430</td>
<td>Electrical Power Systems (3-0)</td>
<td>3 hrs.</td>
<td>Transmission lines, network analysis, loadflow, system faults, fault calculation, transients, and system stability. Prerequisite: EE 330 or taken concurrently.</td>
</tr>
<tr>
<td>EE 451</td>
<td>Digital Systems II (2-3)</td>
<td>3 hrs.</td>
<td>Analysis and design of microcomputer-based digital systems. Prerequisites: EE 221, EE 251.</td>
</tr>
<tr>
<td>EE 480</td>
<td>Communication Systems (3-0)</td>
<td>3 hrs.</td>
<td>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: EE 380.</td>
</tr>
<tr>
<td>EE 470</td>
<td>Feedback Systems (3-0)</td>
<td>3 hrs.</td>
<td>Design principles of linear and non-linear feedback systems in both the frequency and time domain. Prerequisites: EE 371.</td>
</tr>
<tr>
<td>EE 481</td>
<td>Electrical Engineering Design I (1-3)</td>
<td>2 hrs.</td>
<td>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. Prerequisite: Consent of department chair.</td>
</tr>
<tr>
<td>EE 482</td>
<td>Electrical Engineering Design II (0-6)</td>
<td>3 hrs.</td>
<td>Senior electrical engineering design project. A continuation of EE 481. A formal written report and a formal presentation is required at the end of the semester. Prerequisite: EE 481.</td>
</tr>
<tr>
<td>EE 490</td>
<td>Independent Research and Development</td>
<td>1-4 hrs.</td>
<td>Individual research or special project in Electrical Engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 4 hours.</td>
</tr>
<tr>
<td>EE 495</td>
<td>Topics in Electrical Engineering</td>
<td>1-4 hrs.</td>
<td>A specialized course dealing with some particular area of electrical engineering not included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Consent of department chair.</td>
</tr>
<tr>
<td>EE 498</td>
<td>Readings in Electrical Engineering</td>
<td>1-4 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>EE 499</td>
<td>Studies in Electrical Engineering</td>
<td>1-4 hrs.</td>
<td>A program of independent study to provide advanced students with the opportunity to explore a topic of interest under the guidance of a faculty member. Prerequisite: Permission of the instructor with whom the student wishes to work and consent of department chair.</td>
</tr>
<tr>
<td>EE 520</td>
<td>Solid-state Devices (3-0)</td>
<td>3 hrs.</td>
<td>Semiconductor materials and solid state devices, atomic structure, quantum mechanics, crystalline structures, transport phenomena, thermal effects, and recombination. Devices include P-N junctions, tunnel diodes, IMPATI diodes, BJTs, and JFETs. Prerequisites: EE 221 and EE 361.</td>
</tr>
<tr>
<td>EE 530</td>
<td>Power System Analysis I (3-0)</td>
<td>3 hrs.</td>
<td>Modern systems, control, optimization, network theories, matrix language, computer methods, steady state. Prerequisite: EE 430.</td>
</tr>
<tr>
<td>EE 550</td>
<td>Introduction to VLSI Design (3-0)</td>
<td>3 hrs.</td>
<td>Gate array, standard cell and full custom integrated circuit design. Prerequisite: EE 350.</td>
</tr>
<tr>
<td>EE 560</td>
<td>Time-varying Fields (3-0)</td>
<td>3 hrs.</td>
<td>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: EE 361.</td>
</tr>
</tbody>
</table>
Additional Information

General information regarding admissions, advising, scholarships, and special programs of interest to students in this department may be found at the beginning of the College of Engineering and Applied Sciences section of the catalog.

Credit by examination may be allowed with appropriate evidence of preparation, experience, or certification. Please refer to the University’s comprehensive examination policy.

Additional Costs

Class-related charges are assigned for some laboratory 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.

Applied Material Science

Bachelor of Science Degree

The material science curriculum is a program of study designed to provide the student with knowledge and expertise in the wide area of materials. Program options allow students to specialize in polymers, wood and fiber or metallurgy.

Baccalaureate Writing Requirement

Students who have chosen the Applied Material Science curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 483 Project Design and Control and ET 485 Senior Project.

Requirements

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:

1. A "C" average or better must be earned in courses presented for graduation with an EE, ET, IE, or ME prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 131 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

4. Courses listed in darker italic print must be completed with at least a "C" prior to enrolling in upper level Engineering Technology courses.

First Semester — 15 hours
ET 142 Engineering Graphics ................. 3
MATH 122 Calculus I .......................... 4
CHEM 101 OR ................................. 3
CHEM 102 General Chemistry I ............ 4
IE 102 Technical Communication ........... 3
PEGN Physical Education ................... 1

Second Semester — 17 hours
MATH 123 Calculus II ......................... 4
CS 105 Introduction to Computers .......... 3
CHEM 123 General Chemistry II ............ 4
PHYS 205 and 206 Mechanics and Heat with Lab .................. 5
PEGN Physical Education ................... 1

Third Semester — 18 hours
ET 250 Plastics Properties and Processing ... 3
ET 281 Statics and Strength of Materials .... 4
ET 252 Metal Casting .......................... 3
MATH 260 Elementary Statistics ............ 4
AREA II Social/Behavioral Science* .......... 3

Fourth Semester — 17 hours
ET 250 Plastics Properties and Processing ... 3
ET 281 Statics and Strength of Materials .... 4
ET 252 Metal Casting .......................... 3
MATH 260 Elementary Statistics ............ 4
AREA II Social/Behavioral Science* .......... 3

Fifth Semester — 17 hours
ET 353 Physical Metallurgy I ................. 4
ME 375 Experimental Stress Analysis ........ 3
IE 322 Safety in Industry .................... 3
CHEM 365 Introduction to Organic Chemistry .... 4
AREA II Social/Behavioral Science* .......... 3

Sixth Semester — 18 hours
ET 381 Thermo-Fluid Dynamics .............. 4
IE 320 Engineering Cost Analysis .......... 3
GEOL 336 Mineralogy (Crystallography) .... 4
Approved Materials Option .................. 3
AREA I Humanities/Fine Arts* ............... 3

Seventh Semester — 14 hours
ET 351 Thermodynamics of Materials ...... 4
ET 450 Engineering Polymers and Composites ... 3
ET 483 Project Design and Control .......... 1
Approved Materials Option .................. 3
AREA IV Non-Western World* ............... 3

Eighth Semester — 15 hours
ET 454 Physical Metallurgy II ............... 3
ET 457 Mechanical Behavior of Materials .... 3
ET 485 Senior Project ........................ 3
GEOL 336 Optical Mineralogy ............... 3
Approved Materials Option .................. 3

Materials Options

ET 350 Production Thermoplastics Processing ... 3
CHEM 535 Introduction to Physical Chemistry .... 3
CHEM 570 Polymer Chemistry ................ 3
Automotive Engineering Technology

Bachelor of Science Degree

The automotive engineering technology curriculum prepares students for positions in supervision or management, sales, and service where technical knowledge of automobile construction and operation is necessary.

Baccalaureate Writing Requirement

Students who have chosen the Automotive Engineering Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 483 Project Design and Control and ET 485 Senior Project.

Requirements

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:

1. A "C" average or better must be earned in required courses with an EE, ET, or IE prefix.
2. No more than two grades of "D" or "DC" in requirements may be counted for graduation.
3. Complete the following program of 130 credit hours:
4. Courses listed in darker italic print must be completed with at least a "C" prior to enrolling in upper level Engineering Technology courses.

First Semester — 16 hours

ET 121 Automotive Chassis Systems 3
ET 150 Introduction to Manufacturing 3
MATH 118 Precalculus Mathematics 4
IE 102 Technical Communication 3
CS 105 Introduction to Computers 3

Second Semester — 15 hours

ET 131 Introduction to Building Systems 3
ET 281 Statics and Strength of Materials 4
MATH 200 Calculus with Applications 4
CS 105 Introduction to Computers 3

Third Semester — 15 hours

ET 124 Automotive Engine Systems 3
MATH 216 Business Statistics 3
ET 256 Properties of Materials 4
AREA I* Humanities/Fine Arts* 4

Fourth Semester — 15 hours

ET 125 Fuel and Electrical/Electronic Systems 3
ET 326 Vehicle Systems Diagnosis 3
MKTG 370 Marketing 3
AREA IV* Non-Western World* 3

Fifth Semester — 16 hours

ET 421 Automotive Design Analysis 3
ET 485 Senior Project 3
IE 422 Conference Leadership 3
FCL 380 Legal Environment 3
AREA I* Humanities/Fine Arts* 4

Sixth Semester — 17 hours

ET 433 Specifications and Practices 3
ET 483 Project Design and Control 1
MKTG 370 Marketing 3
AREA I* Humanities/Fine Arts* 3

Seventh Semester — 17 hours

ET 437 Advanced Estimating and Bidding 3
ET 485 Senior Project 3
FCL 320 Business Finance 3
FCL 380 Legal Environment 3

Eighth Semester — 16 hours

ET 485 Senior Project 3
FCL 320 Business Finance 3
FCL 380 Legal Environment 3

* At least two of these courses must be at the 300-400 level.

Construction Science and Management

Bachelor of Science Degree

The construction science and management curriculum prepares students for entry positions in construction planning, management, or development. Technical, business, and human relations knowledge and skills are developed in classroom settings and on residential and commercial construction job sites.

Baccalaureate Writing Requirement

Students who have chosen the Construction Science and Management curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 483 Project Design and Control and ET 485 Senior Project.

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 129 semester credit hours as well as University requirements stated elsewhere in this bulletin:

1. A "C" average or better must be earned in required courses with an EE, ET, or IE prefix.
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 hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, with one spring session.
4. Courses listed in darker italic print must be completed with at least a "C" prior to enrolling in upper level Engineering Technology courses.

First Semester — 16 hours

ET 121 Automotive Chassis Systems 3
ET 150 Introduction to Manufacturing 3
MATH 118 Precalculus Mathematics 4
IE 102 Technical Communication 3
CS 105 Introduction to Computers 3

Second Semester — 16 hours

ET 124 Automotive Engine Systems 3
MATH 216 Business Statistics 3
ET 256 Properties of Materials 4
AREA I* Humanities/Fine Arts* 4

Third Semester — 16 hours

ET 421 Automotive Design Analysis 3
ET 485 Senior Project 3
IE 422 Conference Leadership 3
FCL 380 Legal Environment 3

Fourth Semester — 17 hours

ET 433 Specifications and Practices 3
ET 485 Senior Project 3
MKTG 370 Marketing 3
AREA I* Humanities/Fine Arts* 3

Fifth Semester — 16 hours

ET 437 Advanced Estimating and Bidding 3
ET 485 Senior Project 3
FCL 320 Business Finance 3
FCL 380 Legal Environment 3

Sixth Semester — 17 hours

ET 483 Project Design and Control 1
ET 485 Senior Project 3
MKTG 370 Marketing 3
AREA I* Humanities/Fine Arts* 4

Seventh Semester — 16 hours

ET 485 Senior Project 3
FCL 320 Business Finance 3
FCL 380 Legal Environment 3

Eighth Semester — 16 hours

ET 485 Senior Project 3
FCL 320 Business Finance 3
FCL 380 Legal Environment 3

* At least two of these courses must be at the 300-400 level.
**Engineering Graphics**

Bachelor of Science Degree

The engineering graphics curriculum deals with symbolic communication related to product and tooling activities of industry, including documentation methods, graphic science, computer-aided design, industrial processes, and materials. Selection of approved electives allows tailoring the thrust of the program toward metals processing, plastics processing, or production planning/design. The program prepares students to assume leadership roles in designing and drafting activities as section leader, checker, reprographics supervisor, standards administrator, and chief drafter.

**Baccalaureate Writing Requirement**

Students who have chosen the Engineering Graphics curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 483 Project Design and Control and ET 485 Senior Project Design.

**Requirements**

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:

1. A "C" average or better must be earned in courses presented for graduation with an EE, ET, or IE prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 129 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
4. Courses listed in darker italic print must be completed with at least a "C" prior to enrolling in upper level Engineering Technology courses.

**First Semester—17 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ET 150</td>
<td>Introduction to Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Precalculus Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>CS 105</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Semester—18 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 144</td>
<td>Descriptive Geometry</td>
<td>3</td>
</tr>
<tr>
<td>EE 100</td>
<td>Fundamentals of Circuits and Electronics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 113</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 116</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>COM 104</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
<td>1</td>
</tr>
</tbody>
</table>

**Third Semester—18 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 246</td>
<td>Introduction to Computer</td>
<td>3</td>
</tr>
<tr>
<td>EE 248</td>
<td>Technical Illustration</td>
<td>3</td>
</tr>
<tr>
<td>MATH 200</td>
<td>Calculus with Applications</td>
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<tr>
<td>PHYS 114</td>
<td>General Physics I Lab</td>
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<tr>
<td>IE 102</td>
<td>Technical Communication</td>
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</table>

**Fourth Semester—17 hours**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ET 242</td>
<td>Designing for Production</td>
<td>3</td>
</tr>
<tr>
<td>MATH 260</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>EE 101</td>
<td>Fundamentals of Electronics and Machines</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts*</td>
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**Fifth Semester—16 hours**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ET 250</td>
<td>Plastics Properties and Processing</td>
<td>3</td>
</tr>
<tr>
<td>ET 281</td>
<td>Statics and Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>ET 481</td>
<td>Metrology</td>
<td>3</td>
</tr>
<tr>
<td>CS 306</td>
<td>Introductory Programming</td>
<td>2</td>
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<tr>
<td>ECON 201</td>
<td>Principles of Economics</td>
<td>3</td>
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<td>PEGN</td>
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**Sixth Semester—13 hours**

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>ET 346</td>
<td>Programming for Computer Aided-Design</td>
<td>3</td>
</tr>
<tr>
<td>ET 358</td>
<td>Computer Aided Methodology</td>
<td>3</td>
</tr>
<tr>
<td>ET 483</td>
<td>Project Design and Control</td>
<td>1</td>
</tr>
<tr>
<td>IE 422</td>
<td>Conference Leadership</td>
<td>3</td>
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<tr>
<td>AREA II</td>
<td>&quot;Social/Behavioral Science*&quot;</td>
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**Seventh Semester—16 hours**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ET 442</td>
<td>Advanced Product and Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>ET 446</td>
<td>CAD Applications</td>
<td>3</td>
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<tr>
<td>ET 483</td>
<td>Project Design and Control</td>
<td>1</td>
</tr>
<tr>
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**Eighth Semester—14 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>ET 485</td>
<td>Senior Project</td>
<td>3</td>
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</table>

**Industrial Design**

Bachelor of Science Degree

The curriculum in industrial design is a blend of technology, business, art, and general studies with courses in mechanical design, drafting, illustration, processing, design philosophy, and practices. This program prepares designers with the aesthetic and technical potential to set new directions in product development and design, based on knowledge of materials, processes, quality, and production standards.

**Baccalaureate Writing Requirement**

Students who have chosen the Industrial Design curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 343 Project Design and Control and ET 485 Senior Project.

**Requirements**

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:

1. A "C" average or better must be earned in required courses with an ET or IE prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 129 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.
4. Courses listed in darker italic print must be completed with at least a "C" prior to enrolling in upper level Engineering Technology courses.

**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>ET 142</td>
<td>Manufacturing Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ET 143</td>
<td>Industrial Design</td>
<td>3</td>
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<tr>
<td>MATH 118</td>
<td>Precalculus Mathematics</td>
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<tr>
<td>CHEM 103</td>
<td>General Chemistry I</td>
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**Second Semester—16 hours**

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<tr>
<td>ET 242</td>
<td>Designing for Production</td>
<td>3</td>
</tr>
<tr>
<td>ET 256</td>
<td>Properties of Materials</td>
<td>3</td>
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<tr>
<td>MATH 260</td>
<td>Elementary Statistics</td>
<td>4</td>
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<tr>
<td>EE 101</td>
<td>Fundamentals of Electronics and Machines</td>
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**Third Semester—15 hours**

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<tr>
<td>ET 281</td>
<td>Statics and Strength of Materials</td>
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<td>Metrology</td>
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**Sixth Semester—13 hours**

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<td>ET 483</td>
<td>Project Design and Control</td>
<td>1</td>
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<tr>
<td>ET 485</td>
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**Eighth Semester—16 hours**

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<td>ET 445</td>
<td>Product Design and Development</td>
<td>3</td>
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<td>ET 485</td>
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<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
<td></td>
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</tr>
<tr>
<td>ART 248</td>
<td>Photography</td>
<td>3</td>
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<td>AREA I</td>
<td>Humanities/Fine Arts*</td>
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<tr>
<td>PEGN</td>
<td>Physical Education</td>
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</tbody>
</table>

**Manufacturing Engineering Technology**

Bachelor of Science Degree

The manufacturing engineering technology curriculum offers preparation for entry positions in manufacturing industries. Understanding of materials and production processes equips graduates to plan manufacturing practices and to develop tooling, machines and systems necessary for efficient production. Program options allow students to specialize in cast metals technology, plastics technology, or wood products manufacturing.
Approved Elective 3

Second Semester —17 hours
ET 154 Machining Fundamentals 3
MATH 200 Calculus with Applications 4
CHEM 103 General Chemistry I 4
PHYS 113 General Physics I 4
PHYS 114 General Physics I Lab 1
PEGN Physical Education 1

Third Semester —18 hours
ET 246 Introduction to Computer-Aided Design 3
EE 100 Fundamentals of Circuits and Electronics 3
PHYS 115 General Physics II 3
PHYS 116 General Physics II Lab 1
COM 104 Public Speaking 3
AREA I Humanities/Fine Arts* 3
PEGN Physical Education 1

Fourth Semester —18 hours
ET 242 Designing for Production 3
ET 256 Properties of Materials 4
ET 281 Statics and Strength of Materials 4
EE 101 Fundamentals of Electronics and Machines 3
MATH 260 Elementary Statistics 3

Fifth Semester —16 hours
ET 293 Plastics Properties and Processing 3
ET 352 Metal Casting 3
ET 381 Thermo-Fluid Dynamics 4
IE 329 Quality Assurance and Control 3
ECON 201 Principles of Economics 3

Sixth Semester —15 hours
ET 335 Computer-Aided Manufacturing 3
IE 320 Engineering Cost Analysis 3
IE 326 Operations Planning and Control 3
Approved Elective 3
AREA II Social/Behavioral Science* 3

Seventh Semester —16 hours
ET 357 Fabrication and Pressworking 3
ET 458 Advanced Manufacturing Systems 3
ET 483 Re-Design and Control 1
ME 375 Experimental Stress Analysis 3
Approved Elective 3

AREA IV Non-Western World* 3

Eighth Semester —16 hours
ET 481 Metrology 3
ET 485 Senior Project 3
IE 422 Conference Leadership 3
Approved Elective 3
AREA I Humanities/Fine Arts* 4

* At least two of these courses must be at the 300-400 level.

Cast Metals Option (total hours for graduation: 136)
Replaces ET 357 plus 9 hours of approved electives with:
ET 353 Physical Metallurgy I 4
ET 457 Advanced Metal Casting 3
IE 300 Co-op Internship (in Cast Metals Industry) 3
IE 407 Supervision of Industrial Operations 3

Wood Products Option (total hours for graduation: 135)
Replaces 9 hours of approved electives with:
ET 133 Wood Processing 3
ET 233 Machine Woodworking 3
ET 333 Wood Finishing 3
ET 433 Production Woodworking 3

Plastics Option (total hours for graduation: 135)
Replaces 9 hours of approved electives with:
ET 350 Production Thermoplastic Processing 3
ET 450 Engineering Polymers and Composites 3
ET 451 Plastics Assembly and Testing 3
ET 459 Mold Design and Construction 3

Manufacturing Technology Minor
The manufacturing technology minor is available to Haworth College of Business students majoring in industrial marketing. It is recommended that students selecting the manufacturing technology minor fulfill their General Education Area III requirements by taking CHEM 101 or CHEM 103 and/or PHYS 107 and 108. The manufacturing technology minor totals 16 semester credit hours including three required courses and two approved elective courses selected in consultation with a student’s major advisor.

REQUIRED COURSES—10 hours
ET 143 Engineering Graphics 3
ET 150 Introduction to Manufacturing 3
ET 256 Properties of Materials 4

APPROVED ELECTIVES—6 hours
Select two (2) courses:
EE 100 Fundamentals of Circuits and Electronics 3
EE 101 Fundamentals of Electronics and Machines 3
EE 250 Digital Logic I 1
IE 326 Operations Planning and Control 3
IE 328 Quality Assurance and Control 3
ET 154 Machining Fundamentals 3
ET 352 Metal Casting 3
PAPR 354 Paper Industry Processes 3

Engineering Technology Courses (ET)

ET 121 Automotive Chassis Systems (2-3) 3 hrs.
The operation, design, manufacture, and application of basic scientific principles to automotive chassis systems. Systems include power transmission, braking, steering/suspension, and interior automotive control. Investigation includes disassembly, measurement, associated calculations of strength and capacity, reassembly, adjustment, and testing.

ET 124 Automotive Engine Systems (2-3) 3 hrs.
The performance, dynamics, study of design, manufacturing, and adjustment of automotive spark ignition and compression ignition engines. Thermodynamics will be applied to engine operation. The measurement and study of volumetric, mechanical, and fuel efficiencies. Also included is valve train and piston dynamics, engine balance, vibration control, calculations of engine component loads, induction, and exhaust system dynamics. Prerequisite: MATH 111 or equivalent.

ET 131 Introduction to Building Practices (3-0) 3 hrs.
An overview of all the operations involved in constructing a residential dwelling. Emphasis is placed on understanding common practices, materials, nomenclature, and blueprint reading in construction. Careers in the construction industry are discussed. Course provides an historical perspective and introduces the student to computer usage in construction.

ET 132 Wood Processing (2-3) 3 hrs.
Selecting materials for proper use, seasoning and grading of lumber, fabricated wood products, and planning and layout. Joinery applications involving clamping, adhesives and fasteners. Also included is the use of hand tools, power hand tools, and introduction to machining, and selection and application of finishing materials.

ET 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.

ET 143 Industrial Design Fundamentals (0-4) 2 hrs.
A studio course exploring techniques and elements used to identify solutions to the design of manufactured products. Application of various media and drawing methods to the visualization process will be emphasized. Studio supplies required. Prerequisite: ART 101 or ART 102 or concurrent.
ET 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: ET 142.

ET 147 Design Sketching and Rendering (0-4) 2 hrs. 
A studio course focusing on the study of a variety of sketching and rendering techniques, color psychology as it relates to products, and three-dimensional model construction. Prerequisite: ET 143 or portfolio.

ET 149 Introduction to Architectural Drawing (2-3) 3 hrs. 
Introduction to the tools and techniques to enable the students to understand and create architectural drawings related to interior design and construction.

ET 150 Introduction to Manufacturing (3-0) 3 hrs. 
Industrial methods employed in current manufacturing processes. Analysis of hot and cold working processes, products, materials, case studies, management techniques, manufacturing productivity, performance testing, engineering design, and economic considerations.

ET 154 Machining Fundamentals (2-3) 3 hrs. 
Theory and laboratory experience in the basic techniques used in removal of machinable materials. Introduction to layout, measurements, machine use, and cutting tool geometry. Consideration of advanced machining techniques. Prerequisite: ET 150.

ET 183 Principles of Auto Maintenance (2-0) 2 hrs. 
A course to help the consumer become aware of automobile maintenance which can help minimize the cost and maximize automobile dependability and service life. May not be applied toward graduation requirements in automotive curricula.

ET 221 Automotive Automatic Transmission/Transaxle Systems (2-2) 3 hrs. 
The operation, study of design, and manufacture of automatic transmissions and transaxles, including hydraulics, electronics, torque capacities, and gear systems. Measurements and computations for pumps, valve mechanisms, clutches, bands, and gears. Includes a study of bearing application, lubrication and cooling of the transmission/transaxle, and testing. Prerequisite: PHYS 113 and PHYS 114 or PHYS 107 and PHYS 108.

ET 222 Fuels and Lubricants (2-2) 3 hrs. 
A study of petroleum products and their application to the fuel and lubricant requirements of automobiles and aircraft. Laboratory tests are conducted to ascertain octane requirements, octane numbers, viscosity, volatility, flash and fire point, grease penetration, API degree, and dropping point of grease. Prerequisite: CHEM 101 or CHEM 102 or CHEM 103.

ET 224 Fuel and Electrical/Electronic Systems (3-4) 4 hrs. 
The operation, study of design, testing, manufacture, and application of automotive electrical/electronic and engine control systems. Investigation of fuel, ignition, charging, starting, and auxiliary systems. Special attention is given to strategies for fuel economy, power, emissions, driveability, and safety. Prerequisite: EE 100.

ET 230 Machine Woodworking (2-3) 3 hrs. 
Analysis and design of wood products, utilizing the structural, mechanical, and environmental system properties. Basic cutting theories, woodworking machine construction, and advanced manufacturing lines including the 32mm construction system and flat-line processing applications. Prerequisite: ET 132.

ET 233 Building Codes (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. Prerequisite: ET 131.

ET 235 Structural Framing (2-3) 3 hrs. 
Wood, metal, and concrete framing in residential, commercial and industrial structures, including an understanding of construction documentation. Includes traditional and non-traditional methods of framing and construction practices, emphasizing cost-effective techniques. Prerequisite: ET 131.

ET 236 Construction Measurements and Layout (3-0) 3 hrs. 
Construction surveying, building layout and structural alignment. Includes route alignment, topographic surveys, earthwork, volume surveys, and preparation of reports. Prerequisites: ET 149, IE 102, MATH 200.

ET 237 Concrete Construction and Masonry (2-3) 3 hrs. 
Design and control of concrete mixes. Form design, control tests for quality concrete, and reinforced concrete problems are practiced. Pre-stressed and post-tensioned concrete construction is included. Masonry skills involving block, brick, and stone and concrete construction practices are performed on a job site. Prerequisites: ET 131, ET 235.

ET 242 Designing for Production (3) 3 hrs. 
Engineering documentation as it relates to the product development process and manufacturing methods required to bring a quality product to market. ANSI and ISO standards will be studied to acquaint the students with the documentation necessary to develop assembly and part drawings and to control the changes that will effect the assembled parts. Material specifications and cost studies will be combined with geometric dimensioning and tolerancing to be applied to parts gages and tooling. The use of CAD is a major part of this course. Prerequisite: ET 142, ET 154, and ET 246.

ET 243 Two-Dimensional Design Methodology (0-4) 2 hrs. 
A studio course examining the ideation methodology process of conceiving, developing, and recording ideas two-dimensionally. Emphasis will be placed on the metaphor as a conceptual design element. Prerequisite: ET 143 or ET 147 or portfolio review.

ET 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 systems operation. Prerequisite: ET 142 and CS 105.

ET 247 Three-Dimensional Design Methodology (0-4) 2 hrs. 
A studio course emphasizing three-dimensional model construction and applied human factors/ergonomics technology. A comprehensive portfolio review conducted and required four-level studio enrollment. Studio supplies required. Prerequisite: ET 147 and portfolio.

ET 248 Technical Illustration (2-3) 3 hrs. 
Parade and perspective drawing, charting use of varied black and white media, texture, and percentage films and tapes as they pertain to the design of technical manuals, reports, and sales engineering publications. Prerequisite: ET 142 or equivalent.

ET 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 thermoset materials. Prerequisite: ET 150, CHEM 103.

ET 256 Properties of Materials (3-3) 4 hrs. 
Relationship of chemical and physical properties of solids; internal structure and response to their environment. Prerequisites: CHEM 103, PHYS 107 and PHYS 108 or PHYS 113 and PHYS 114.

ET 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. Prerequisite: MATH 200.

ET 326 Vehicle Systems Diagnosis (2-3) 3 hrs. 
The study of the diagnosis techniques and strategies necessary to identify malfunctions in the total automotive vehicle. Special attention is given to laboratory and service equipment, its use, calibration, and data-gathering capabilities. Verbal and written reports are stressed. Prerequisites: ET 121, ET 124, ET 221, ET 222, ET 224, and EE 101.

ET 330 Wood and Related Materials for the Interior Designer (2-3) 3 hrs. 
A study of the physical and mechanical properties of wood and wood-based materials, joint design, design for stresses and selection, and application of finishes. The effect of human factors on the design of furniture and interiors is emphasized.

ET 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: ET 230.

ET 332 Wood Finishing (2-3) 3 hrs. 
Function of various finishing materials, surface preparation, principles of color, methods of application and finishing. Environmental regulations pertaining to equipment and finishing. Scheduling, repair, and
refinish applications will be studied. Prerequisite: ET 132 and CHEM 103.

ET 335 Soil Mechanics and Foundations (2-2) 3 hrs.
Properties of soil and earth materials, soil identification, use of soils as a building and foundation material, compaction of soils, and an introduction to bearing capacities and spread footings. Foundation analysis will include piles, drilled piers, casings, lateral earth pressures, and soil pressure distribution. Design problems and soil testing will be included. Prerequisites: ET 237, ET 281, GEOL 130.

ET 337 Heating, Ventilation, and Air Conditioning (2-2) 3 hrs.
The design and sizing aspects needed to plan a complete air conditioning system are covered. Emphasis is placed on design procedures, calculating heating and cooling loads by various private and government code authorities. Types of heating systems, principles of air conditioning, ventilation, heat exchanges, heat pumps, solar applications, and psychrometric included. Computer applications to design problems are practiced. Prerequisites: ET 131, ET 149, CS 105.

ET 339 Plumbing and Electrical Practices (2-3) 3 hrs.
Design, planning, and installation of the electrical and plumbing utilities. Both residential and commercial applications are covered. Skills in using various materials are practiced. Plumbing and electrical systems are designed, documented and installed for a project. Prerequisites: ET 131, ET 149, ET 235, CS 105.

ET 343 Advanced Rendering and Presentation (0-6) 3 hrs.
A study of the various media and techniques used for the presentation of design concepts. The student will make several presentations based on project work during the semester. Prerequisite: ET 247 and portfolio review.

ET 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: ET 246 and CS 306.

ET 347 Product Design Studio (0-6) 3 hrs.
A studio course which synthesizes the design principles taught in previous semesters. Human factors, manufacturing processes, and materials will be emphasized. Prerequisites: ET 242 and ET 343.

ET 349 Residential Architectural Design (2-3) 3 hrs.
The study of architectural plans and principles of residential structures. Plans and materials will be emphasized. Prerequisite: ET 154, ET 246.

ET 350 Production Thermoplastic Processing (2-3) 3 hrs.
Injection molding, blow molding, extrusion and thermforming. Effects of thermo-plastic melt characteristics on product design and part quality. Effects of machine design, set-up, and operation on part cost and profitability. Overview of processing machinery including take-off and sizing equipment. Prerequisites: ET 250, ET 256.

ET 351 Thermodynamics of Materials (4-0) 4 hrs.
Introduction to chemical metallurgy, thermodynamic functions associated with compounds, phase diagrams, extractive metallurgy, chemistry of ceramics and electrochemistry. Prerequisite: ET 256, ET 381, CHEM 120, MATH 123, and department approval for EE and CSE students.

ET 352 Metal Casting (2-3) 3 hrs.
Principles of pattern design, molding, pouring, and process analysis using a variety of materials and production techniques. Solidification of metals and alloys as a nucleation and grain growth process. Formation of inclusions and other casting defects will be discussed. Theory and practice in metal casting principles using green sand, investment, centrifugal, and lost foam processes. Prerequisites: ET 154, ET 256.

ET 353 Physical Metallurgy (4-0) 4 hrs.
Introduction to the electron theory of metals, crystal geometry, and the defect structure of metals and their application to solid state diffusion, deformation and fracture, and oxidation and corrosion of metals. Prerequisites: CHEM 101, CHEM 102, or CHEM 103, MATH 123 or MATH 200, PHYS 113 and PHYS 114.

ET 357 Fabrication and Pressworking (2-3) 3 hrs.
Principles and application of joining, blanking, piercing, forming, and assembly operations using metals and other manufacturing materials. Prerequisites: ET 242, ET 256, ET 281.

ET 358 Computer-Aided Manufacturing (2-3) 3 hrs.

ET 361 Thermo-Fluid Dynamics (4-0) 4 hrs.
Fundamentals of fluid mechanics, thermodynamics, and heat transfer using a unified approach. Prerequisites: ET 281, PHYS 113 and PHYS 114.

ET 382 Structural Theory and Design (3-0) 3 hrs.
Design of beams, trusses, retaining walls, floor systems and columns in steel, reinforced concrete, and timber. Prerequisite: ET 281.

ET 387 CAD/CAM Fundamentals (2-3) 3 hrs.
Application of computer graphics to drafting and design, transmission of drawings to part programs for CNC machine control. Considerations for computer-integrated manufacturing. (Not for majors in EGR and MFT).

ET 399 Field Experience 1-3 hrs.
A program of practical experience and independent study to supplement and enrich classroom learning. Prerequisites are required. May be repeated to a maximum of eight semester credit hours. Credit/No Credit status only. Prerequisite: Consent of department.

ET 421 Automotive Design Analysis (2-2) 3 hrs.
Evaluation of the interrelationship of engineering standards, operating limitations, manufacturing, cost control, customer satisfaction, and repairability of modern automobile systems. Verbal and written reports are required in "Fit and finish," ergonomics, safety, performance, cost, and repairability. Prerequisite: ET 326.

ET 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: ET 230.

ET 433 Specifications and Estimating (3-0) 3 hrs.
Reading and interpretation of the contract documents for construction. Plans and specifications for a variety of structures will be utilized. Principles and theories of estimating, classifications work and quantity survey techniques applied to different types of structures and projects will be covered. Estimating quantities and listing of work items in a standard quantity survey will be practiced. Computer application in construction estimating will be emphasized. Prerequisites: ET 335, ET 337, ET 339.

ET 434 Wood Testing (1-3) 2 hrs.
Testing materials for construction and furniture manufacturing. ASTM methods, analysis of stress, and failure characteristics to determine physical and mechanical properties. The relationship between wood structure, joint design, and fastening methods on structural integrity. Computer systems will be used in statistical analysis and graphing of experimental data. Prerequisite: ET 230 or department approval.

ET 435 Commercial Construction Methods (3-0) 3 hrs.
An introduction to the principles and practices that are peculiar to heavy construction. Covers excavating equipment, cranes, dewatering, drainage, and paving. Erection methods of commercial buildings will be studied. Structural steel frame practices, vertical transportation, curtainwalls and membrane type roofs are included. Prerequisites: ET 335, ET 382.

ET 437 Advanced Estimating and Bidding (3-0) 3 hrs.
An analysis and determination of construction operations including applicable indirect and overhead costs and the preparation of bid proposals for construction costs. Costs for equipment, labor materials, subcontracts, and general conditions will be discussed. Preparation of complete bid packages using plans and specifications will be performed. Prerequisite: ET 433.

ET 439 Scheduling and Project Management (3-0) 3 hrs.
The planning and control of construction projects. Construction scheduling techniques such as critical path methods (CPM) and program evaluation and review (PERT) as well as computerized graphic techniques will be practiced. Management principles as applied to the construction contractor will be emphasized. Prerequisites: ET 433, MATH 216, MGMT 300.

ET 442 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. Prerequisite: ET 144, ET 242, and ET 481.

ET 445 Product Design and Development (2-3) 3 hrs.
The team approach to the design and development of a product with complete analysis and documentation. The final presentation will include a model and written and oral reports. Prerequisites: ET 242, ET 243, ET 256.

ET 446 CAD Application (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. Prerequisite: ET 346.

ET 450 Engineering Polymers and Composites (2-3) 3 hrs.

ET 451 Plastics Assembly and Testing (2-3) 3 hrs.
Product assembly, testing, and finishing. Welding, adhesive and snap-fit assembly methods, painting, printing, plating, hot stamping, and in-mold decorating. Application of ASTM standard plastics testing methods to product design, inspection, and analysis of stress, wear, and failure characteristics. Prerequisites: ET 281, ET 350.

ET 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: ET 352.

ET 453 Maintenance in Manufacturing (2-3) 3 hrs.
Installation, adjustment, and maintenance of equipment. Machinery monitoring, diagnostics, and maintenance systems. Prerequisite: Senior standing.

ET 454 Physical Metallurgy II (2-2) 3 hrs.
Introduction to X-ray diffraction of metals, phase diagrams and solid state phase changes and phase equilibrium. Prerequisite: ET 353.

ET 457 Mechanical Behavior of Materials (3-0) 3 hrs.
Fundamentals of elasticity and plasticity theory. The mechanical and thermo-mechanical forming methods of materials. Prerequisites: ET 256, ET 281.

ET 458 Advanced Manufacturing Systems (2-3) 3 hrs.
Application and analysis of computer-integrated manufacturing systems. Includes IDEF modeling of manufacturing systems, MAP (Manufacturing Automation Protocol), group technology, computer-aided process planning, robotics, and other technologies for flexible manufacturing. Prerequisites: ET 358, senior status.

ET 459 Mold Design and Construction (2-3) 3 hrs.
Mold and die design, processing and part requirements, molded holes and undercutts, 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: ET 154, ET 250.

ET 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, check procedure, non-destructive testing, and coordinate measuring systems. Use of vision, laser, and other non-contact measuring systems. Prerequisites: ET 242, MATH 260.

ET 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. Prerequisite: Senior status and Department approval.

ET 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. Prerequisites: ET 483 and approved project.

ET 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.

ET 495 Topics in Engineering Technology 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.

ET 499 Studies in Engineering Technology 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.

ET 500 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 (NC) programming, graphical N/C programming systems, and Statistical Process Control (SPC). The laboratory includes CAD/CAM systems, NC machines, and instruments of precision measurement. This course can not be applied for credit toward the Master of Science degree in Manufacturing Science. This course may be used to meet the stated prerequisite requirements normally satisfied by ET 246, ET 358, and ET 481 in the graduate program. Prerequisites: MATH 200, CS 105, ET 142, ET 154.

ET 501 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. Analysis and 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 can not be applied for credit toward the Master of Science degree in Manufacturing Science. This course may be used to meet the stated prerequisite requirements normally satisfied by ET 250 and ET 256 in the graduate program. Prerequisites: CHEM 103, PHYS 115, ET 150.

ET 546 Concurrent Engineering (2-3) 3 hrs.
The synthesis of automated design, analysis, and manufacturing processes through integrated computer systems. Topics in automated graphics, wire-frame, surface and solids modeling, boundary element analysis, and manufacturing process generation will be investigated. Prerequisites: ET 246 and ET 358) or ET 500.

ET 550 Advanced Plastics Processing (2-2) 3 hrs.
Identification, testing, and control of process variables within molding and extrusions systems. Isolation of the causes of process instability through the use of instrumentation, data gathering and analysis techniques. Strategies for establishing process capability and shot-to-shot repeatability critical for zero-defect parts. Prerequisites: ET 250 or ET 501 and ET 358 or ET 581.

ET 556 CAM Applications (2-2) 3 hrs.
Custom design of post-processors. Creation of CNC programs through graphical-based systems. Strategies and techniques—including Computer-Aided Processing Planning (CAPP)—to migrate data from CAD to CAM systems. Computer hardware and software requirements for integrated manufacturing. Prerequisite: ET 358 or ET 500.
Industrial Engineering

Bachelor of Science in Engineering (Industrial) Degree

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The Industrial Engineering curriculum provides the essential foundation, experience, and understanding in science, mathematics, humanities, and engineering so that graduates may find employment in production and service industries. This program is also a basis for graduate study. Industrial engineering involves the design, installation, and improvement of systems integrating people, materials, equipment, and energy. An industrial engineer might work in facilities planning and design, plant automation, quality assurance, plant safety, or employee/employer relations. Jobs are available in manufacturing and in service-related industries such as hotels, banks, food, transportation, and hospitals.

Admission

1. To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of 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 program must submit an application to the departmental advisor, curriculum committee, and department chair. The departmental advisor is located in Room 203B, Kohman Hall, (616) 387-4033.

The Department of Industrial Engineering offers two programs, one leading to a Bachelor of Science in Engineering (Industrial) degree and the other a Bachelor of Science in Engineering Management degree. Graduates from the programs are employed in a wide variety of positions in both manufacturing and service industries. A minor in industrial engineering is available only to students majoring in mathematics with the statistics option.

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 such areas as manufacturing, product development, quality control, and maintenance management in major companies.

Academic Advising

Students should contact the Industrial Engineering departmental advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student’s educational objectives, discuss employment opportunities, and help resolve academic problems. Substitutions and transfer credit must be approved by the departmental advisor, curriculum committee, and department chair. The departmental advisor is located in Room 203B, Kohman Hall, (616) 387-4033.

Additional Information

General information regarding advising, scholarships, and special programs of interest to students in this department may be found under the beginning of the Engineering and Applied Sciences section of the catalog. Enrollment will not be honored in any course when other students are requesting that course and the student does not attend the first class meeting (lecture or lab), unless prior arrangements have been made with the instructor. Students not attending courses are responsible for processing drop slips with the Registration Office if fees are to be refunded.

Prerequisites are designed to both increase the probabilities of successful completion of the course as well as 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.

Baccalaureate Writing Requirement

Students who have chosen the Industrial Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IE 316 Report Preparation.

First Semester — 15 hours

IE 102 Technical Communication 3
ET 142 Engineering Graphics 3
MATH 123 Calculus I 4
CHEM 101 OR 102 General Chemistry I 4
PEGN Physical Education 1

Second Semester — 18 hours

ACTY 201 Accounting Concepts and Applications 3
IE 206 Engineering Computations 2
MATH 123 Calculus II 4
PHYS 205 Mechanics and Heat 4
AND
PHYS 206 Mechanics and Heat Lab 1
AREA I General Education 3
PEGN Physical Education 1

Third Semester — 16 hours

MATH 272 Vector and Multivariate Calculus 4
IE 261 Engineering Statistics 3
PHYS 207 Electricity and Light 4
AND
PHYS 208 Electricity and Light Lab 1
ME 253 Statics and Kinematics 4
ME 254 Materials Science I OR
ME 258 Dynamics 3

Fourth Semester — 17 hours

ECON 201 Principles of Economics 3
IE 205 Work Design 4
IE 262 Probability for Engineers 3
EE 210 Circuit Analysis 4
ME 253 Statics and Kinematics 4
AREA I General Education 3

Fifth Semester — 17 hours

IE 316 Report Preparation 3
IE 310 Engineering Economy 3
MATH 374 Introduction to Linear Algebra and Differential Equations 4
EE 211 Machines and Electronic Circuits 3
IE 307 Computer Controlled Manufacturing Systems 4

Sixth Semester — 17 hours

IE 318 Statistical Quality Control 3
IE 308 Comp. Controlled Manufacturing Design Lab 2
IE 311 Introduction to Operations Research 3
ME 232 Thermodynamics I 3
IE 403 Industrial Labor Relations 3
AREA II General Education 3

Seventh Semester — 16 hours

IE 414 Material Handling and Facilities Design 3
IE 434 Material Handling and Facilities Design Lab 1
IE 416 Operations Control in Industry 4
IE 410 Senior Seminar 1
AREA II General Education 4

Eighth Semester — 13 hours

IE 415 Senior Industrial Engineering Design Project 4
IE 402 Supervision of Industrial Operations OR
IE 403 Industrial Labor Relations 3
IE 430 Simulation Modeling and Analysis 3
AREA I General Education* 3

*At least two of these courses must be at the 300-400 level.

**See Departmental Advisor for a list of approved electives.

Engineering Management
Bachelor of Science Degree

The Engineering Management curriculum provides academic background in humanities, social sciences, communication and technical subjects relating to manufacturing systems. Human relation skills used in industry when dealing with people are developed. The engineering manager may direct production employees working on line operations or may direct staff personnel specifically assigned to assist the line in meeting its objectives. Employment may be in the general areas of manufacturing and service industries.

A selection of a group of courses provides the student an opportunity to concentrate in one of the several specialized areas* listed below.

Engineering Technology (CAD)
Engineering Technology (CAM)
Plastics (Manufacturing)
Industrial Engineering

In addition, the student can also obtain a minor in the Haworth College of Business by taking additional courses.** The minor can be earned in:

Accountancy
Finance
Law
Marketing

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to those required by Western Michigan University.

1. A "C" average or better must be earned in courses presented for graduation with an IE, EE, ET, or ME prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, plus one spring session.

Baccalaureate Writing Requirement
Students who have chosen the Engineering Management curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IE 316 Report Preparation.

First Semester — 15 hours
MATH 118 Pre-Calculus Mathematics 4
CHEM 103 General Chemistry I 4
IE 102 Technical Communication 3
ET 150 Introduction to Manufacturing 3
PEGN Physical Education 1

Second Semester — 13 hours
MATH 200 Calculus with Applications 4
ET 142 Engineering Graphics 3
ECON 201 Principles of Economics 3
Free Elective 3

Third Semester — 15 hours
MATH 260 Elementary Statistics 4
PHYS 116 General Physics II Lab 1
ACTY 201 Accounting Concepts and Applications 3

Fourth Semester — 15 hours
PHYS 115 General Physics II 4
IE 105 Introduction to Computers 3
ET 256 Properties of Materials 4

Fifth Semester — 17 hours
IE 305 Work Analysis 3
IE 322 Safety in Industry 3
IE 315 Work Analysis and Design Lab 1
IE 320 Engineering Cost Analysis 3
IE 326 Operations Planning and Control 3
ET 256 Properties of Materials 4

Sixth Semester — 16 hours
IE 312 Quantitative Techniques 3
IE 316 Report Preparation 3
IE 328 Quality Assurance and Control 3
Technical Elective 3
AREA I Elective 4

Seventh Semester — 18 hours
IE 422 Conference Leadership 3
IE 403 Senior Engineering Management Design Project 4
IE 411 Engineering Management Seminar 1
IE 417 Computer Integrated Manufacturing 4
Technical Elective 3
AREA IV Elective 3

Eighth Semester — 13 hours
IE 420 Supervision of Industrial Operations 3
IE 404 Plant Layout and Material Handling 3
IE 424 Plant Layout and Material Handling Lab 1
Technical Elective 3
AREA II Elective 3

Spring Semester of Senior Year — 6 hours
IE 403 Industrial Labor Relations 3
IE 420 Modern Industrial Practices 3

* See departmental advisor for a list of approved courses in each specialized area. Also see Technical Elective Requirements below.

** Specific coursework must be approved by the appropriate Haworth College of Business advisor.

*** At least two courses at the 300-400 level are required.

Technical Elective Requirements
Twelve hours of approved technical elective courses must be completed to satisfy the requirements for a B.S. degree. At least two of these courses must be at the 300-400 level. IE 308 Internship can be used for three hours of technical elective but is not included in the requirements for the 300-400 level courses. See the Departmental Advisor for specific course information on approved technical electives.

Industrial Engineering Courses (IE)

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture-hours-lab hours).

IE 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.

IE 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 IE 206 or concurrent, IE 102.

IE 206 Engineering Computations (2-0) 2 hrs.

A basic course in engineering computations including instruction in use of hand held calculators, personal computers, and the VAX network. Familiarization with the facilities in the Computer Aided Engineering Center. Prerequisite. Proficiency in BASIC programming. This prerequisite may also be met by completion of CS 106 or equivalent. Corequisite MATH 122.

IE 261 Engineering Statistics (3-0) 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 123, a course in the use of computers. (Cross listed with MATH 261.)

IE 262 Probability for Engineers (3-0) 3 hrs.

Introduction to probability emphasizing applications in engineering. Use of discrete and continuous random variables common to engineering problems. Random processes used in engineering models. Corequisite. MATH 272. (Cross listed with MATH 262.)

IE 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 four semesters for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis.

IE 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.

IE 307 Computer Controlled Manufacturing Systems (3-3) 4 hrs.

Analysis and design of computer controlled manufacturing systems. Students must enroll in IE 308 during the semester following IE 307. Prerequisites: IE 206, IE 211 (EE 211 may be taken concurrently).
IE 308 Computer Controlled Manufacturing Design Lab (0-6)
2 hrs.
A continuation of IE 307 in which students design and construct a physical computer controlled model to simulate a manufacturing process. IE 307 and IE 308 must be taken during the same academic year. Prerequisite: IE 307.

IE 310 Engineering Economy (3-0)
3 hrs.
Application of principles of engineering economy for establishment of equipment and system feasibility. Interest, equivalence, taxes, depreciation, uncertainty and risk, incremental and sunk costs, and replacement models. Prerequisites: CS 106 or CS 306 or IE 206, MATH 123.

IE 311 Introduction to Operations Research (3-0)
3 hrs.
The development of mathematical concepts and models concerned with industrial engineering problems. Topics include queueing theory, game theory, linear, and dynamic programming. Prerequisite: IE 261, IE 262.

IE 312 Quantitative Techniques (3-0)
3 hrs.
Studying and developing procedures to help in the process of making decisions and solving management problems. A variety of mathematical models are studied. The models are analyzed and solutions are derived. Emphasis is placed on the application of these models to manufacturing related problems. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 260.

IE 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: IE 305 or taken concurrently.

IE 316 Report Preparation (3-0)
3 hrs.
Learning techniques and procedures for preparation of technical documents. Introductory technical, analytical, procedural thinking, and executing writing and oral strategies for different situations. Prerequisite: IE 102, junior standing.

IE 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: IE 200, IE 262.

IE 320 Engineering Cost Analysis (3-0)
3 hrs.
A course in engineering economics and the economic comparison of alternative technical systems. Includes interest, equivalence, depreciation, taxes, and risk. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 200.

IE 322 Safety in Industry (3-0)
3 hrs.
Importance of safety in industry. Cost of accidents, fundamentals of accident prevention, elements of effective safety programs, accident investigation, and OSHA. Prerequisite: Upperclass standing.

IE 325 Operations Planning and Control (3-0)
3 hrs.
Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 261 or MATH 260 or MATH 366.

IE 326 Quality Assurance and Control (3-0)
3 hrs.
Techniques of controlling quality in manufacturing systems. Topics include organization of quality, methods of measurement, and basic statistical tools. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 216 or MATH 260 or MATH 366.

IE 402 Supervision of Industrial Operations (3-0)
3 hrs.
Supervisory duties and responsibilities of foremen, engineers, and technicians in industrial operations. Prerequisite: Junior standing.

IE 403 Industrial Labor Relations (3-0)
3 hrs.
Relationships between government agencies, labor organizations, and management. Emphasis on development of collective bargaining procedures. Prerequisite: Senior standing.

IE 404 Plant Layout and Material Handling (3-0)
3 hrs.
This course is designed to give the 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: IE 305, IE 326, senior standing.

IE 405 Senior Engineering Management Design Project (2-6)
4 hrs.
Concepts and strategies for the analysis, design, improvement, and operation of integrated systems of persons, material, and equipment with concentration on methods of successful implementation. A project oriented course drawing on previous courses in the student's program. NOT FOR ENGINEERING CREDIT. Prerequisites: IE 320, IE 316, senior standing and two of the following: IE 305 and IE 315, IE 326, IE 328.

IE 410 Senior Seminar (1-0)
1 hr.
A seminar for senior industrial engineering students. Topics for discussion will be centered around the role of the industrial engineer and supervisor at place of work and obligation to society. Prerequisite: Senior standing.

IE 411 Engineering Management Seminar (1-0)
1 hr.
A seminar for senior engineering management students. Topics for discussion are the professional role of technology graduates, professional relationships with engineers and scientists, ethics of the profession, and legal concerns. NOT FOR ENGINEERING CREDIT. Prerequisite: Senior standing.

IE 413 Material Handling and Facilities Design (3-0)
3 hrs.
This course is designed to give the 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. Prerequisites: IE 205, IE 310, IE 316, IE 416 or taken concurrently.

IE 415 Senior Industrial Engineering Design Project (2-6)
4 hrs.
Student project teams will be assigned system design problems with participating southwestern Michigan firms. Each team will design a solution to the problem and be responsible for writing a justification for their design proposal, and will make a formal oral presentation to representatives of the client firm. Prerequisite: IE 414.

IE 416 Operations Control in Industry (3-3)
4 hrs.
The function of production and inventory operations. Control of manufacturing production systems and modeling. Prerequisites: IE 206, IE 261, IE 262, IE 311.

IE 417 Computer Integrated Manufacturing (3-3)
4 hrs.
Provides students with an understanding of (CIM) system concepts and technology. Topics include design, planning, and operational issues related to the integration of computers in manufacturing systems, theoretical and applied. NOT FOR ENGINEERING CREDIT. Prerequisites: EE 100, CS 106 or equivalent.

IE 420 Modern Industrial Practices (1-6)
3 hrs.
Students will observe and analyze actual supervisory and managerial functions in industrial and service establishments. Conference procedures will be used in exploring many facets of supervisory and managerial practices and procedures. A charge for transportation is required. Prerequisites: Spring session prior to graduation.

IE 422 Conference Leadership (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 IE 316, upperclass standing. IE 316 may be taken concurrently.

IE 424 Plant Layout and Material Handling Lab (0-3)
3 hrs.
Students will be responsible for choosing a product for which they are to plan, design and layout the manufacturing facilities including all related office and service areas. To ease their task, all the drawings such as drawings of “make” parts will be provided NOT FOR ENGINEERING CREDIT. Prerequisite: IE 404, or taken concurrently.

IE 430 Simulation Modeling and Analysis (3-0)
3 hrs.
Use of computer simulation as a modeling tool, with emphasis on discrete-event simulation. Both FORTRAN-based simulation language and GPSS are used. Statistical analysis of both input data and simulation results. Prerequisites: IE 206, IE 262.

IE 434 Material Handling and Facilities Design Lab (0-3)
1 hr.
Students will be responsible for choosing a product for which they are to plan, design and layout the manufacturing facilities including all related office and service areas. To ease their task, all the drawings such as drawings of “make” parts will be provided. Prerequisite: IE 414, or taken concurrently.
IE 450 Senior Design Project I 3 hrs. The first of a two-semester sequence in which the student works on an approved engineering design project. A preliminary design and report are required at the end of the course. Project will be completed in IE 451. FOR OFF-CAMPUS PROGRAMS ONLY. Prerequisite: Consent of instructor.

IE 451 Senior Design Project II 3 hrs. Completion of the engineering design project started in Senior Project Design I. A formal written report and oral presentation are required. FOR OFF-CAMPUS PROGRAMS ONLY. Prerequisite: IE 450.

IE 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.

IE 495 Special Topics in Industrial Engineering (3-0) 3 hrs. A specialized course dealing, each time it is scheduled, with some particular aspect of industrial engineering not usually included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Permission of instructor.

IE 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.

IE 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.

IE 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: IE 403 or permission of instructor.

IE 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 200, 260 or 366, or equivalent.

IE 505 Continuous Improvement in Operations (3-0) 3 hrs. The purpose of this course is to introduce business and engineering students as well as managers to the process of kaizen (Continuous Improvement) and Total Employee Involvement.

IE 507 Computer Integrated Manufacturing (3-0) 3 hrs. Topics related to computer integrated manufacturing. Topics include computer process control, robotics, group technology, CNC, CAD, FMS. Hands-on experience with miniature computer controlled equipment will be included. Prerequisite: Course in computer programming.

IE 508 Advanced Quality Management (3-0) 3 hrs. Analysis and application of new concepts in the field of quality control. Tests of significance, probability studies, and other uses of statistics as applied to quality control. Prerequisite: IE 318, or IE 329, or IE 501 or permission of instructor.

IE 512 Management of Service Operations (3-0) 3 hrs. An analysis of service industries, exploring differences in planning and controlling operations. Emphasis will be on service system design, service quality, and analyzing customer expectations with their perceptions.

IE 516 Design of Experiments and Regression Analysis (3-0) 3 hrs. Topics related to experimental design and regression analysis. Topics include randomized blocks, Latin squares, factorial designs, multiple correlation and regression, and its application to response surfaces. Prerequisite: IE 261 or equivalent.

IE 542 Human Factors Engineering (2-3) 3 hrs. The process of designing for human use. The course covers the study of the interactions between the individual, equipment, products, and the environment in any human-task-environment system. Topics include human capabilities and limitations, human input, output, and control; work space design, and the work environment.

IE 557 Special Topics in Industrial Engineering (3-0) 3 hrs. Group study of special topics in industrial engineering and technology. The specific topic will be shown in the course title when 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.

IE 590 Independent Research and Development (Arr.) 1-6 hrs. Independent 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.
Scholarships and Awards
Several scholarships are available through the College of Engineering and Applied Sciences. These include, but are not limited to, scholarships through the Giffels Associates, Lakehead-Pipeline, Durametric Corporation, Society of Manufacturing Engineers, H. H. Harris Foundation, and the College itself. Program announcements are distributed during the application period.

The College of Engineering and Applied Sciences offers several scholarships and 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 has demonstrated interest and ability in liberal studies and the professionalism associated with mechanical engineering.
- Mechanical Engineering Presidential Scholar Award—presented to a mechanical engineering student who has demonstrated interest and ability in the field of mechanical engineering.

Scholarship and Awards

-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.

Cooperative Education

-Additional Information
General information regarding advising, scholarships, and special programs of interest to students in this department may be found under the beginning of the College of Engineering and Applied Sciences section of this catalog.

Enrollment will not be honored in any course, whether on or off campus, unless a student is currently registered for the course. When courses are requested that course, if the student does not attend the first class meeting (lecture or lab) unless prior arrangements have been made with the instructor. Students not attending courses for whatever reasons are responsible for processing drop slips with the Registration Office if fees are to be refunded.

Aeronautical Engineering Degree Program
Candidates for the Bachelor of Science in Engineering (Aeronautical Engineering) 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 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. 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 136 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in the fall. Pre-engineering requirements are in darker print.

First Semester—16 hours
- MATH 122 Calculus I 4
- CHEM 102 OR 101 General Chemistry 4
- CS 106 BASIC for Engineers 1
- AREA I General Education* 3
- IE 102 Technical Communication 3
- PEGN Physical Education 1

Second Semester—18 hours
- MATH 123 Calculus II 4
- PHYS 205 Mechanics and Heat 4
- PHYS 206 Physics Lab 1
- ET 142 Engineering Graphics 3
- ME 250 Material Science I 3
- AREA I General Education* 3

Third Semester—19 hours
- MATH 272 Vector/Mult. Calculus 4
- PHYS 207 Electricity and Light 4
- PHYS 208 Physics Lab 1
- ME 232 Thermodynamics I 3
- EE 210 Circuit Analysis 4
- ME 256 Statics 3

Fourth Semester—17 hours
- MATH 374 Introduction to Linear Algebra and Diff. Eq 4
- AREA I General Education 3
- ME 258 Dynamics 3
- AAE 261 Aircraft Systems and Propulsion 3
- PHYS 212 Introduction to Modern Physics OR PHYS 342 Electronics OR CHEM 120 General Chemistry II 4

Fifth Semester—16 hours
- ME 350 Material Science II 3
- ME 257 Mechanics of Materials 3
- ME 358 Mechanics Analysis 3
- ME 356 Fluid Mechanics 3
- AAE 363 Inter. Comb. Engines I 3
- PEGN Physical Education 1

Sixth Semester—17 hours
- ME 365 Machine Design I 3
- ME 360 Control Systems 3
- ME 335 TITLE 4
- ME 431 Heat Transfer 3
- ME 357 Aerodynamics Lab 1
- AAE 361 Flight Vehicle Aerodynamics 3

Seventh Semester—17 hours
- ME 479 TITLE 2
- AAE 463 Aircraft Structural Design 3
- AAE 467 Int. Comb. Engines II 3
- AAE 450 Flight Vehicle Performance 3
- AREA II General Education* 3
- AAE 460 Aircraft Stability and Control 3

Eighth Semester—16 hours
- AAE 469 Aircraft Design 3
- ME 480 TITLE 3
- AAE 472 Compress. Aerodynamics 3
- AREA IV General Education* 3
- Approved Design Elective OR
- AAE 459 Flight Test Engineering and Design 3

* At least two of these courses must be at the 300-400 level.

Baccalaureate Writing Requirement
Students who have chosen the Aeronautical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following:

- AAE 361 Flight Vehicle Aerodynamics and Performance 3
- AAE 363 Internal Combustion Engines I 3
- AAE 480 Aircraft and Automotive Engineering Design Project 3

Mechanical Engineering Bachelor of Science in Engineering (Mechanical) Degree
Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Admission
1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of “C” or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section. 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.

Mechanical Engineering Degree 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 be found in the beginning of the College of Engineering and Applied Sciences section. The pre-engineering course requirements for this curriculum are in darker print in the schedule below.
2. A “C” average or better must be earned in courses presented for graduation with an EE, IE, or ME prefix.
3. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
### Aeronautical Engineering Courses (AAE)

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours). *After title denotes course is for students following Catalogs prior to the 1989-91 issue.

**AAE 261 Aircraft Systems and Propulsion (2-2)**
- 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 fighting, and control, and fuel systems. Prerequisites: MATH 122, PHYS 205, PHYS 206, ET 110.  
**AAE 263 Fuel Metering Systems (2-2)**
- 3 hrs.
- The design and operation of fuel management systems including induction, fuel metering, and exhaust systems. Prerequisites: AAE 261 or AAE 264, CS 106, IE 102 or BIS 142 or ENGL 105.  
**AAE 264 Vehicle Systems and Power (2-2)**
- 3 hrs.
- Introduction to automotive vehicles and engines. This study includes chassis design, construction and design, engine systems, safety, braking, and fuel systems. Prerequisite: MATH 122 or concurrent.  
**AAE 265 Power Transmission Systems (2-2)**
- 3 hrs.
- Introduction to vehicle power transmission, system, requirements, load determination and gearing, system dynamics, transmission design configurations, and application. Prerequisite: MATH 122.  
**AAE 266 Vehicle Systems (2-3)**
- 3 hrs.
- Introduction to vehicle systems to include auxiliary systems, speed reducing systems, fluid power systems, system dynamics, vehicle inertial characteristics, design configurations and applications. Prerequisite: MATH 123, PHYS 207, PHYS 208, corequisite ME 258.  
**AAE 357 Aerodynamics Laboratory (1 hrs)**
- 1 hrs.
- Experiments to include balance measurement of lift, drag, and pitching moment forces. Surface and wake pressure measurements, hot wire, and laser velocimetry will be used to study aerodynamic flows. Prerequisite: AAE 361 or AAE 382.  
**AAE 361 Flight Vehicle Aerodynamics (3-0)**
- 3 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. Prerequisite: ME 356  
**AAE 362 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. Prerequisite: ME 358.  
**AAE 363 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.  
**AAE 364 Electronic Systems (2-2)**
- 3 hrs.
- Application of electricity and electronics to the design, operation, and service requirements of vehicle systems including power systems. Emphasis on analysis and synthesis of system functions and design parameters. Prerequisites: AAE 261 or AAE 264, CS 106, EE 211 or concurrent.  
**AAE 367 Instrumentation and Testing (2-2)**
- 3 hrs.
- Principles of engineering measurements as applied to engine and structure testing. Laboratory assignments include calibration of instruments, obtaining data, dynamometer operation, and engine testing. Data will be analyzed with the aid of the computer. Graphing and analysis techniques will be utilized in formal written reports. Prerequisites: AAE 364, ME 356.

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**MATH 272 Vector/Multivariate Calculus (4)**
- 4 hrs.
- Introduction to linear algebra and advanced calculus. Prerequisites: AAE 261 or AAE 264.

**AAE 260 Aircraft Stability and Control (3-0)**
- 3 hrs.

**AAE 450 Flight Vehicle Performance (3-0)**
- 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 361.

**AAE 460 Aircraft Stability and Control (3-0)**
- 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. Man-machine interaction and effect on control surface sizing. Prerequisite: AAE 361, ME 356.

**AAE 463 Aircraft Structural Design (3-0)**
- 3 hrs.
- Structural design of aircraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints. Prerequisite: AAE 461 or concurrently. ME 365.

**AAE 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: AAE 266, AAE 362; ME 358, ME 360, ME 365.

**AAE 467 Internal Combustion Engines II (3-3)**
- 4 hrs.
AAE 468 Engine Design (1-6) 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: AAE 461, AAE 467.

AAE 469 Aircraft Design 3 hrs. Conceptual and preliminary design of aircraft emphasizing performance, stability and control, and total vehicle efficiency. Prerequisite: AAE 460 and AAE 450.

AAE 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: AAE 361 or AAE 362, ME 358, and ME 365.

AAE 472 Compressible Fluid Flow (3-0) 3 hrs. Introduction to compressible flow focusing on isentropic flow of perfect gases, normal and oblique shock waves, Prandtl-Meyer flow, linearized flow, and design of supersonic airfoils, nozzles, and wind tunnels. Prerequisites: AAE 361, AAE 362.

AAE 495 Topics in Aircraft and Automotive Engineering (1-6) 1-4 hrs. A specialized course dealing with a particular area of aircraft and/or automotive 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 approved by the department chair. 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 Material Science I (2-3) 3 hrs. First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers, and ceramics are developed. Emphasis is on mechanical properties and effects of alloying and heat treatment on metals. Prerequisites: CHEM 101 or 102, MATH 122.

ME 253 Statics and Mechanics of Materials (4-0) 4 hrs. Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, shear and moment diagrams, centroids, moments of inertia and friction. Compression, tension, shear, torsion, and bending in structural members, including stress distribution, deflection, and 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, CS 106.

ME 257 Mechanics of Materials (3-0) 3 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.


ME 350 Material Science II (2-3) 3 hrs. Second course in the science of engineering materials. Provides a basic understanding of the properties of non-metallic materials, including polymers, ceramics and composite materials, and related mechanical properties to structure and fabrication process. Includes treatment of environmental effects on all materials and treatment of non-destructive testing. Prerequisite: ME 250.

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 channels. (Credit may not be earned in both ME 356 and ET 381.) Prerequisites: ME 258, MATH 374.

ME 357 Mechanics of Materials II (2-3) 3 hrs. Combined loading, unsymmetric bending, shear stresses in beams, elastic and inelastic columns, columns with changes in cross section, beam-columns, full ultimate strength, endurance limit, theories of failure, energy methods, and similitude of parts and systems. Experimentation and theory verification including planning, testing, and data analysis with report preparation. Prerequisites: ME 250, ME 257.

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 359 Dynamics of Machinery (3-0) 3 hrs. Analysis of static, dynamic, and combined forces in the design of machines. Balancing of machines including multi-cylinder engines. Gyroscopic forces. Computer applications. Prerequisite: ME 358.

ME 360 Control Systems (3-0) 3 hrs. Theory and analysis of linear closed-loop control systems containing electronic, hydraulic, and mechanical components. Differential equations. Laplace transforms, Nyquist and Bode diagrams are covered. Prerequisites: ME 258, MATH 374, EE 211.


ME 365 Machine Design I (2-3) 3 hrs. The application of engineering principles to the fundamental design of machine mechanisms and basic systems. Prerequisites: ME 250, ME 257, ME 357, ME 358. (ME 358 may be taken concurrently.)

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 CHEM. Prerequisites: ET 281, ET 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 356, ME 432.

ME 432 Thermodynamics II (3-0) 3 hrs. Advanced topics including gas-vapor mixtures, combustion, and compressible flow. Prerequisites: ME 232, ME 356. (ME 356 may be taken concurrently.)

ME 433 Environmental Systems Design in Buildings (2-3) 3 hrs. Theory of the conditioning of air, applications to the design of systems to control temperature, humidity, dust, noise, and ventilation. Computer simulation of buildings and systems. Prerequisites: ME 431, ME 432.

ME 439 Design of Thermal Systems (3-3) 4 hrs. Application of energy concepts to thermal fluid design problems. Open ended design projects in incompressible and compressible fluid flows, thermodynamics, heat transfer, power generation, alternate energy systems including computer simulations. Experimentation and theoretical analysis verification with data analysis and report preparation. Prerequisites: ME 355, ME 431, ME 432.
ME 451 Design of Solar Systems (3-0)
3 hrs.
Analysis of alternate energy options. Design of complete solar system including collector, storage, and controls. Economics and long-term performance of solar systems using computer-aided design programs. Prerequisites: ME 335.

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 479 Mechanical and Aeronautical Engineering Project Planning (1)
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. Prerequisite: ME 439 or ME 453.

ME 480 Mechanical and Aeronautical Engineering Project (1-6)
3 hrs.
An engineering experience in completing an open-ended design project including synthesis, analysis, evaluation, and presentation. Classroom discussion subjects include legal, ethical, and professional aspects of engineering design. Prerequisite: ME 479.

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 a particular area of mechanical engineering not included in other course offerings. May be repeated for credit with a different topic up to six credits. Prerequisite: Consent of department.

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 hrs.
The theory and numerical implementation of eddies, viscous effects, and exact solutions of Navier-Stokes equations. Special emphasis will be on planar 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 MATH 506, or consent of instructor.

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 558 Mechanical Vibrations (3-0)
3 hrs.
A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems. Prerequisites: ME 258, MATH 374.

ME 559 Machine Dynamics (3-0)
3 hrs.
Static and dynamic force analysis of mechanisms such as linkage, cams, and shafts. Dynamics of reciprocating engines, balancing, and spatial mechanisms. Prerequisite: ME 358.

ME 560 Engineering Analysis (3-0)
3 hrs.
Application of vector analysis and differential equations to the solution of complex engineering problems. Prerequisite: ME 360 or equivalent.

ME 561 Finite Element Method (3-0)
3 hrs.
Weighted residual methods, finite element techniques in one-, two-, and three-dimensional problems of heat transfer, fluid flow, structures and elasticity, time dependent problems, higher order elements, and non-linear problems. Prerequisite: MATH 506 or equivalent.

ME 562 Application of Numerical Methods in Engineering (3-0)
3 hrs.
Finite difference methods for initial value and boundary value problems. Finite difference equations for one-dimensional problems. Method of characteristics. Prerequisite: ME 431 and ME 432.

ME 563 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. Prerequisite: ME 431 and ME 432.

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 flow. Applications to nozzles, diffusers, and supersonic wind tunnels. Linearized flows, method of characteristics. Prerequisite: 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. Prerequisite: 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 257.

PAPER AND PRINTING SCIENCE AND ENGINEERING

Raja Aravamuthan
Arvon D. Byler
Dennis E. Darling
Raymond L. Janes
James E. Kline
David K. Peterson
Jean Rosinski
Brian L. Scheller
Thomas H. Spotts
James L. Ulmer

Academic Advising

Students should contact the Paper and Printing Science and Engineering academic advisors as early as possible. An advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, curriculum committee, and department chair. The academic advisor for Paper Science and Printing Engineering is Barbara Vlasek, located in Room 2630 McCracken Hall. Appointments may be made by calling (616) 387-2775. The academic advisor for Printing is Mr. James Ulmer, located in Room 1145 Welborn Hall. Appointments may be made by calling (616) 387-2800.

Work Experience

Industrial experience in the program is encouraged through employment by paper, printing or related companies for at least one of the three summers, as well as through employment in the outstanding pilot plants of the department. An extensive recycled fiber pilot plant is available. The pilot plants and laboratory facilities are among the best in the world.

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 the catalog.

A minor in paper science may be earned by completing the following 19 semester hours of departmental courses: PAPP 100, PAPP 101, PAPP 203, PAPP 204, PAPP 340 and PAPP 342.
**Paper Science**  
**Bachelor of Science Degree**

**Requirements**
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements as stated elsewhere in this bulletin:

1. Students must earn a "C" or better grade in PAPR 203, 204, 261 and 306.
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 136 semester credit hours. The schedule below is a sample of one leading to graduation in eight semesters, beginning in fall.

**Baccalaureate Writing Requirement**
Students who have chosen the Paper Science major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 310 Science/Engineering Experience, PAPR 371 Introduction to Independent Study, PAPR 472 Senior Engineering Problem I, and PAPR 473 Senior Engineering Problem II.

**Paper Engineering**
**Bachelor of Science in Engineering (Paper) Degree**

**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. The Pre-engineering course requirements for this curriculum are in darker italic 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.

**Paper Engineering Program Requirements**
Candidates for the Bachelor of Science in Engineering (paper) 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 include a course at the 300-400 level. Both courses must have the same course prefix, provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, 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. Students must earn a "C" or better grade in PAPR 203, 204, 261 and 306.
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 136 semester credit hours which includes the courses in one of the following elective sequences: Pulp and Paper Processes or Environmental Processes. One sequence must be elected and taken in its entirety. 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.

**Baccalaureate Writing Requirement**
Students who have chosen the Paper Engineering major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 310 Science/Engineering Experience, PAPR 371 Introduction to Independent Study, PAPR 472 Senior Engineering Problem I, and PAPR 473 Senior Engineering Problem II.

**First Semester** — 16 hours
MATH 122 Calculus I 4  
CHEM 101 or 102 General Chemistry I 4  
PAPR 100 Introduction to Pulp and Paper Manufacturing 4  
PEGN Physical Education 1

Second Semester—16 hours
MATH 123 Calculus II 4  
CHEM 120 General Chemistry II 4  
PAPR 101 Lab Problems in Pulp and Paper Manufacturing 4  
IE 102 Technical Communication 3  
ECON 201 Principles of Economics 3  
PEGN Physical Education 1

Third Semester—19 hours
IE 261 Engineering Statistics 3  
PHYS 205 Mechanics and Heat 4  
MATH 272 Vector and Multivariate Calculus 4  
PHYS 207 Electricity and Light 4  
COMP 204 Principles of Economics 3  
PEGN Physical Education 1

Fourth Semester—19 hours
MATH 272 Vector and Multivariate Calculus 4  
PHYS 205 Mechanics and Heat 4  
PHYS 208 Electricity and Light Lab 1  
PAPR 204 Paper Manufacturing 4  
PAPR 261 Industrial Environmental Engineering 3  
AREA II General Education 3

Fifth Semester— 16 hours
PAPR 305 Mechanics and Optics of Fiber Systems 4  
PAPR 306 Process Engineering I 4  
PAPR 333 Chemistry of Wood and Pulp 3  
CHEM 360 Organic Chemistry I 4  
PAPR 440 Current Topics in Paper and Pulp 1

Sixth Semester— 17 hours
PAPR 305 Mechanics and Optics of Fiber Systems 4  
PAPR 342 Coating Processes 4  
CHEM 361 Organic Chemistry II 4  
PAPR 352 Fiber Resource Conservation and Recycling 3  
PAPR 371 Introduction to Independent Research 1  
PAPR 440 Current Topics in Paper and Pulp 1

Seventh Semester— 17 hours
MATH 374 Introduction to Linear Algebra and Differential Equations 4  
PAPR 310 Science/Engineering Experience 1  
PAPR 340 Controlling Processes 3  
PAPR 470 Senior Thesis I 2  
CHEM 430 Physical Chemistry I 3  
AREA IV General Education* 4

Eighth Semester— 16 hours
PAPR 360 Printing Processes 2  
PAPR 430 Graphic and Surface Chemistry 3  
PAPR 471 Senior Thesis II 3  
CHEM 431 Physical Chemistry II 3  
PAPR 436 Chemical Engineering Lab 3  
Technical Elective** 3

* At least two of these courses must be at the 300-400 level.
** Technical-Professional Electives—3 hours
3. Select from Paper Science, Chemistry, Engineering, or Business courses. All electives need approval of the Department.

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*At least two of these courses must be at the 300-400 level.*
**Sixth Semester**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>PAPR 450</td>
<td>Solid Waste Treatment</td>
<td>3</td>
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<tr>
<td>OR</td>
<td></td>
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<tr>
<td>PAPR 451</td>
<td>Air Pollution Control</td>
<td>3</td>
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**Pulp and Paper Processes—17 hours**

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<tr>
<td>PAPR 307</td>
<td>Process Engineering II</td>
<td>4</td>
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<tr>
<td>PAPR 342</td>
<td>Coating Processes</td>
<td>4</td>
</tr>
<tr>
<td>PAPR 352</td>
<td>Fiber Resource</td>
<td>3</td>
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<tr>
<td>PAPR 371</td>
<td>Conservation and Recycling</td>
<td>3</td>
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<tr>
<td>PAPR 353</td>
<td>Waste Water Treatment</td>
<td>4</td>
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<td>OR</td>
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<tr>
<td>PAPR 440</td>
<td>Current Topics in Paper and Pulp</td>
<td>1</td>
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<td>EE 210</td>
<td>Circuit Analysis</td>
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**Environmental Processes—17 hours**

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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 365</td>
<td>Introduction to Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>PAPR 307</td>
<td>Process Engineering II</td>
<td>4</td>
</tr>
<tr>
<td>PAPR 352</td>
<td>Fiber Resource</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 371</td>
<td>Conservation and Recycling</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 353</td>
<td>Waste Water Treatment</td>
<td>4</td>
</tr>
<tr>
<td>OR</td>
<td></td>
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<tr>
<td>PAPR 440</td>
<td>Current Topics in Paper and Pulp</td>
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**Seventh Semester**

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>PAPR 342</td>
<td>Coating Processes</td>
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<tr>
<td>PAPR 450</td>
<td>Solid Waste Treatment</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 354</td>
<td>Paper Industry Processes</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 422</td>
<td>Computer Estimating</td>
<td>2</td>
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<tr>
<td>MKTG 371</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 372</td>
<td>Purchasing Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Technical Elective:** 1 hour for Environmental Processes, 3 hours for Pulp and Paper Processes. Select from Paper Science, Chemistry, Engineering, or Business courses. All electives need approval of the Department.

**Printing**

**Bachelor of Science Degree**

Candidates for the Bachelor of Science Degree in Printing must satisfy all of the requirements of 127 hours of either the Marketing or the Management Option. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**Baccalaureate Writing Requirement**

Students who have chosen the Printing major will satisfy the Baccalaureate Writing Requirement by successfully completing PAPR 358 Flexographic Presswork, PAPR 359 Gravure Presswork, and PAPR 454 Advanced Lithographic Technology.

**MARKETING OPTION**

First Semester—17 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MATH 116</td>
<td>Finite Mathematics</td>
<td>3</td>
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<tr>
<td>PAPR 150</td>
<td>Introduction to Graphic Arts</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 157</td>
<td>Line and Halftone Photography</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education**</td>
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</tr>
<tr>
<td>AREA V</td>
<td>General Education Writing Requirement (IE 112 or BIS 142 or ENGL 106 recommended)</td>
<td>3</td>
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<td>PEGN</td>
<td>Physical Education</td>
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Second Semester—17 hours

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<tbody>
<tr>
<td>BIS 102</td>
<td>Introduction to Information Processing or CS 105 Introduction to Computers</td>
<td>3</td>
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<tr>
<td>CHEM 103</td>
<td>General Chemistry</td>
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<tr>
<td>PAPR 253</td>
<td>Imaging</td>
<td>3</td>
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**Third Semester—16 hours**

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<tr>
<td>PAPR 151</td>
<td>Typographic Layout and Design</td>
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<tr>
<td>MATH 216</td>
<td>Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 250</td>
<td>Lithographic Presswork</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 254</td>
<td>Introduction to Flexography</td>
<td>3</td>
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<tr>
<td>PEGN</td>
<td>Physical Education</td>
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**Fourth Semester—16 hours**

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<tr>
<td>PAPR 357</td>
<td>Color Separation Processes</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 258</td>
<td>Introduction to Flexography</td>
<td>3</td>
</tr>
<tr>
<td>BIS 260</td>
<td>Programming and Applications with Microcomputers</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Principles of Economics</td>
<td>3</td>
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<td>AREA II</td>
<td>General Education**</td>
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**Fifth Semester—16 hours**

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<tr>
<td>PAPR 160</td>
<td>Introduction to Industrial Environmental Control or PAPR 340 Converting Processes</td>
<td>3</td>
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<tr>
<td>PAPR 362</td>
<td>Estimating</td>
<td>3</td>
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<tr>
<td>MKTG 300</td>
<td>Fundamentals of Management</td>
<td>3</td>
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<tr>
<td>IE 326</td>
<td>Operations Planning and Control</td>
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<td>IE 328</td>
<td>Quality Assurance and Control</td>
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**Sixth Semester—15 hours**

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<tr>
<td>PAPR 354</td>
<td>Paper Industry Processes</td>
<td>3</td>
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<tr>
<td>PAPR 462</td>
<td>Computer Estimating</td>
<td>2</td>
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<tr>
<td>MKTG 371</td>
<td>Marketing Research</td>
<td>3</td>
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<td>MKTG 372</td>
<td>Purchasing Management</td>
<td>3</td>
</tr>
<tr>
<td>AREA III</td>
<td>General Education**</td>
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<td>AREA IV</td>
<td>General Education**</td>
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### Seventh Semester

<table>
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<tr>
<td>PAPR 359</td>
<td>Gravure Presswork</td>
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<td>PAPR 466</td>
<td>Printing Production</td>
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<tr>
<td>IE 403</td>
<td>Industrial Labor Relations</td>
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### Eighth Semester

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<tr>
<td>PAPR 358</td>
<td>Flexographic Presswork</td>
<td>3</td>
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<tr>
<td>PAPR 454</td>
<td>Advanced Lithographic Technology</td>
<td>3</td>
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<tr>
<td>IE 322</td>
<td>Safety in Industry</td>
<td>3</td>
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<tr>
<td>Approved Elective**</td>
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<td></td>
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</tbody>
</table>

* Where judged appropriate by the department, an approved replacement course for PAPR 150 will be used.
** At least two of these courses must be at the 300-400 level.
*** Elective to be selected with the approval of the Printing curriculum advisor.

### Paper and Printing Science and Engineering Courses (PAPR)

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PAPR 100</td>
<td>Introduction to Pulp and Paper Manufacture (2-3)</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 101</td>
<td>Laboratory Problems in Pulp and Paper Manufacture (Arr.)</td>
<td>1 hr.</td>
</tr>
<tr>
<td>PAPR 150</td>
<td>Introduction to Graphic Arts (2-3)</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 151</td>
<td>Typographic Layout and Design (2-3)</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 157</td>
<td>Line and Halftone Photography (2-3)</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 160</td>
<td>Introduction to Industrial Environmental Control (3-0)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PAPR 258</td>
<td>Introduction to Flexography (3-0)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PAPR 259</td>
<td>Introduction to Gravure Printing (3-0)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PAPR 260</td>
<td>Paper Physics Fundamentals (3-3)</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>PAPR 261</td>
<td>Industrial Environmental Engineering (3-0)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PAPR 300</td>
<td>Process Engineering I (3-3)</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>PAPR 301</td>
<td>Science/Engineering Experience</td>
<td>1 hr.</td>
</tr>
<tr>
<td>PAPR 333</td>
<td>Chemistry of Wood and Pulp (3-0)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PAPR 340</td>
<td>Converting Processes (2-3)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>PAPR 342</td>
<td>Coating Processes (3-3)</td>
<td>4 hrs.</td>
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</table>

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).
PAPR 351 Water Quality and Microbiology (3-0)
2 hrs.
A discussion of 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. Prerequisite: CHEM 101 or CHEM 102.

PAPR 352 Fiber Resource Conservation and Recycling (2-3)
3 hrs.
Consideration of the recovery of waste paper and other fiber sources for use in the manufacture of paper and paperboard. Topics include waste fiber collection, contaminant removal, in-plant reuse, effect on the processes and the products, and the economics involved. 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, physiochemical, and biological treatments are considered. Prerequisite: PAPR 350.

PAPR 354 Paper Industry Processes (2-3)
3 hrs.
Offered primarily for students in graphic arts and printing management/marketing programs in order to provide a basic understanding of the major aspects of the science and technology of pulping, papermaking, coating, and evaluation of materials, especially as they relate to printing. Prerequisites: CHEM 103, and junior standing.

PAPR 355 Color Separation Processes (2-3)
3 hrs.
An analysis of various production color separation techniques, color correction, colorimeter removal, and color proofing system. Color theory, masking systems, direct and indirect separations, and electronic scanner techniques will be investigated. Prerequisite: PAPR 157.

PAPR 356 Flexographic Presswork (2-3)
3 hrs.
A lecture/lab course which will emphasize rubber and photopolymer plate manufacture, mounting and proofing, water and solvent inks, substrates, and flexographic press operation. Prerequisite: PAPR 258.

PAPR 357 Gravure Presswork (2-3)
3 hrs.
This lecture/lab course will emphasize traditional cylinder manufacturing, proofing and gravure press operation. Press components, register controls, ink variables, doctor blades, and electrostatic assist will be stressed. Prerequisite: PAPR 259.

PAPR 360 Printing Processes (1-3)
2 hrs.
A course designed to provide Paper Science and Engineering students with a working knowledge of the various printing processes and their relation to the performance factors of paper. Prerequisite: PAS or PAE majors only.

PAPR 362 Estimating (3-0)
3 hrs.
Study of methods used in estimating the price of printed matter before manufacture and in the final pricing of that printed matter after manufacture. Prerequisite: Junior standing.

PAPR 371 Introduction to Independent Research (1-0)
1 hr.
Methods of approaching and planning independent research will be discussed. Familiarity with problems which may be encountered will be gained by attendance at the senior seminars. At the end of the course, the student will have selected a senior thesis or problem topic and an advisor. Prerequisite: Junior standing.

PAPR 430 Polymer and Surface Chemistry (3-0)
3 hrs.
Molecular, bulk, and solution properties of high molecular weight compounds and their characterization. Structure and properties of colloids and other surfaces are related to absorption, wetting, detergency, and adhesion behavior. Prerequisite: CHEM 361 or CHEM 365.

PAPR 440 Current Topics in Pulp and Paper (2-0, Alternate Weeks)
1 hr.
This course will be handled on a seminar basis using guest speakers, University staff, and field trips. Its purpose is to add depth and breadth to the background of students. Concurrent registration in PAPR 440 with PAPR 470, PAPR 471, PAPR 472, or PAPR 473 will not be allowed. Prerequisite: Junior standing.

PAPR 450 Solid Waste Treatment (2-3)
3 hrs.
The practice, technology, and economics of the treatment of solid wastes generated by municipal and industrial sources are studied. Discussion will include treatment, disposal, in-process utilization, and conversion to useful by-products for solid and semi-solid wastes. Prerequisite: Junior standing.

PAPR 451 Air Pollution Control (2-3)
3 hrs.
The origins, effects, measurement and control of air pollution are examined. Pollution abatement methods are studied and applied to private, municipal and industrial sources. Prerequisites: PAPR 261 or equivalent.

PAPR 454 Advanced Lithographic Technology (2-3)
3 hrs.
Provides the student with practical problems in press setup. Emphasizes plate imaging, register controls, inks, substrates, and litho press systems. Folding applications are also included. Prerequisites: PAPR 250, CHEM 103.

PAPR 460 Pulp and Paper Process Design (3-3)
4 hrs.
The design and operational factors of the unit processes and operations used in the pulp and paper industry and its subsystems stressing operating efficiencies from the engineering viewpoint are considered. Includes material balance, power distribution, evaluation of equipment performance, and environmental concern. Prerequisites: PAPR 203, PAPR 204, PAPR 261, PAPR 350.

PAPR 462 Computer Estimating (1-2)
2 hrs.
A study of methods used in estimating the price of printed materials before manufacture and in the final pricing of that printed matter. Computerized estimating systems and techniques will be used in a lab setting. Prerequisite: PAPR 362.

PAPR 464 Modern Printing Practices (2-0)
2 hrs.
Study, development, application of printing management/marketing production practices. Technical short courses offered by production and service industries may be utilized. May be elected in two hour blocks to a maximum of six hours. Prerequisite: Junior standing.

PAPR 466 Printing Production Management (3-3)
3 hrs.
Managerial procedures used in printing industries to forecast, plan, schedule, and record production to control production costs. Hourly costs of printing machines will be developed by students. Prerequisite: Junior standing.

PAPR 470 Senior Thesis I (0-4 Min.)
2 hrs.
This course is intended to increase the student's ability to solve a research or technical problem. The student will analyze a problem and design an experimental investigation. The student will commence experimental work and give written summaries of literature search and experimental program. Each student will be assigned an advisor for the problem. Weekly participation at student-staff seminars and participation at PAPR 440, Current Topics, is required. Prerequisites: PAPR 371, paper science major.

PAPR 471 Senior Thesis II (0-6 Min.)
3 hrs.
A continuation of PAPR 470, including completion of laboratory work and preparation of a final formal report. A formal oral presentation will be given. Weekly participation at student-staff seminars and participation at PAPR 440, Current Topics, is required. Prerequisite: PAPR 470.

PAPR 472 Senior Engineering Problem I (0-4 Min.)
2 hrs.
This course is intended to increase the ability of an engineering student to analyze and solve a design problem. An individual advisor will be assigned. The student will analyze a problem, design an experimental investigation as needed, and present a completed program in both written and oral form. Weekly participation at student-staff seminars and participation at PAPR 440, Current Topics, is required. Prerequisite: PAPR 470.

PAPR 473 Senior Engineering Problem II (0-6 Min.)
3 hrs.
A continuation of PAPR 472, including completion of laboratory work and preparation of a final report. A formal oral presentation will be given. Weekly participation at student-staff seminars and participation at PAPR 440, Current Topics, are required. Prerequisites: PAPR 371, paper engineering major.

PAPR 476 Instrumentation and Process Control (3-0)
3 hrs.
An introduction to automatic control covering the areas of control methods, theory, loop analysis, and industrial control equipment including sensors, transmitters, controllers, and control valves. Prerequisites: CHEM 101 or CHEM 102 and CHEM 103, MATH 123, PHYS 211.

PAPR 482 Application of Control Systems (3-0)
3 hrs.
The use of instrument systems and digital computers to control pulsing and paper-making processes. Deals with the...
design of combination control systems, digital computer components, and computer control strategies in the paper industry. Prerequisite: PAPR 481.

PAPR 495 Topics in Paper and Printing
1-4 hrs.
A special course dealing in some particular subject of interest in Pulp and Paper and/or Printing. May be repeated for credit with different topics. Prerequisite: Permission of instructor.

PAPR 499 Independent Studies
1-6 hrs.
Offers paper science and engineering majors with good scholastic records a program of independent study in an area arranged in consultation with the instructor. One to three hours credit per semester, cumulative to six hours. Prerequisite: Permission of instructor.
The College of Fine Arts offers a variety of curricula and subjects in the principal interest areas of the visual and performing arts. Two undergraduate degrees in art are offered: Bachelor of Arts majoring in Art; and a Bachelor of Fine Arts in one of the following areas of emphasis: sculpture, ceramics, graphic design, printmaking, photography, jewelry and metalsmithing, painting, and water color. Each program is designed to prepare students for graduate or professional work. One may also elect an art major with certification to teach art at the elementary and secondary levels.

The Department of Dance offers two undergraduate degrees: Bachelor of Fine Arts in Dance; and Bachelor of Arts in Dance. The Department of Dance participates with the School of Music and Department of Theatre in offering the music theatre performer program.

Three undergraduate degree programs in music are available: Bachelor of Music with majors in music performance, composition, jazz studies, music education, music history, music theory, and music therapy; Bachelor of Science with a major in music and a minor in another academic area. Teacher certification is earned in the music education and elementary education programs. The School of Music participates with other University departments in offering a music theatre performer program.

Students are encouraged to inquire about curricular combinations not listed specifically in the catalog.

In the belief that arts understanding, involvement, and appreciation are an important part of liberal education, the College of Fine Arts offers many opportunities for the non-arts major to participate in applied, theoretical, and appreciational curricular and co-curricular activities, such as general art and art history courses, dance, musical ensembles, and theatre productions.

### Interdisciplinary Program

**Music Theatre Performer**

**Bachelor of Fine Arts Degree**

81 credit hours

**REOUIRED COURSES IN DANCE—8 hrs.**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>DANC 110</td>
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<tr>
<td>DANC 120</td>
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<td>DANC 104</td>
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<td>OR</td>
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<tr>
<td>DANC 114</td>
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<td>DANC 400</td>
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</table>

**DANC 495 Performance Workshop**

(Prereq: 395) 4 semesters. 2 credits each

Plus 4 credit hours from Level I or higher of Ballet, Jazz, or Modern Technique

**REQUIRED COURSES IN MUSIC—23 hrs.**

<table>
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<td>MUS 116</td>
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**REQUIRED COURSES IN THEATRE—30 hrs.**

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<td>THEA 341</td>
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<td>THEA 342</td>
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<td>THEA 351</td>
<td>3</td>
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<tr>
<td>THEA 372</td>
<td>3</td>
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</table>

**ELECTIVES—10 hrs.**

Seven hours from courses in the Department of Dance, the School of Music and the Department of Theatre, with the consent of the Music Theatre Performer curriculum advisor.

### ADDITIONAL REQUIREMENTS

A student must complete all the General Education Distribution Program requirements as outlined in this bulletin. Within these specifications, it is required that the student take two semesters of the following foreign languages: FREN 100, 101, and GER 100, 101.

Admission to the program is by prepared audition before the Dance, Music, and Theatre faculty. Additional information is available by contacting the curriculum advisor. 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.

All music theatre majors must audition for staff-directed musical comedy, opera, or operetta each year.
ART

Phillip Vander Weg, Chair
T.D. Argyropoulos
John M. Carney
Joseph V. Deluca
Gordon J. Grinwis
Edward Harkness
Tricia Hennessy
Richard J. Keaveny
Donald E. King
Albert LaVerqne
John Link
Paul S. Mergen
John M. Metheany
Bruce Naftel
Mary Eleanor Neu
Curtis A. Rhodes
Louis B. M. Rizzolo
Paul A. Robbert

The Department of Art offers many programs with various purposes and objectives. These are described under the heading of each program. The department is accredited by the National Association of Schools of Art and Design and subscribes to the recommendations of this organization. The various programs are designed to promote the education of good artists and artists-teachers and to increase artistic awareness among students in other areas. Extracurricular activities include many exhibitions, lectures by visiting artists, a student-operated gallery, and studios for advanced B.F.A. candidates. There are approximately 475 undergraduate and 20 graduate art majors active during the academic year.

Programs

The Department of Art offers programs leading to the following degrees: Bachelor of Fine Arts with an emphasis in one of the areas of the department, Bachelor of Arts with a major in art, Bachelor of Arts with a major in art teaching. All three programs are within the art curriculum, which is composed of the General Education requirements of the University and the art major requirements of the B.A. or B.F.A. degrees.

The Department of Art also offers courses for students in other areas including non-art major courses in Drawing, Painting, Printmaking, Sculpture, Ceramics, Jewelry, and Watercolor. Two programs satisfying the minor requirements of other curricula are also offered.

For specific information see the description of each program.

Transfer Credit

Transfer credit may be used to fulfill no more than half the number of credit hours required for the students Art major or minor. Art credits earned at a college accredited by the National Association of Schools of Art and Design, or a regionally recognized accrediting agency, in which a grade of “C” or better is earned, will transfer in most cases. Many beginning level art courses will transfer with direct WMU course equivalents. Some beginning and most intermediate level courses will receive general “art credit.”

If you receive general art credit for any course you feel would fulfill a required art course, or for any course needed to fulfill a prerequisite for a course you wish to take, you must present a portfolio for consideration. Based on the results of this portfolio review, the course in question will either receive a direct course equivalent number or remain general art credit. General art credits can be used to fulfill the art elective category or be used as electives you may need to complete the minimum number of hours needed for graduation (122).

If you do not wish to show a portfolio for any courses in which you have received general “art credit”, you do not have to do so. These credits will automatically be used as electives wherever needed.

For portfolio guidelines please write to: Screening Committee, Department of Art, Western Michigan University, Kalamazoo, MI 49008, or call (616) 387-2440.

Advising

All art majors and minors are required to see an art advisor as soon as they are on campus and at least once each Fall and Winter semester thereafter. To make an appointment please call (616) 387-2440.

Miscellaneous

Baccalaureate Writing Requirement
Students who have chosen the Art major will satisfy the Baccalaureate Writing Requirement by successfully completing THEA 372 Music Theatre Script Analysis and Critique.

Computer Usage

The Department of Art utilizes computers in virtually all aspects of the visual arts. Our computer lab, which is open to all Art majors and minors, is equipped with Mac II’s, laser printers, video hookup, modems; traditional software, and state of the art visual art software.

Computer usage and design plays a vital role in our Graphic Design Program, and our Design Center is also fully equipped with Mac II’s for the use of the Graphic Design students exclusively.

Exhibition Requirement

Each Bachelor of Fine Arts major 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 major advisor. The Department of Art may retain one work of art from each student for the departmental collection. B.F.A. candidates must submit to the department a minimum of two sets of 18 slides of their artwork before receiving a grade for their graduation presentation.

Grading

Art majors and minors receiving a grade below a “C” in a required course must repeat the course.

Studies

Advanced undergraduates are occasionally given studios. All other students may work in the regular classroom studios at night and on Saturdays. The department and its instructors cannot be responsible for student work left in studios after the end of each semester or term. Studio classes are usually limited to 15 to 20 students.
Art Courses for Non-Art Majors or Minors

Any 100 level course may be taken by non-art students. Those seeking a broadly inclusive studio experience in art are advised to take ART 130 and/or 140. Further recommended courses in specific media for non-art majors include Drawing, Acrylic Painting, Printmaking, Sculpture, Ceramics, Jewelry, and Watercolor. The Art Survey 120, ART 130, 140, 146, and Art History 220 are open with no prerequisites to non-art majors and can satisfy the humanities requirements of General Education.

Art Courses (ART)

(Course descriptions in italics are approved for General Education purposes.)

ART 101 Foundation Drawing
3 hrs.
The visual elements and principles of organization in relationship to perceiving both flat and illusionary space.

ART 102 Foundation 2D Design
3 hrs.
The study of the elements of the visual language and principles of visual organization in black and white and color.

ART 103 Theory of Art
3 hrs.
A lecture course introducing the philosophy of art with understanding of the aesthetic values that are reflected from key movements of art in painting, sculpture and architecture, in comparison to contemporary art. Prerequisite: Art majors and minors only.

ART 120 Introduction to Art
3 hrs.
A topical introduction to the visual arts: painting, architecture, and sculpture. Discussions and slide presentations on such themes as the meaning of modern art, art as cultural and sociological expression, as symbol, as play and as form. This course will enable the non-art student to develop an art vocabulary and gain insights into man’s quest for creative expressions.

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 degree of education student who wishes to have some experience in art.

ART 140 Studio Experience—(2-D)
3 hrs.
A course designed for the non-art student as an enriching experience in two-dimensional media, to include painting, drawing and other graphic media. May not be elected by majors or minors in art or art education.

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. Classrooms, museums and 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
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 exploration with many art media. For the Integrated Creative Arts Minor only. This course waives the ART 150 requirement for the Elementary Education majors.

ART 201 Non Art Major: Drawing
3 hrs.
This course is a non-professional enrichment experience in basic drawing. The course objectives are 1) to learn basic drawing techniques and their relationships to various media such as graphite, charcoal, and conte crayon, 2) to learn proper usage of papers and drawing tools, and 3) to develop personal expression through drawing. Not applicable to art majors or minors.

ART 202 Non-Art Major: Acrylic Painting
3 hrs.
This course is a non-professional enrichment experience in basic acrylic painting. The course objectives are 1) to 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 expressive use of the medium. Not applicable to art majors or minors.

ART 203 Non Art Major: Printmaking
3 hrs.
This course is a non-professional enrichment experience in basic Printmaking. The course objective is to learn the fundamental techniques of etching, lithography, and block printing. Studio time will be provided for students to work on a project in each of these media. A class fee will be charged to cover the cost of materials and supplies. Not applicable to art majors or minors.

ART 205 Non Art Major: Sculpture
3 hrs.
This course is a non-professional enrichment experience in Basic Sculpture. The course objectives are 1) to learn basic techniques of clay modeling and plaster casting, and 2) to develop personal expression in these media. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 206 Non Art Major: Ceramics
3 hrs.
This course is a non-professional enrichment experience in basic Ceramics. The course objectives are 1) to learn the fundamentals of Ceramic construction, including coil building, and limits of clay as a material. A class fee will be charged for clay and glaze supplies. Not applicable to art majors or minors.

ART 207 Non Art Major: Jewelry
3 hrs.
This course is a non-professional enrichment experience in basic Jewelry. The course objectives are 1) to learn the proper use of metal-making tools and equipment, 2) to learn the basic techniques of making hand-wrought jewelry, and 3) to develop an awareness of the technical and creative range of metal as a medium for body decoration. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 208 Non Art Major: Watercolor
3 hrs.
This course is a non-professional enrichment experience in basic Watercolor. The course objectives are 1) to learn the proper use of watercolor brushes and tools, 2) to learn basic techniques for manipulating watercolor, and 3) to understand presentation models for finished watercolor paintings. A class fee will be charged for materials and information handouts. Not applicable to art majors or minors.

ART 210 Life Drawing
3 hrs.
The study of the essential aspects of life drawing (such as gesture, contour, proportions, anatomy, structure, and articulation) and their synthesis into a coherent drawing attitude. Prerequisite: ART or ATE major and minors only.

ART 220 History of Art
3 hrs.
An historical survey of art from prehistoric ages to the Renaissance. Prerequisite: ART 220 or consent of instructor.

ART 230 Ceramics
3 hrs.
A course devoted to a survey of pottery process, including handbuilding, technical information and a limited experience with the potter's wheel. Prerequisite: ART or ATE major and minors only.

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 sculpture forms will be presented. Prerequisite: ART or ATE major and minors only.

ART 240 Painting I
3 hrs.
A fundamental course in painting to assist the student in realizing visual observations, compositional design, and personal expression through traditional 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 or ATE major and minors only.

ART 241 Intaglio and Relief
3 hrs.
A fundamental exposure to the techniques of Intaglio and Relief painting and an introduction to Print aesthetics. Prerequisite: ART or ATE major and minors only.

ART 242 Watercolor Painting
3 hrs.
A survey of the application, techniques, and limitations of the watercolor painting medium. Prerequisite: ART or ATE major and minors only.

ART 243 Lithography
3 hrs.
A basic, confidence-building, introduction to Lithography through Aluminum Plate techniques. Fundamental discussion of Stone lithography and aesthetic possibilities of the medium. Prerequisite: ART or ATE major and minors only.

ART 244 Hand Papermaking
3 hrs.
An introduction to the basic techniques of hand papermaking as an art form. Prerequisites: ART or ATE major and minors only.

ART 245 Graphic Design
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 creative and communicative potential of color and structure. Prerequisite: ART or ATE major and minors only.

ART 246 Screenprint
3 hrs.
Introduction to screenprint fundamentals, techniques and procedures, exploring at length the expressive potentials of the medium—to include basic color printing procedures. Prerequisite: ART or ATE major and minors only.

ART 248 Photography
3 hrs.
Introductory course covering the function of the camera, exposure meter, lenses, b/w films, processing and printing. Emphasis is placed upon perceptive imagery and development of a technical proficiency. Prerequisite: ART or ATE major and minors only.

ART 252 Art Education Workshop (Majors)
3 hrs.
A studio course involving projects, media and materials, handled on an aesthetic level but appropriate for the creative and maturational ability of the K-12 art student. Prerequisite: ART 101, ART 102, ART 103, ART 231 and ART 240 or 242, or ART 231 and ART 240 or 242 concurrently.

ART 256
3 hrs.
Introduction to computer graphics as an image-making process and as manipulation of scanned (found) images. After a basic orientation on computer processing several programs will be used for the development of images as formal fine art, illustration and as visual communication. Prerequisite: ART or ATE major only.

ART 305 Inter-Related Arts Process: 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 1/3 of the class meetings. Prerequisite: ART 210.
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. Prerequisite: Junior or senior level Art major only.

ART 330 Ceramics
3 hrs.
Continuation of ART 230 with opportunity for concentration in the medium. Some experiment in glazing. Prerequisite: ART 230.

ART 331 Sculpture
3 hrs.
Development of individual sculptural direction: all media. Advanced welding, molding and casting techniques are among the media explored. Prerequisite: ART 231 or consent of department.

ART 338 Jewelry and Metalsmithing
3 hrs.
Intermediate level metalsmithing work. Continued skill development in jewelry design, stone setting, and solder fabrication. Basic lapidary work usually included. Prerequisite: ART 238.

ART 340 Painting II
3 hrs.
Continuation of ART 240. Prerequisite: ART 240.

ART 341 Intaglio and Relief
3 hrs.
An intermediate course continuing the investigation of basic and advanced Intaglio and Relief techniques with the introduction of color printing. The artist-student should begin to discover and adapt media and/or techniques (or synthesis of media and/or techniques) appropriate to individual aesthetic intentions. Prerequisite: ART 241.

ART 342 Watercolor
3 hrs.
Advanced problems in watercolor techniques to include composition. Prerequisite: ART 242.

ART 343 Lithography
3 hrs.
An intermediate investigation of Lithography based on basic skills with the introduction of color printing and other advanced techniques. The artist-student should begin to discover methods and techniques adaptable and appropriate to his aesthetic intent. Prerequisite: ART 243.

ART 344 Hand Papermaking
3 hrs.
The techniques of producing paper to be used as support for various medias. Prerequisite: ART 244.

ART 345 Graphic Design
3 hrs.
The study and practice of graphic design for two-dimensional media. Emphasis is placed on the conceptual development of geometric, figurative, and decorative imagery for posters, covers, promotional, magazine and newspaper advertising. Includes thematic development, graphic planning, comprehensive and finished art production. Prerequisite: ART 245.

ART 346 Screenprint
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 method of technique appropriate to their aesthetic intent. Prerequisite: ART 246.

ART 348 Photography
3 hrs.
Introduction to the view camera, color processing/printing, and various studio lighting techniques involved in product photography. Emphasis is placed upon exploring the potential of color photography and the development of individual imagery. Prerequisite: ART 248 and ownership of a 35mm slr or 2 ½ x 2 ½ camera.

ART 352 Preparation for Art Teaching (Elementary)
3 hrs.
A teaching laboratory course designed to familiarize the elementary art teacher with teaching philosophies, methods and creative teaching procedures using varied media, and materials. Emphasis is placed upon qualitative art programming in the elementary school. Prerequisite: ART 252.

ART 356 Computer Imaging II
3 hrs.
Exploration of computer graphics as an art medium and as an auxiliary to other media. Experimentation with various programs, development of an integrative approach to composing images and pictures, and exploration of hard copy output. Prerequisite: ART 256 or equivalent experience.

ART 345 Graphic Design
3 hrs.
The fundamentals and procedures of graphic design for sequential, three-dimensional and serial forms. Problems in design continuity and coordination are explored through editorial, corporate identity, campaign, product, and packaging design. Incorporates investigation of graphic design processes and papers. Prerequisite: ART 345.

ART 452 Preparation for Art Teaching (Secondary)
3 hrs.
A teaching laboratory course specifically designed to familiarize the middle and high school art teacher with philosophies, methods and creative teaching procedures using varied media and materials. Emphasis is placed upon qualitative art programming in the secondary school. Prerequisite: ART 352 and art major status.

ART 490 Graduation Presentation—Painting/Watercolor
1 hr.
Preparation and presentation of graduating exhibition in painting/watercolor, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major advisor. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 491 Graduation Presentation—Sculpture
1 hr.
Preparation and presentation of graduating exhibition in sculpture, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major advisor. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 492 Graduation Presentation—Graphic Design
1 hr.
Preparation and presentation of graduating exhibition in graphic design, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major advisor. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 493 Graduation Presentation—Photography
1 hr.
Preparation and presentation of graduating exhibition in photography, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major advisor. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 494 Graduation Preparation—Printmaking
1 hr.
Preparation and presentation of graduating exhibition in printmaking, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major advisor. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 495 Graduation Presentation—Jewelry and Metalsmithing
1 hr.
Preparation and presentation of graduating exhibition in jewelry and metalsmithing, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major advisor. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 496 Graduation Presentation—Ceramics
1 hr.
Preparation and presentation of graduating exhibition in ceramics, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major advisor. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 500 Independent Studies
1-6 hrs.
An opportunity for qualified undergraduates to elect an area of special interest and pursue it in depth. Prerequisite: Permission of department. Repeatable for credit.

ART 510 Drawing Workshop
1-6 hrs.
Continuation of ART 310. Prerequisite: ART 310. Repeatable for credit.

ART 520 Independent Study in Art History
2-3 hrs.
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: ART 220, ART 221 and an ART 500 level course in the area of interest; permission of department. Repeatable for credit.

ART 521 Topics in Art History: Variable Topics
3 hrs.
Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Prerequisites: ART 220, ART 221 for majors. None for other students. Repeatable for credit under a different title.
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, metals, or textiles. 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 graphic 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 545 Graphic Design 3 hrs.
Continuation of ART 445. Prerequisite: ART 445. Repeatable for credit.

ART 548 Photography 1-6 hrs.
Professional development through research in advanced projects. Prerequisite: ART 348. Repeatable for credit.

ART 552 Preparation for Art Teaching 3 hrs.
A course dealing with: the current problems in issues on the social scene which affect teaching and learning in the visual arts at all levels of the public school, the creative person, product, process, and press (environment), phenomena of perceptual learning; the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Prerequisites: ART 452 and art major status.

ART 553 Independent Studies in Art Education 1-6 hrs.
An arranged elective course in which the student investigates and researches a problem, a project, or trends in art education. (Not to be taken in place of required art education courses.) Prerequisites: ART 252, ART 352. ART 452, ART 552 and permission of the art education chairman. This course is open to graduate and non-degree level students.

ART 560 Arts Education for the Elementary Teacher 3 hrs.
A studio course for the elementary classroom teacher to provide experiences in qualitative elementary art and integrated arts programming in the elementary public school. Repeatable for credit.

ART 581 History of Ancient Art 3 hrs.
Selected topics from the art and architecture of ancient Egypt, the ancient Near East, the Aegean proto-Greek, Classical and Hellenistic Greece, Etruria, and Rome to the Early Christian period. Prerequisite: ART 220.

ART 583 History of Medieval Art 3 hrs.
Discussion of art and architecture from the decline of the Roman Empire through the Gothic Period (Third to Thirteenth Centuries). Prerequisite: ART 220.

ART 585 History of Renaissance Art 3 hrs.
The development of art through the early Renaissance to the Late Renaissance and Mannerism. Some of the major artists discussed are: Giotto, Donatello, Da Vinci, Michelangelo, Titian, Van Eyck, Brueghel and Durer. Prerequisite: ART 221.

ART 586 History of Baroque Art 3 hrs.
Art of the late Sixteenth, Seventeenth, and early Eighteenth Centuries. Major artists and architects discussed are: Caravage, the Carracci, Rembrandt, Rubens, Poussin, Velasquez, Bernini, Borromini, and Neumann. Prerequisite: ART 221.

ART 587 History of American Art Colonial to 1900 3 hrs.
Art in the United States from the Colonial Period to 1900. Emphasized are Federal and Georgian Eighteenth Century styles, Nineteenth Century Realism, Romanticism and Nativism genesis and development of distinctly "American" consciousness and styles. Prerequisite: ART 221.

ART 588 History of Nineteenth Century European Art 3 hrs.
Major developments, such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism are discussed. Key figures whose works lie at the roots of modern art are considered in relationship to their times. Prerequisite: ART 221.

ART 589 History of European Art 1900-1945 3 hrs.
Emphasis is placed upon the roots of contemporary trends and the contributions of individuals to new modes of presentation. Major developments including Fauvism, Cubism, Expressionism, and Surrealism are discussed. Prerequisite: ART 221.
DANCE

Trudy Cobb Dennard, Chair
Jane Baas
Wendy Cornish
Lyle Juracek
Eugene Mills
Nina Nelson
Lindsey Thomas

The Department of Dance seeks to fulfill its responsibility to further the development of the art in Michigan through: creating and publicly producing dance which reflects the highest aesthetic standards; sponsoring events which enrich the dance life of the community; and providing an outreach of dance experiences which have artistic and educational value. For the general student, the department provides the opportunity to experience the joy of participation and the value of viewing dance as an art form. Through teaching and co-curricular activities, the faculty endeavors to produce versatile graduates who delight in the practice of dance, who can integrate theory and practice with discerning sensibilities, who have a firm foundation which to carve their own careers, who have the conviction to hold firm in their aesthetic goals and who have the skills necessary for survival in an ever-changing field. The department faculty is committed to the ongoing renewal of teaching resources and skills while contributing to the field through the practice of the craft, service to professional organizations. Western Michigan University is an accredited institutional member of the National Association of Schools of Dance.

Programs

The Department of Dance offers three programs in dance: Bachelor of Fine Arts in Dance, Bachelor of Arts in Dance, and a Dance Minor. The Bachelor of Fine Arts degree program emphasizes the aesthetic, choreographic and performance training of the student. Graduates of this pre-professional program will have a foundation in dance skills and knowledge required for employment at a professional level. The Bachelor of Arts degree program offers the student the opportunity to explore the diversity of the dance profession and allows the election of a minor or second major outside the dance area. Graduates of this program will be equipped to contribute to the growth of the art of dance. The Dance Minor is designed for students who wish to continue their dance studies as an avocation or as an enhancement of their major studies. For additional information, please refer to specific Program Requirements.

Courses for General Students in Partial Fulfillment of the University Physical Education Requirement

Introductory dance courses are offered for general students. One of the following dance courses may be used for one of the hours in the physical education requirement for graduation: DANC 101, 102, 103, 104, 111, 112, 114 and 181. A $10 fee is required for each student enrolled in DANC 101, 103, 111 and 114 in order to provide a musical accompanist. A $3 fee is required for each student enrolled in DANC 102, 104, and 112 to provide for current recorded music.

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 Admissions and Orientation. Enrollment in all dance programs at WMU is contingent upon admission to the University and approval of the Department of Dance. Department approval is obtained at an audition by: taking a technique class in ballet, jazz and modern; placing in at least technique level I in two dance idioms; and submitting a completed department application form. Auditions are normally conducted in November, February, and April. It is strongly recommended that prospective students attend either the fall or winter Audition. Students will not be allowed to enroll in dance technique courses at the dance major level until they have successfully auditioned.

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 160 Choreography I; DANC 181 Improvisation and at least one dance major theory course. The status of transfer students 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 application or petition. Audition schedules and information, as well as petition deadlines, are available from the Department of Dance upon request. The Department welcomes the opportunity to confer with prospective students, parents and counselors regarding educational goals and plans.

Transfer Credit

Dance credit from other institutions transfers as a direct equivalent to a WMU course, as an unspecified dance credit, or as credit by department recommendation only. Transfer students should schedule an appointment with the dance academic advisor immediately after admission to the University to evaluate dance credits taken at other institutions.

Advising

Dorothy U. Dalton Center, Room 3117; (616) 387-5840

Upon admission to the University and acceptance into the dance program, each major and minor student should complete a Declaration Form with the dance academic advisor. It is the responsibility of the student to make an appointment with the advisor each semester in order to prepare for the next semester’s registration. Each student should meet with the advisor during his/her junior year to secure a Graduation Audit Statement before registration for the final semester.

The dance academic advisor is also available to counsel students on selection of appropriate majors/minors, selection of General Education courses, and other University requirements. Matters which are beyond his/her qualifications will be referred to offices, on- and off-campus, qualified to assist.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog in effect at the time the student is admitted. Requirements cannot be added during the student’s enrollment, but the student may take advantage of course and curriculum alterations if these changes enhance the student’s education. Each student is responsible for knowing the requirements of the degree and for taking the steps necessary for completion of these requirements. All dance students are urged to take advantage of advising services in the Department of Dance for major level work in making educational choices and for interpretation of requirements stated in the Undergraduate Catalog.

Miscellaneous

FOCUS OF MAJOR TECHNIQUE COURSES

Ballet courses are taught according to the Russian method and piano accompaniment is provided. Modern courses emphasize anatomical principles and movement efficiency using movement material from technique styles such as Cunningham, Hawkins, and Limon. Piano or percussion accompaniment is provided. Jazz courses utilize technique principles of both ballet and modern through a stylistic blend of lyrical and percussive movement. Recorded and/or live accompaniment is used in jazz courses.

MAJOR TECHNIQUE COURSE PROGRESSION

It is expected that the dance major/minor will spend at least two semesters in each level of technique. The dance major/minor will be required to continue their dance studies as an avocation or as an enhancement of their major studies. Graduates who delight in the practice of dance, who can integrate theory and practice with discerning sensibilities, who have a firm foundation which to carve their own careers, who have the conviction to hold firm in their aesthetic goals and who have the skills necessary for survival in an ever-changing field. The department faculty is committed to the ongoing renewal of teaching resources and skills while contributing to the field through the practice of the craft, service to professional organizations. Western Michigan University is an accredited institutional member of the National Association of Schools of Dance.

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Dance credit from other institutions transfers as a direct equivalent to a WMU course, as an unspecified dance credit, or as credit by department recommendation only. Transfer students should schedule an appointment with the dance academic advisor immediately after admission to the University to evaluate dance credits taken at other institutions.

Advising

Dorothy U. Dalton Center, Room 3117; (616) 387-5840

Upon admission to the University and acceptance into the dance program, each major and minor student should complete a Declaration Form with the dance academic advisor. It is the responsibility of the student to make an appointment with the advisor each semester in order to prepare for the next semester’s registration. Each student should meet with the advisor during his/her junior year to secure a Graduation Audit Statement before registration for the final semester.

The dance academic advisor is also available to counsel students on selection of appropriate majors/minors, selection of General Education courses, and other University requirements. Matters which are beyond his/her qualifications will be referred to offices, on- and off-campus, qualified to assist.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog in effect at the time the student is admitted. Requirements cannot be added during the student’s enrollment, but the student may take advantage of course and curriculum alterations if these changes enhance the student’s education. Each student is responsible for knowing the requirements of the degree and for taking the steps necessary for completion of these requirements. All dance students are urged to take advantage of advising services in the Department of Dance for major level work in making educational choices and for interpretation of requirements stated in the Undergraduate Catalog.

Miscellaneous

FOCUS OF MAJOR TECHNIQUE COURSES

Ballet courses are taught according to the Russian method and piano accompaniment is provided. Modern courses emphasize anatomical principles and movement efficiency using movement material from technique styles such as Cunningham, Hawkins, and Limon. Piano or percussion accompaniment is provided. Jazz courses utilize technique principles of both ballet and modern through a stylistic blend of lyrical and percussive movement. Recorded and/or live accompaniment is used in jazz courses.
Bachelor of Arts in Dance

REQUIREMENT
Bachelor of Fine Arts in Dance

80 hours

Students may petition for entrance into the BFA program after completion of:

1. at least one semester each of ballet, jazz, and modern major technique courses
2. DANC 180 Choreography I
3. DANC 181 Improvisation
4. at least one dance theory course

Eligibility of transfer students to petition will be determined on an individual basis by the dance department advisor.

Continuation in the BFA program will be determined by the dance faculty during the second semester of the student's enrollment. In order to continue in the BFA program, the student must demonstrate potential to succeed as a professional dancer and/or choreographer, have completed and/or be currently enrolled in at least one technique course in ballet, jazz, and modern; have at least B-level skills in technique and performance; and have demonstrated professional commitment in dance coursework and dance-related activities. Any student discontinued from the program may reapply for the BFA after a minimum of one additional semester at WMU.

By the end of the student's junior year, the BFA student must create and perform a solo dance in a public showing which exhibits his/her choreographic, technical, and performance skills. At this time, the student must also submit an essay addressing his/her strengths and weaknesses in choreography, technique and performance. In order to enroll in DANC 480 Graduating Presentation, the dance and essay must be acceptable to the dance faculty.

A grade of "C" or better is mandatory in all required dance courses and MUS 185 and 285.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Dance major will satisfy the Baccalaureate Writing Requirement by successfully completing DANC 345 Dance History II.

REQUIREMENT
DANC 345 Dance History II.

REQUIREDS COURSES IN TECHNIQUE AND PERFORMANCE—10 total hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisite(s)</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>DANC 180</td>
<td>Choreography I</td>
<td>Consent of advisor</td>
<td>2</td>
</tr>
<tr>
<td>DANC 280</td>
<td>Dance Improvisation</td>
<td>(Prereq: 180, 181)</td>
<td>1</td>
</tr>
<tr>
<td>DANC 380</td>
<td>Choreography III</td>
<td>(Prereq: 280)</td>
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</tr>
<tr>
<td>DANC 480</td>
<td>Graduating Presentation</td>
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REQUIREDS COURSES IN THEORY—21 total hours

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisite(s)</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>DANC 245</td>
<td>Dance History I</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>DANC 295</td>
<td>Kinesiology for the Dancer</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>DANC 345</td>
<td>Dance History II</td>
<td>(Prereq: 295)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 385</td>
<td>Introduction to Dance Notation</td>
<td>(Prereq: 110, 130, and 185)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 389</td>
<td>Dance Production</td>
<td></td>
<td>2</td>
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<tr>
<td>DANC 445</td>
<td>Senior Seminar</td>
<td>(Prereq: 345)</td>
<td>2</td>
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<tr>
<td>MUS 185</td>
<td>Music Fundamentals for Dancers</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>MUS 285</td>
<td>Musical Style and Form for Dancers</td>
<td>(Prereq: MUS 185)</td>
<td>2</td>
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</table>

RELATED STUDIES—18 total hours

The Department of Dance believes that the professionally oriented student must augment his/her education via study in the related arts and sciences which complement specific career goals. The student will consult with the dance academic advisor in selecting 18 hours from the courses listed below, some of which may also meet General Education requirements:

- ANTH 220 Cultural Anthropology
- ANTH 370 Culture and Communication
- ART 140 Studio Experience (2-D)
- ART 220 History of Art
- ART 221 History of Art
- ART 148 OR
- DANC 148 OR
- DANC 148 OR
- MUS 148 OR
- THEA 148 Direct Encounter with the Arts
- BIOS 112 Introduction to Biomedical Sciences
- BIOS 211 Human Anatomy (Prereq: BIOS 112)
- ED 230 The Nature of Creativity
- ENGL 105 Thought and Writing
- ENGL 110 Literary Interpretation
- ENGL 150 Literature and Other Arts
- ENGL 305 Practical Writing
- FREN 100 Basic French
- FREN 101 Basic French (Prereq: 101 or equivalent)
- HIST 315 Popular Art and Architecture in America
- MGMT 210 Small Business Management
- MUS 150 Music Appreciation: Live Music
- MUS 151 Music Appreciation: Jazz/Pop
- MUS 350 American Music
- MUS 352 Non-Western Music
- MUS 450 Music Appreciation: The Symphony
- PHIL 200 Introduction to Philosophy
- PHIL 312 Philosophy of Art
- REL 311 Myth and Ritual
- THEA 100 Introduction to Theatre

REQUIREDS COURSES IN CHOREOGRAPHY/THEORY—7 total hours

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<tr>
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<th>Prerequisite(s)</th>
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</thead>
<tbody>
<tr>
<td>DANC 180</td>
<td>Choreography I</td>
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<td>2</td>
</tr>
<tr>
<td>DANC 181</td>
<td>Improvisation</td>
<td></td>
<td>3</td>
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<tr>
<td>DANC 142</td>
<td>Acting I</td>
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</table>

Bachelor of Arts in Dance

42 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 dance academic advisor to receive the faculty feedback and discuss future curricular planning.

A grade of "C" or better is mandatory in all required courses.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Dance major will satisfy the Baccalaureate Writing Requirement by successfully completing DANC 345 Dance History II.

REQUIREDS 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. The student must elect at least one course in each of the following areas: ballet technique, jazz technique, modern technique, and performance (DANC 460, 465). The student must complete at least one semester of one of the following: DANC 310, 320, 330.

<table>
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<td>Dance Improvisation</td>
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<tr>
<td>DANC 280</td>
<td>Choreography II</td>
<td>(Prereq: 180, 181)</td>
<td>2</td>
</tr>
<tr>
<td>DANC 380</td>
<td>Choreography III</td>
<td>(Prereq: 280)</td>
<td>2</td>
</tr>
<tr>
<td>MUS 185</td>
<td>Music Fundamentals for Dancers</td>
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<td>2</td>
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REQUIREDS COURSES IN CHOREOGRAPHY—7 total hours

<table>
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<td>DANC 385</td>
<td>Introduction to Dance Notation</td>
<td>(Prereq: 110, 130, and 185)</td>
<td>2</td>
</tr>
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<td>DANC 389</td>
<td>Dance Production</td>
<td></td>
<td>2</td>
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<tr>
<td>MUS 185</td>
<td>Music Fundamentals for Dancers</td>
<td></td>
<td>2</td>
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<td>Musical Style and Form for Dancers</td>
<td>(Prereq: MUS 185)</td>
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REQUIREDS COURSES IN THEORY—17 total hours

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<tbody>
<tr>
<td>DANC 245</td>
<td>Dance History I</td>
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<tr>
<td>DANC 295</td>
<td>Kinesiology for the Dancer</td>
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<td>3</td>
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<tr>
<td>DANC 345</td>
<td>Dance History II</td>
<td>(Prereq: 295)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 385</td>
<td>Introduction to Dance Notation</td>
<td>(Prereq: 110, 130, and MUS 185)</td>
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<td>DANC 389</td>
<td>Dance Production</td>
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<tr>
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<td></td>
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</tr>
<tr>
<td>MUS 285</td>
<td>Musical Style and Form for Dancers</td>
<td>(Prereq: MUS 185)</td>
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</table>

Dance Minor

24 hours

REQUIREDS COURSES IN TECHNIQUE—12 total hours

Twelve hours from dance major technique courses including at least one course in each of the three forms: Ballet Technique (110, 210, 310); Jazz Technique (120, 220, 320); Modern Technique (130, 230, 330).

REQUIREDS COURSES IN CHOREOGRAPHY/THEORY—6 total hours

<table>
<thead>
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<tr>
<td>DANC 245</td>
<td>Dance History I</td>
<td></td>
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<tr>
<td>DANC 180</td>
<td>Choreography I</td>
<td>(Prereq: consent of advisor)</td>
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</tbody>
</table>
Dance Courses (DANC)

DANC 101 Beginning Ballet I ($10)
1 hr.
An introduction to ballet technique for the beginning general student.

DANC 102 Beginning Jazz I ($3)
1 hr.
An introduction to jazz technique for the beginning general student.

DANC 103 Beginning Modern I ($10)
1 hr.
An introduction to modern technique for the beginning general student.

DANC 104 Beginning Tap I ($3)
1 hr.
An introduction to tap technique for the beginning general student.

DANC 110 Ballet Technique I ($31)
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 alignment, range of movement, dynamic quality, rhythmic accuracy and the application of kinesiological principles. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

DANC 111 Beginning Ballet II ($10)
1 hr.
Continued development of elementary ballet technique for the general student. The emphasis is placed on control, balance and musicality through the Russian method of training. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: DANC 101.

DANC 112 Beginning Jazz II ($3)
1 hr.
Continued development of jazz technique beyond the introductory level for the general student. Lyrical integration of isolated movements with emphasis on dynamics, style and performance is stressed. Prerequisite: DANC 102.

DANC 114 Beginning Tap II ($10)
1 hr.
Continued development of tap technique beyond the introductory level for the general student. Rhythmic combinations, turns and stylized arm movements are emphasized. Prerequisite: DANC 104.

DANC 120 Jazz Technique I ($31)
2 hrs.
An introduction to the art of jazz dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, movement isolation, rhythmic awareness, basic vocabulary and both percussive and free-flow combinations. Students will continue in DANC 120 until advanced to DANC 220 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

DANC 130 Modern Technique I ($31)
2 hrs.
An introduction to the art of modern dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, range of movement, dynamic quality, rhythmic accuracy and the application of kinesiological principles. Students will continue in DANC 130 until advanced to DANC 230 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

DANC 148 Direct Encounter with the Arts ($40)
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, MUS 148, THEA 148. May be taken only once from College of Fine Arts Departments.

DANC 180 Choreography I
2 hrs.
A practical experience in dealing with the basic elements of dance composition. Emphasis will be placed on solo choreographic studies. Prerequisite: Advisor consent.

DANC 181 Dance Improvisation
1 hr.
Exploration of movement through spontaneous problem-solving. The course is designed to evoke the student's creative individuality and sense of ensemble.

DANC 210 Ballet Technique II ($31)
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 ($31)
2 hrs.
A development of jazz technique at the intermediate level. Emphasis is on lyrical integration of isolated movements, sequential combinations involving multiple turns, and skills in performance and quick study. Students will continue in DANC 220 until advanced to DANC 320 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique I instructor.

DANC 230 Modern Technique II ($31)
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 Dance History I
3 hrs.
A survey of the purposes, functions, and manifestations of dance from primitive cultures through the nineteenth century. Distinctions are made between ritual, ceremony, and entertainment in the study of primitive, pre-Christian, medieval, Renaissance, and Romantic periods. Relationships are made between dance and general cultural developments of each period.

DANC 280 Choreography II
2 hrs.
Further exploration of the compositional elements as used in group choreography. Prerequisite: DANC 180 and DANC 181.

DANC 290 Teaching of Dance in the Elementary School
3 hrs.
This course covers the principles, materials, and techniques of teaching creative movement and dance activities to elementary school children as they can be applied in various learning environments. Lecture, observation, and laboratory experiences are provided.

DANC 295 Kinesiology for the Dancer
3 hrs.
This course is concerned with analysis of movement from an anatomical and mechanical point of view, with special attention given to the problems of dance techniques.

DANC 310 Ballet Technique III ($31)
2 hrs.
Ballet technique for the advanced/pre-professional student in the classical idiom. Emphasis is placed on complex movement sequences, ensemble awareness, pointe technique and men's combinations. Repeatable for credit. Prerequisite: Placement audition or approval of Ballet Technique II instructor.

DANC 320 Jazz Technique III ($31)
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 330 Modern Technique III ($31)
2 hrs.
Technique for the advanced/pre-professional student in the modern idiom. Emphasis is placed on the ability to quickly analyze and skillfully reproduce complex movement combinations within the technique. Performance skills are emphasized throughout the course. Repeatable for credit. Prerequisite: Placement audition or approval of Modern Technique II instructor.

DANC 345 Dance History II
3 hrs.
A survey of the purposes, functions, and manifestations of dance from the beginning of the twentieth century to the present. Relationships are made between dance and...
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, 130, and MUS 185.

DANC 389 Dance Production 2 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 MFA 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.

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 498 Readings in Dance 1-4 hrs.
Advanced undergraduate students with good academic standing may elect to independently pursue a program of readings in special interest. Repeatable for credit up to 4 hours. Prerequisite: Approval 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.

DANC 598 Readings in Dance 1-4 hrs.
Advanced 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 599 Non-Reading Independent Study in Dance 1-4 hrs.
Advanced 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.

DANC 400 Practicum 1-4 hrs.
An individual approach to a practical field experience in dance. The student must file an approved application for higher 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: Approval application required.

DANC 425 Special Studies in Dance 1-6 hrs.
A study of areas in dance not included in existing courses. Examples of possible topics include: pedagogy, repertory, Afro-American dance, pre-classic dance forms, 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 445 Senior Seminar 2 hrs.
An exploration of current trends, literature and developments in dance in a seminar format culminating in a research project. Students will discuss, compare and analyze ideas generated by assigned readings and the research process. Prerequisite: DANC 345 and senior standing.

DANC 460 Performance Variable
An experience in student or faculty choreographed dance works, in projects not encompassed in specific dance courses. Application with approval of dance faculty committee must be filed with the dance advisor one month prior to performance. Registration occurs after performance has been completed. Repeatable for credit up to 4 hours. Prerequisite: Advisor consent.

DANC 465 University Dance Theatre (UDT) 1-6 hrs.
UDT is a performing ensemble which provides 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. Repeatable for credit. Prerequisite: Sophomore, Junior or Senior standing required and audition or consent of company director.

DANC 480 Graduating Presentation 3 hrs.
The preparation and presentation of an advanced choreographic project.
Programs
The School of Music offers courses of study that lead to the Bachelor of Music, the Bachelor of Science, and the Bachelor of Arts degrees. The Bachelor of Music degree offers the student an opportunity to elect a major in music. The Bachelor of Science degree offers the student the opportunity to major in music and minor in another academic area. The Bachelor of Arts degree offers the student the opportunity to elect a major in music and minor in another academic area.

Three majors carry certification upon completion of degree requirements: the Bachelor of Music with a major in music therapy carries certification as a Registered Music Therapist upon completion of a six-month internship; the Bachelor of Music with a major in music education carries certification to teach music in the public schools, grades K-12; the Bachelor of Science with a major in music and a minor in elementary education carries certification to teach in the elementary classroom and to teach as a music specialist in the classroom, grades K-8.

A music minor program is offered through the School of Music, which provides students who have a background in music and who wish to extend their formal education in that field of study. Those students seeking a music minor must secure a 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 Admission and Orientation for undergraduate students. Admission forms may be obtained by writing to the Office of Admission and Orientation. Enrollment in a music curriculum is contingent upon admission to the University and approval of the School of Music. School approval is obtained through the music audition program. The student may proceed by making application to the University at which time notification will be sent about the audition program in the School of Music, or a request may be made for an opportunity to audition. The student is urged to commence application procedures early in the senior year, or in the final year at a community college.

Approval to become a music major is based upon the student's background in music, as demonstrated on the major instrument or voice, the student's musical aptitude, and upon academic abilities reflected in grade point average and various scholastic test scores as they are available. Efforts are made to evaluate the student on the basis of the potential and not upon desire to enter a specific professional area of music. All students commence a major in music with common "core" requirements and are, therefore, required for entry into the major with this common basis in mind.

A student considering a music major should have a good background in applied music (instrumental or vocal study or performance). Preparation in piano, as a secondary instrument, is also helpful to the student, but not requisite. Prior to entrance into Basic Music 160, which is required of all music majors in the first year of study, the student must demonstrate knowledge of fundamentals. A fundamentals examination will be administered at the time the student is initially advised about classes.

The School of Music's audition and testing program has helped many students make a more intelligent choice regarding their educational careers. Further information regarding audition to a music curriculum may be obtained by writing the Music Student Advisor in the School of Music. The School of Music in order that the student may have a major in music education or music therapy as a major in music education or music therapy.

Transfer Credit
Music credit from another institution is normally acceptable providing course substance is equivalent to a similar course in the student's curriculum at Western and the student has earned a grade of "C" or better in that course. No credit hours exceeding the number granted for parallel work at Western will be accepted for transfer from another institution. In order to earn a Bachelor of Music degree from Western Michigan University, a student may not transfer more than thirty-seven (37) semester credit hours in music courses taken at a community college toward music curriculum requirements. If the "Performance Electives" requirement has not been completed at the time of transfer, at least two of the remaining hours must be completed in music. 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 demonstration and/or examination, which precludes the automatic transfer of credit in these areas.

Presumably, the transfer student will have completed many of the core requirements (see below) before enrolling at Western. In that case, the student must elect a major area of concentration within the music curriculum prior to enrolling at Western. Acceptance in the major will be automatic but certain requirements must be met in order to remain in that major. In order to maintain good standing as a music major, the student must maintain good standing as a music major, as demonstrated on the major instrument or voice, the student's musical aptitude, and upon academic abilities reflected

Advising
Advising: 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 and major/minor requirements can be provided by consulting the music student advisor. Only when a student pursues a minor outside of the School of Music is an appointment required with another advisor.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog, which is in effect at the time the student is admitted. Requirements may not be added in the midst of the student's enrollment, but the student may take advantage of course and curriculum alterations that may occur while work on the degree is in progress if these changes enhance the student's education. Each student is responsible for knowing the requirements that apply for the degree and for taking the steps necessary for completion of requirements. All music majors are urged to take advantage of the advising services in the School of Music for assistance in making educational choices and for interpretation of requirements as they are stated in the Undergraduate Catalog.

Miscellaneous
In addition to required coursework, all students must satisfy additional requirements in recital performance and recital attendance.

The requirements for recital attendance: 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 semester will be excused. Any absences beyond one will be recorded in the student's file. Absences must be made up by attending other performances. School of Music concerts and recitals in which the student is not a participant. Absences in the student's record which have not been made up will prevent graduation.

The requirements for recital performance are as follows:

1. Bachelor of Music candidates with a major in music performance must present a Senior Recital which is approved by and acceptable to the faculty of the respective performance area.

2. Bachelor of Music candidates with a major in music performance must present at least one successful solo performance on a student recital(s) (scheduled public recitals, convocations, or area recitals) prior to graduation. Individual students may be required to give additional performances on student recitals at the discretion of their private teachers.

Prerequisite to performance on any student recital shall be a recommendation by the student's applied teacher. Prerequisite to the presentation of Junior and Senior Recitals is an approved hearing of that recital by the student's area faculty. Recitals should be scheduled in the Concerts Office in the School of Music as far in advance as possible.

Competency Examinations are available to students who qualify for advanced placement or a waiver of requirements in music courses even if no formal education at the college level may have been completed. Common areas of competency are applied music, secondary instruments, and music theory.

Examinations may be scheduled in these areas to allow qualified students to demonstrate competency.

In the event that a student demonstrates competency in an area of study that is required in the curriculum, the student may elect two alternatives for fulfilling degree
## Core Requirements—Bachelor of Music Degree

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music Convocation 101 (7 semesters)</td>
<td>7</td>
</tr>
<tr>
<td>*Applied Music 200, 300 (see Electives below)</td>
<td>14</td>
</tr>
<tr>
<td>Basic Music 160, 161, 260, 261</td>
<td>12</td>
</tr>
<tr>
<td>Aural Comprehension 162, 163, 259, 265</td>
<td>4</td>
</tr>
<tr>
<td>History or Theory Elective (see Electives below)</td>
<td>2</td>
</tr>
<tr>
<td>*Music History and Literature 270, 271</td>
<td>6</td>
</tr>
<tr>
<td>*Performance Elective (see Electives below)</td>
<td>8</td>
</tr>
<tr>
<td>Keyboard Fundamentals 120-121</td>
<td>2</td>
</tr>
<tr>
<td>Conducting 215</td>
<td>1</td>
</tr>
<tr>
<td>General Education Electives</td>
<td>35</td>
</tr>
<tr>
<td>Major Area of Concentration</td>
<td>13 41</td>
</tr>
<tr>
<td>Pre-Electives (to be taken a minimum of 122 semester credit hours)</td>
<td></td>
</tr>
</tbody>
</table>

**Music Clearance** (verification of completion of recital performance and attendance requirements).

### 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, 113, 114.

2. The remaining four semester hours of performance electives may be selected from the following:

### Requirements

- **Electing a Major Area of Study—Bachelor of Music Degree**
  - Music majors will elect a major area of concentration in the fourth semester of study. The student will be accepted in the area of choice if he/she qualifies under the following guidelines:
    - **Music History, Composition, Theory, Therapy**
      - The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major.
    - **Music Performance and Jazz Studies**
      - The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major, as well as be approved for this major by taking a performance qualifying examination which should be passed not later than the Sophomore Hearing.

### Baccalaureate Writing Requirement

Students who have chosen any music major will satisfy the Baccalaureate Writing Requirement by successfully completing MUS 302 Non-Western Music.

### Major Assessment Requirement

All music majors must participate in major assessment by taking the Music Field Achievement Test (ETS). This examination is offered only once each fall and winter semester. Students are eligible to take this test once 88 credit hours have been completed.

- **Core Requirements—Bachelor of Music Degree**

- **Music History**
  - MUS 118, 119, 210 or 211.
  - Music Theory 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.
  - **Music Education: Choral/General Music** majors complete only 7 semesters of Performance Electives. It is recommended that all Music Education majors have at least one jazz experience/ensemble.
  - **Music Education: Instrumental** majors complete only 6 semesters of Performance Electives plus 2 semesters of Marching Band (for Physical Education credit). Instrumental Education majors must also sing in Grand Chorus (or other choral ensemble) for two semesters. It is recommended that all Music Education majors have at least one jazz experience/ensemble.
  - All students wishing to earn a teaching certificate should have 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.

### Core Electives

- 1. All students are required to elect four semesters of a major ensemble. The major ensembles are: 107, 108, 110, 111, 112, 113, 114.
- 2. The remaining four semester hours of performance electives may be selected from the following:

### 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, 113, 114.

2. The remaining four semester hours of performance electives may be selected from the following:

### Requirements

- Music History majors are required to complete two semesters of MUS 517, Collegium Musicum.
- Theory electives may be selected from the following:
  - MUS 262, 360, 518, 555, 556, 560, 561, 562, 563, 564, 565, 566.
- Music History/Literature electives may be selected from the following list of courses:
  - MUS 570, 571, 572, 573, 574, 575, 576, 579, 580, 581, 582, 583, 584, 585, 586, 587.

### Electing a Major Area of Study—Bachelor of Music Degree

Music majors will elect a major area of concentration in the fourth semester of study. The student will be accepted in the area of choice if he/she qualifies under the following guidelines:

- **Music History, Composition, Theory, Therapy**
  - The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major.
- **Music Performance and Jazz Studies**
  - The student must have a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major, as well as be approved for this major by taking a performance qualifying examination which should be passed not later than the Sophomore Hearing.
- **Music Education and Elementary Education**
  - The student must have met the standards of the College of Education; must have completed all Music Core courses, with no grade of less than a "C" and a 2.3 average in these courses; and must complete the formal admission procedure as described in the Music Student Handbook.

Music Therapy students must earn a minimum grade point average of 3.0 in course work in the area of the major in order to be recommended for an internship (music therapy) for a directed 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)**

- General Music Methods 336
- Choral Techniques 339
- Methods Elective I
- Select one from the following: Choral Methods (340), Instrumental Methods I (344), String Methods (345)
- Teaching and Learning in Music 348
- Conducting 330
- Instrument elective
- Select one from the following: Fundamentals of Guitar (120), Fundamentals of the Band and Orchestra (279), Instruments of the Classroom (280).
- Methods Elective II
- Select from the following: Music for the Special Student (385), Technology in Music Education (386)

### Second Instrument

- Piano, Keyboard Musicanship 220, 221, 320, 321 and/or pass the exam administered by the Keyboard and Professional Education areas. Students who do not qualify for entry at 200 entry level must complete Keyboard Fundamentals (120 and/or 121) as a deficiency. No class is to be counted twice. Those students who test out of a
course or courses in the Keyboard Musicianship sequence will select courses from the instrument or methods elective areas to complete course requirements.

Voice
Pass exam for Keyboard Musicianship 220; given by the Keyboard and Professional Education Areas. The student should take Vocal Techniques for Music Educators 117 as part of four semesters of voice study. Four semesters of study are required, with one semester at 200 level voice.

College of Education Courses

Teaching of Reading (301) 3
Teaching/Learning in Jr. and Sr. High School and Society (395) 3
Seminar in Student Teaching (410) 2
Student Teaching (475) 10

Physical Education

Wind/Percussion students must complete two semesters of Marching Band (109) to fulfill physical education requirements. All other instrumental emphasis majors are also strongly urged to complete the requirement this way.

Before the student will be recommended for directed teaching, he/she must have completed all courses in the major with a minimum grade point average of 3.0. The application for directed teaching assignment must be made in the Office of Professional Field Experiences prior to one full semester before the assignment is to begin.

Music Therapy Major

Core (minus Music History/Literature elective) Courses in Music Therapy 281, 289, 290, 380, 381, 383, 472, 473, 479, 480, 481 22
* Keyboard Musicianship 220, 221, 320, 322 4
Fundamentals of Guitar 126 1
Voice Class 117 1
Instrumnetal Methods Elective I and II 2

Instruments of the Band and Orchestra 275, and instruments of the Music Classroom 280 2

Professional Electives: select from 123, 128, 129, 130, 133, 142, 143, 144, 145, 146, 366, 555, 558, Applied Music 300, Performance Electives (selected from electives listed under Core Requirements) 5

Psychology 100 and 250 6
Special Education 530 3

All music therapy majors who have passed a piano competency exam may be excused from any Keyboard Musicianship requirements except MUS 322.

The student must complete a 3.0 grade point average in the therapy major course or courses in the Keyboard Musicianship sequence. The 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. 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 coursework and which have been approved by the composition faculty.

Music Performance: Vocal Major

In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.5 in Applied 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 4
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 (Choral from 230, 231, 232) 2
Music electives 2

Junior 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 Distribution requirements. The language must be selected from the list of approved General Education Distribution courses.

Music Theory

Composition 262 2
Introduction to Musicology 570-571 6
Seminar in Music Theory 565 6
(2 semesters) 4
Music History/Literature Elective (see Electives above) 4

Counterpoint 560-561 4
Orchestration 567-568 4

Professional Electives (choose from Composition 263, Seminar in Electronic Music Composition 564, Seminar in Music Composition 362, Musical Aesthetics 566, Style Analysis 360, Improvisation 516, Jazz Arrangement 555, Jazz Pedagogy 558) 8

All Bachelor of Music: Music Theory candidates must pass a piano proficiency examination as outlined below.

Composition

Composition 262-263 4
Musical Acoustics 566 3
Seminar in Music Composition 362 8
Seminar in Electronic Music Composition 564 8
Counterpoint 560-561 4

Applied Music 100 (piano, string instrument, voice) — selection based on individual student's needs and instructor availability 6
Orchestration 567, 568 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. 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 coursework and which have been approved by the composition faculty.

Music Education: Instrumental Emphasis

Grants certification to teach music at any grade level (K-12) 18 hrs.

Instrumental Methods I (344) 2
Instrumental Methods II (347) 4
Choral Methods (340), or General Music Methods (336) 2

Teaching and Learning in Music (348) 2
Conducting (331) 2
Class Instruments 12 6

Band — Complete these courses:
Flute/Saxophone (142), 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 128 and 129 plus four courses from those listed above for band emphasis.

Music: Core Requirements

Core (minus Music History/Literature elective) Courses in Music Theory 281, 289, 290, 380, 381, 383, 472, 473, 479, 480, 481 22
* Keyboard Musicianship 220, 221, 320, 322 4
Fundamentals of Guitar 126 1
Voice Class 117 1
Instrumnetal Methods Elective I and II 2

Instruments of the Band and Orchestra 275, and instruments of the Music Classroom 280 2

Professional Electives: select from 123, 128, 129, 130, 133, 142, 143, 144, 145, 146, 366, 555, 558, Applied Music 300, Performance Electives (selected from electives listed under Core Requirements) 5

Psychology 100 and 250 6
Special Education 530 3

All music therapy majors who have passed a piano competency exam may be excused from any Keyboard Musicianship requirements except MUS 322.

The student must achieve a 3.0 grade point average in the therapy major course or courses in the Keyboard Musicianship sequence. The 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. 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 coursework and which have been approved by the composition faculty.

Music Performance: Vocal Major

In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.5 in Applied 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 4
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 (Choral from 230, 231, 232) 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 Distribution requirements. The language must be selected from the list of approved General Education Distribution courses.

Music Theory

Composition 262 2
Introduction to Musicology 570-571 6
Seminar in Music Theory 565 6
(2 semesters) 4
Music History/Literature Elective (see Electives above) 4
Counterpoint 560-561 4
Orchestration 567-568 4

Professional Electives (choose from Composition 263, Seminar in Electronic Music Composition 564, Seminar in Music Composition 362, Musical Aesthetics 566, Style Analysis 360, Improvisation 516, Jazz Arrangement 555, Jazz Pedagogy 558) 8

All Bachelor of Music: Music Theory candidates must pass a piano proficiency examination as outlined below.

Composition

Composition 262-263 4
Musical Acoustics 566 3
Seminar in Music Composition 362 8
Seminar in Electronic Music Composition 564 8
Counterpoint 560-561 4

Applied Music 100 (piano, string instrument, voice) — selection based on individual student's needs and instructor availability 6
Orchestration 567, 568 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. 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 coursework and which have been approved by the composition faculty.
All Bachelor of Music: Composition candidates must pass a piano proficiency examination as outlined below. It is recommended that the student also consider electing ART 120, ENGL 150, and THEA 100.

**Music History**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GER 200-201 and FREN 400 or FREN 200-201 and GER 400</td>
<td>12</td>
</tr>
<tr>
<td>Introduction to Musicology 570-571</td>
<td>6</td>
</tr>
<tr>
<td>Music History Electives (see Electives above)</td>
<td>10</td>
</tr>
<tr>
<td>Counterpoint 560-561</td>
<td>4</td>
</tr>
<tr>
<td>Professional Electives (choose from Composition 262, Seminar in Music Theory 565, Orchestration 567/568, Improvisation 518, Medieval Music 585, Renaissance Music 586)</td>
<td>4</td>
</tr>
</tbody>
</table>

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.

**Jazz Studies**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jazz Improvisation 555, 556</td>
<td>4</td>
</tr>
<tr>
<td>Jazz Improvisation 558, 559</td>
<td>4</td>
</tr>
<tr>
<td>Jazz History and Literature 583</td>
<td>4</td>
</tr>
<tr>
<td>Keyboard Musicianship 220, 221, 320, 321, 322</td>
<td>4</td>
</tr>
<tr>
<td>Counterpoint 560, 561</td>
<td>4</td>
</tr>
<tr>
<td>Electronic Media 594</td>
<td>2</td>
</tr>
<tr>
<td>Professional Electives (choose from Piano 100, Conducting 330/331, Composition 262/263, Seminar in Composition 564, Orchestration 567/568, Musical Acoustics 586)</td>
<td>2</td>
</tr>
</tbody>
</table>

All Bachelor of Music: Jazz Studies candidates are required to present a senior recital.

**Keyboard Requirements for Composition and Theory Majors**

All composition, and theory majors must demonstrate keyboard competency as a graduation requirement or for admission to candidacy for a graduate degree. Competency examinations will be from the keyboard area and from the area of the student's major. The student should be prepared to present "readings" of a wide range of literature with reasonable accuracy and musical integrity rather than attempt to achieve a performance level with a few compositions. Sight-reading ability is also expected. Functional skills related to the student's major shall be examined as follows:

**Theory/Composition**

1. Ability to harmonize at sight: Level: Oxford Folk Song Singsing Series—Book I
2. Play harmonized ascending and descending major and minor scales—all keys.
3. Ability to demonstrate in context the following:
   - All diatonic triads and seventh chords, including all inversions.
   - Chromatic chords including the following: secondary dominants, borrowed chords, augmented sixth chords, augmented dominant seventh chords, the Neapolitan sixth chord, diminished seventh chords, and half-diminished seventh chords.

**Bachelor of Arts Degree Music Curriculum**

<table>
<thead>
<tr>
<th>124 total hours</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Education Electives</td>
<td>35</td>
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<tr>
<td>2. Physical Education (Marching Band 109 substitutes)</td>
<td>2</td>
</tr>
<tr>
<td>3. A major in music: Music Convocation 101 (6 semesters)</td>
<td>0</td>
</tr>
<tr>
<td>Applied Music 200 (must pass sophomore hearing)</td>
<td>6</td>
</tr>
<tr>
<td>Basic Music 160-161, 260-261</td>
<td>12</td>
</tr>
<tr>
<td>Aural Comprehension 162, 163, 259, 265</td>
<td>4</td>
</tr>
<tr>
<td>Keyboard Fundamentals 120-121</td>
<td>2</td>
</tr>
<tr>
<td>Music History/Literature 270-271</td>
<td>8</td>
</tr>
<tr>
<td>Performance Electives (major ensemble)</td>
<td>4</td>
</tr>
<tr>
<td>Music Electives</td>
<td>12</td>
</tr>
<tr>
<td>4. A minor in another department in University (minimum) 15</td>
<td></td>
</tr>
<tr>
<td>[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 student may make an appropriate adjustment in the hours allowed for free electives.]</td>
<td></td>
</tr>
<tr>
<td>5. Free Electives</td>
<td>22</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

**Music Theatre Performer**

See "Interdisciplinary Program" in College of Fine Arts.

**Bachelor of Science Degree**

**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
- Basic Music 160
- Aural Comprehension 162

Minor must choose one of the following two groups:
- Applied Music 100
- Performance Electives (Select from 107, 108, 110, 111, 112, 113)
- Music Appreciation: Live Music 150
- American Music: History and Literature 150

**Electives** (10 to 14 hours) Select from:
- Keyboard Musicianship 120, 121, 220, 221, 320, 321, 322; Voice Class 122, 123; Music Appreciation 150, 151, 350, 352, 450; Basic Music 161, 260, 261, electives, Aural Comprehension 163, 259, 265; Conducting 215, 330, 331; Composition 262, 263, 362, 564; Music History and Literature 270, 271, electives, Jazz Studies 264, 555, 556, 558, 559, 563; Applied Music 100; Performance Electives 107, 108, 109, 110, 111, 112, 113, 114, 118, 119, 190, 210, 211, 212, 218, 317, 517; Other electives as approved by the music advisor.

**MUS 106 Western String Chamber Orchestra**

1 hr.

A select string ensemble that explores the finest string orchestra repertoire, from Baroque to the twentieth century. The group maintains an active on- and off-campus performance schedule and will require a strong commitment and desire for musical and technical excellence. Membership by audition only. Prerequisite: Audition.

**MUS 107 Treble Choir**

1 hr.

An ensemble of female vocalists which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.

**MUS 108 Collegiate Singers**

1 hr.

A choral ensemble which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.

**MUS 109 Marching Band**

1 hr.

The University Marching Band is the major performing ensemble for Fall football activities. Positions are open to all students who play wind or percussion instruments. Music Education: Instrumental majors who play a wind or percussion instrument are required to take this course during two Fall semesters. (Credit in Marching Band may be substituted for P.E. credit) 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.

**Ensembles**

MUS 106 Western String Chamber Orchestra (1 hr.)

A select string ensemble that explores the finest string orchestra repertoire, from Baroque to the twentieth century. The group maintains an active on- and off-campus performance schedule and will require a strong commitment and desire for musical and technical excellence. Membership by audition only. Prerequisite: Audition.

MUS 107 Treble Choir (1 hr.)

An ensemble of female vocalists which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.

MUS 108 Collegiate Singers (1 hr.)

A choral ensemble which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.

MUS 109 Marching Band (1 hr.)

The University Marching Band is the major performing ensemble for Fall football activities. Positions are open to all students who play wind or percussion instruments. Music Education: Instrumental majors who play a wind or percussion instrument are required to take this course during two Fall semesters. (Credit in Marching Band may be substituted for P.E. credit) 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.
The orchestra is open to all students who have attended and played during the year, and offers many fine compositions for its performance. Many fine compositions are written for the orchestra, and it joins with other campus organizations in joint programs. Instruments are available for the use of students. Membership is by audition.

**MUS 112 University Chorale**

1 hr.

An advanced choral ensemble which maintains a very active performance schedule on campus and in the community as well as throughout Michigan and surrounding states. Membership by audition.

*Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Chorale, Collegiate Singers, and Treble Choir, but membership is open to other singers with the consent of the conductor.*

**MUS 113 Concert Band**

1 hr. The University Concert Band is an all-campus organization dedicated to the performance of fine literature, including original works for band as well as outstanding orchestral transcriptions. The aesthetic aspect of the music is stressed and special emphasis is placed on the musical style. This ensemble presents concerts on campus and in the surrounding community. Membership by audition.

**MUS 114 Wind Ensemble**

1 hr.

An organization which performs a wide range of literature for the modern wind ensemble. This group performs both on and off campus. Membership by audition.

**MUS 118 Gold Company II**

1 hr.

A vocal jazz and show entertainment ensemble which gives students the opportunity to perform challenging contemporary choral literature. A small instrumental combo accompanies the ensemble, and vocal and instrumentalists are included. The ensemble maintains an active performance schedule on campus and throughout the surrounding west Michigan area. Membership is open to all students by audition.

**MUS 119 Gold Company**

1 hr.

A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental ensemble accompanies the group. A very active performance schedule is maintained on campus, in the community, in Michigan and out-state. Membership is open to all University students by audition.

**MUS 210 Jazz Lab Band**

1 hr.

The Jazz Lab Band affords students the opportunity to develop performance skills in contemporary and traditional big band jazz. Student compositions and arrangements are encouraged, and all students are a regular part of the Lab Band Concerts. The Ensemble performs regularly on campus and in the surrounding community. Membership is by audition.

**MUS 211 Studio Accompanying**

1 hr.

A laboratory experience in accompanying solo music. Students will be assigned three to four hours of varied studio accompanying per week. This course may be repeated for credit not to exceed a total of two semester hours.

**MUS 212 Jazz Orchestra**

1 hr.

The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus. Membership is by audition.

**MUS 218 Instrumental Chamber Music**

1 hr.

Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

**MUS 317 Opera Workshop**

1 hr.

A production experience in the acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic scene. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.

**MUS 514 Instrumental Chamber Music**

1 hr.

Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

**MUS 516 Music Theatre Practicum**

1 hr.

A production experience in music theatre. Each semester culminates in an opera or musical comedy production. Open to singers, actors, accompanists, instrumentalists, and persons interested in production techniques. Admission by audition or permission of the instructor. May be repeated for credit.

**MUS 517 Collegium Musicum**

1 hr.

Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing and conducting of early music is required of Music History majors. Graduate students may count not more than two hours of this course for graduation. Membership by audition.

**Applied Music**

Private lessons (applied music) in organ, piano, voice, and all orchestral and band instruments are offered to all University students to the extent that instructor time and practice facilities are available. Priority in applied music study is given first to music majors, second to music minors, and third to students wishing to take the study on an elective basis. All students who take private lessons must register for applied music by reporting to the Music Office. Only students enrolled in other classes at Western are eligible to receive applied music instruction. An audition or interview is necessary in order to be approved for study. Students are required to make arrangements for a lesson time with the private teacher in the first days of 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 and travel 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 hr.

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 200 Applied Music**

1-4 hrs ($7.)

This level of applied music indicates "lower division" standing for music students who have been approved for this level. Prerequisite: MUS 116.

**MUS 201 Sophomore Hearing**

1 hr.

An examination in applied music. All vocal majors must pass this to qualify for upper-level applied study.

**MUS 300 Applied Music**

1-4 hrs ($7.)

This level of applied music indicates "lower 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 ($45 fee)

A series of special musical events required of music majors. Programs include lectures and recitals by faculty, selected students, and guest artists. (A $45 fee is assessed to all music majors in order to provide funds for travel and instruments used by students throughout the music program.)
MUS 102 Piano Class I 2 hrs. ($5 fee)
This is a beginning course for the development of piano playing skills for non-music majors/minors. The course will cover fundamentals of music reading, keyboard technique, sight-reading, and harmonization.

MUS 103 Piano Class II 2 hrs. ($5 fee)
A continuation of MUS 102 Piano Class I. Because course goals do not align with other keyboard classes in the School of Music, the student will not be prepared to progress into other piano courses offered for music majors/minors. Prerequisite: MUS 102 or instructor consent.

MUS 115 Voice Technique I 2 hrs.
The students who have been approved for this course by audition will explore and develop the voice as a healthy instrument for musical theatre performance. Vocal technique will be emphasized with some singing and coaching of easy 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 1 hr.
A course that develops the understanding of vocal hygiene and vocal production, as well as 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 and simple harmonization of melodies using primary harmonies. The course must be taken concurrent with or following MUS 160. Prerequisite: MUS 159 or music reading ability.

MUS 121 Keyboard Fundamentals 1 hr.
A continuation of MUS 120. The course of study includes major scales and arpeggios using standard fingering, sight-reading of easy pieces with two independent parts or melody with block chord accompaniment, transposition of a single melody line, and harmonization of melodies using secondary and dominant harmonies. Prerequisite: MUS 120 or instructor consent.

MUS 122 Voice Class 1 hr.
A study of the fundamental processes of breath control and tone production, providing some individual instruction in preparing and singing standard song literature. The course is designed to benefit students interested in solo and choral singing.

MUS 123 Voice Class 1 hr.
A continuation of MUS 122. Repertoire will include early English songs and seventeenth and eighteenth century Italian songs as well as other standard 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. Instructions will be provided on tablature and transposition as it applies to the guitar and on various techniques as used in both the Classical and Folk idioms for melody or single-tone 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, bends, contest, and the various strumming and picking patterns. The student must own or have access to Folk or Classical type guitar. Prerequisite: MUS 160.

MUS 126 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 4 hrs. ($10 fee)
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 142 Oboe/Bassoon Class 1 hr.
Fundamentals of oboe and bassoon pedagogy and performance. Prerequisite: Music majors only.

MUS 143 Trumpet/Horn Class 1 hr.
Fundamentals of trumpet and horn pedagogy and performance. Prerequisite: Music majors only.

MUS 144 Trombone/Tuba Class 1 hr.
Fundamentals of trombone and tuba pedagogy and performance. Prerequisite: Music majors only.

MUS 145 Flute/Saxophone Class 1 hr.
Fundamentals of flute and saxophone pedagogy and performance. Prerequisite: Music majors only.

MUS 146 Direct Encounter with the Arts ($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 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, DIANC 148, THEA 148. May be taken only once from College of Fine Arts Departments.

MUS 150 Music Appreciation: Live Music 4 hrs.
An introduction to music and music literature in conjunction with attendance at music concerts and recitals on campus. Classroom discussion and readings will guide the student through a variety of listening experiences that will stimulate perception and enjoyment of music on a visual as well as aural level. This approach will also insure a wide sampling of musical styles and media while encouraging the student to become more aware of his/her musical surroundings. The 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. Students 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 158 Jazz/Pop Music Theory 2 hrs.
A course in the theory on which Jazz and Popular musics are based. Topics covered will include chord nomenclature, construction, and voicings together with basic keyboard instrumentation and ear training. The course is open to music majors and non-majors who can read music.
MUS 159 Fundamentals of Music
2 hrs.
A study of fundamentals, including notation, scales, intervals, basic chord construction, and the rhythmic/metric aspect of music. This course is open to all students as an introductory study in music theory.

MUS 160 Basic Music I
3 hrs.
A study of traditional harmony through partwriting and analysis including the inversions of diatonic 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.
Training in the basic skills of music reading and ear-training. Prerequisite: Acceptance into MUS 162.

MUS 163 Aural Comprehension II
1 hr.
A continuation of MUS 162. Prerequisite: MUS 162 with a grade of "C" or better.

MUS 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 and compound meters and progresses through complex syncopations and polyrhythmic exercises. Students will be able to read and perform rhythmic patterns using a variety of percussion instruments. Additionally, students will be introduced to formal concepts in music such as phrase period, cadence and abstract formal designs. Prerequisite: Dance majors and minors only.

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. Prerequisite: MUS 160, MUS 162.

MUS 220 Keyboard Musicanship
1 hr.
A course primarily designed for those who need to develop more advanced practical skills at the piano. Emphasis is on further development of piano technique, sight-reading and harmonization skills. Prerequisite: MUS 121 with a grade of "C" or better, or instructor consent.

MUS 221 Keyboard Musicanship
1 hr.
A continuation of MUS 220. Prerequisite: MUS 220 with a grade of "C" or better, or instructor consent.

MUS 230 Italian and Latin 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 the respective fields of vocal literature.

MUS 231 French Diction
1 hr.
A phonetic approach to the pronunciation of French designed for singers. The performance of the language utilizes the song literature of major composers of the French chanson.

MUS 232 German Diction
1 hr.
A phonetic approach to the pronunciation of German designed for singers. The performance of the language utilizes the song literature of major composers of German liedere.

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, through playing the piano and informal instruments, and through responding to music rhythmically. Creative aspects and values of music are emphasized, and materials are studied in relation to their future uses in the classroom.

MUS 259 Aural Comprehension III
1 hr.
Continuation of MUS 163. 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 basic compositional idioms, including the blues, standard AABA song forms, modal forms and more complicated sectional forms. All compositions created in class will be performed by class members or by the appropriate ensemble outside of class.

MUS 265 Aural Comprehension IV
1 hr.
Continuation of MUS 259. Prerequisite: MUS 259 with a grade of "C" or better.

MUS 270 Music History and Literature
4 hrs.
A brief study of non-Western music cultures, and a survey of Western music from earliest times to the eighteenth century.

MUS 271 Music History and Literature
4 hrs.
A survey of Western music from 1700 to 1900.

MUS 279 Instruments of the Band and Orchestra
1 hr.
Students survey the string, woodwind, brass and percussion instruments commonly used in the band and orchestra. The major aim of the course is to make the student aware of the unique sound which characterizes each instrument and how that sound is produced. In developing perception and discrimination in this regard, the student investigates such things as the acoustical properties of the instruments, the correct formation of the embouchure for the brasses and woodwinds, the techniques of bowing string instruments, and the physical attributes required to perform successfully on certain instruments. All will learn the proper techniques for playing various percussion instruments commonly used in the classroom and will be given the opportunity to explore one or more of the brasses and woodwinds. Prerequisite: Instructor consent.

MUS 280 Instruments of the Music Classroom
1 hr.
Students will survey the instruments commonly used in the music classroom. All will learn the proper techniques for playing and teaching autoharp, ukulele, recorder, dulcimer, and others. Emphasis is placed on inclusion of these instruments in the music classroom. Prerequisite: Acceptance into Music Education curriculum.

MUS 281 Introduction to Music Therapy 1 hr.
An orientation to the discipline of music therapy via classroom lectures, video tape presentations, and clinical observations. This course should be taken following or concurrent with PSY 100.

MUS 285 Musical Style and Form for Dancers
2 hrs.
The course surveys composers and musical style from the Renaissance through the twentieth century. There will be an emphasis on the chief stylistic characteristics of the major composers of each period, and discussion of the particular compositions in relation to their suitability for choreographic treatment. Score-reading is an important aspect of the course. Prerequisite: MUS 185.

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 indepth study of appropriate music materials and activities, and allow for experience in designing and implementing music therapy treatment procedures for individuals and groups. Class 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.
The course is especially designed to
objectives, philosophical concepts,
administration and experiences in general music classes in
instructional methods and materials and for
practicing. Job seeking and professional growth will be discussed.

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 rationale behind group vocal warm-up practices.
Prerequisite: MUS 330 and choral

MUS 340 Choral Methods
2 hrs.
Extensive involvement with actual teaching of choral music in public schools is a central part of this course. Various philosophies of music education, music reading programs, and choral music education will be discussed. Students will focus on the development of aesthetic behaviors and performance objectives for choral ensembles. Administrative duties needed to implement and maintain a choral program will be identified. Advanced techniques for production of musicals and madrigal dinners, and the principles involved with developing show/jazz choirs will be examined. Job seeking and professional growth will be discussed. Prerequisite: MUS 339 or MUS 344 with a "C" or better.

MUS 344 Instrumental Methods I
2 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 experience 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 string instruments 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 Teaching and Learning in Music
2 hrs.
The course is designed to teach students to write outcome statements, to plan and prepare learning activities to reach those outcomes, and to evaluate and assess the process used and outcomes. Classroom management, questioning techniques, conceptual hierarchies, sequencing techniques, program goals, short and long term goals related to program goals, and lesson planning will be discussed. Application will be in the junior high/middle school music classroom. Practicum 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. Prerequisites: 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 not required.

MUS 352 Non-Western Music
4 hrs.
A study of the traditional music of China, Japan, Southeast Asia, India and the Arabic countries, as well as of the non-literate cultures around the world, such as American Indian, Australian Aboriginal, African, and Micronesian. One or several cultures will be selected for close study and a particular attempt will be made to understand the customs and attitudes of a people through their music.

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
2 hrs.
Original work in composition accompanied by study and analysis of advanced twentieth-century compositions and creative concepts. May be repeated for credit. Prerequisite: MUS 263.

MUS 380 Psychology of Music
2 hrs.
Physical, psychological and physiological aspects of sound and systems of tonal relationships. The effects of music on the individual and the consideration of music as a form of communication: the nature and measurement of 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.
This course will provide an overview of disabilities, federal and state requirements, and problems of the gifted, talented, and culturally differentiated student. Methods for providing successful music experiences will be discussed. The course will provide opportunities to plan sample strategies (including individualized) for the special student found in the music classroom. Prerequisite: MUS 289 or concurrent.

MUS 386 Technology in Music and Music Education
3 hrs.
A class to prepare students to use computers and other related tools for professional tasks in music and music education. The class will acquaint students with ethical, legal and social issues related to computer usage, and develop a background in using computers 1) for word processing, creation of graphic images, database management and spreadsheet analysis; 2) to control synthesizers and other devices for digital sampling and synthesis, composing, arranging, and performing; 3) for managing and enriching musical learning through Computer Based instruction in music; and 4) for information exchange and communication across networks. The course fulfills the University's computer literacy requirement.

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, routing of a song or aria, and projection and auditioning techniques. Prerequisite: Consent of advisor.

MUS 450 Music Appreciation: The Symphony
3 hrs.
The course in THE SYMPHONY is a general music course which presents music for symphony and opera to 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
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
2 hrs.
A continuation of MUS 472. Prerequisite: MUS 472. Reserve time for clinical participation.

MUS 479 Influence of Music on Behavior
3 hrs.
Justification for the use of music to change human behaviors through analysis of historical evidence, theoretical assumptions, and published research. Description of the therapeutic process with the intervention of music from assessment to community transfer. Prerequisite: MUS 472. Reserve time for clinical participation. Liability insurance required.

MUS 480 Music Therapy Methods and Materials
3 hrs.
Study of phenomenological, cognitive, and behavioral orientation to treatment as applied to the music therapy setting. Review of contemporary issues affecting the clinical practice of music therapy. Prerequisite: MUS 472. Reserve time for clinical participation. Liability insurance required.

MUS 481 Music Therapy Internship
2 hrs.
A six-month internship at an approved facility. Prerequisite: Consent of department.

MUS 490 Undergraduate Workshop in Special Problems
1-3 hrs.
Designed for students interested in some special field of music not formally listed for instruction. All special problems must be approved by the Director of the School of Music, but may be under the direct guidance of any member of the Music faculty. This course may be elected as many as three times.

Open to Upperclass and Graduate Students

MUS 530 Advanced Choral Conducting
2 hrs.
Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Audition required.

MUS 531 Advanced Instrumental Conducting
2 hrs.
Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Audition required.

MUS 542 Studies in Music Education: (topic)
2 hrs.
Topic to be announced. Selection will be made from the following or similar topics: Music in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated to an accumulation of not more than 4 credits.

MUS 546 Computer Assisted Instruction in Music
3 hrs.
The primary goal of the course is to teach students who already program some of the specific techniques used in developing original software for CAI in music. The main activity in the course will be programming, and one of the products of the course should be, for example, a program of sufficient sophistication as to at least potentially qualify it for publication. Prerequisite: CS 105 or CS 502 or consent of instructor.

MUS 555 Jazz Arranging
2 hrs.
Jazz Arranging is a study of the art of arranging for the jazz ensemble—both traditional and contemporary. The course will undertake a detailed study of instrument ranges, transpositions and sound potential, and will cover voicings, scoring practices, calligraphy and other contemporary trends within the medium. Prerequisite: MUS 158 (or instructor consent) and MUS 161, "C" or better required in each course.

MUS 556 Advanced Jazz Arranging
2 hrs.
A study and application of the art of arranging for the jazz ensemble, studio orchestra and show orchestra. The course will undertake a detailed study of scoring for winds, brass, strings, voices and percussion in relation to traditional and contemporary trends within the medium. Prerequisite: MUS 555 and MUS 264 or concurrently.

MUS 558 Jazz Improvisation I
2 hrs.
A study and directed application of the fundamentals of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions and complex scales and their applications. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: MUS 158 (or instructor consent) and 161, "C" or better is needed in each class.

MUS 559 Jazz Improvisation II
2 hrs.
A study and directed application of advanced techniques of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions and complex scales and their applications. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: MUS 558 and MUS 218 Jazz Ensemble or concurrently.

MUS 560 Counterpoint
2 hrs.
A study of the contrapuntal techniques of the eighteenth, nineteenth and twentieth centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: MUS 161 with grade of "C" or better.

MUS 561 Counterpoint
2 hrs.
A continuation of MUS 560. Prerequisite: MUS 560.

MUS 564 Seminar in Electronic Music Composition
2 hrs. ($30 fee)
Original music composition with digital and analogue synthesizers and computers. Creation of sound scores for concert 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 263 or permission of the instructor.

MUS 565 Seminar in Music Theory
2 hrs.
Research projects in music theory. Research methods and analytic discipline are stressed. Study will be focused in an area of the student's need or interest. Prerequisite: MUS 261.

MUS 566 Musical Acoustics
3 hrs.
A course designed for the music student. Discussion as well as laboratory demonstration of such concepts as: simple vibrating systems, waves and wave propagation; complex vibrators; resonance; intensity and loudness levels; tone quality; frequency and pitch; intervals and scales; tuning 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 voices, 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 Musiology 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 Musiology II 3 hrs.
The course will deal with the history, purposes, and scope of musiology. Topics to be studied include leading historians, past and present, modern methods of research, with special emphasis on primary sources, and bibliography of the field. Prerequisite: MUS 570.

MUS 572 Baroque Music (1600-1750) 3 hrs.
A survey of the choral and instrumental music of the Baroque masters such as J.S. Bach and G.F. Handel. Special attention to the development of style from monody through harmonic polyphony. Prerequisite: MUS 270 and MUS 271.

MUS 573 Classical Music (1750-1800) 2 hrs.
Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classic 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 Operatic Literature 2 hrs.
A survey of opera from 1600 to the present.

MUS 580 Solo Literature: (Topics) 2 hrs.
Solo literature for a specific medium (voice, piano, violin, etc.) will be studied from a theoretical, historical, and performance point of view. Topics to be announced. May be repeated for credit. Prerequisite: MUS 270 and MUS 271.

MUS 581 Choral Music Literature 3 hrs.
A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

MUS 583 Jazz History and Literature 4 hrs.
A survey of the history of jazz including aspects of sociology and history as they relate to the art form of jazz. As 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 556 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 performance options. 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 genres of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be explored. Prerequisites: MUS 270 and MUS 271.

MUS 587 Contemporary Music 2 hrs.
A survey of trends in European music and music of the Americans from about 1910 to the present day.

MUS 590 Studies in Pedagogy 1-4 hrs.
Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit. Prerequisite: MUS 300 level applied voice or permission of instructor.

MUS 594 Electronic Media 2 hrs. ($30)
The purpose of this course is to expose the student to the equipment used in various recording situations and its operation, as well as discussing the artistic use of this equipment. Although 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 full 24-track production, from microphone selection through the final mix. Prerequisite: MUS 594 or instructor consent.

MUS 597 Projects in Music 1-4 hrs.
A program of independent study to provide the unusually qualified music student with the opportunity to explore a topic or problem of interest. Under the guidance of one of the faculty of the School of Music. The initiative for planning the project must come from the student and must be approved by the faculty member proposed to supervise the study. Prerequisite: Application approved by music advisor.

MUS 599 Projects in Recording Technology 1-4 hrs.
An independent study allowing the unusually qualified student the opportunity to explore a topic or problem in recording technology. Prerequisite: MUS 596 and approval by instructor.
THEATRE

D. Terry Williams, Chair
Randy Bernhard
June Cottrell
James Daniels
Beverly H. David
C. J. Gianakaris
Mary Godfrey
John Jensen
David Karsten
Matthew A. Knewtson
Gwen Nagle
Greg D. Roehrick
Sharon Strock-Russell
Lyda Stillwell
Vern Stillwell
Von H. Washington
Judith K. Massie, Administrative Assistant

The Department of Theatre offers programs leading to the Bachelor of Arts degree. Students should refer to degree and General Education requirements within this catalog for specifics. The Department of Theatre concentrates on undergraduate programs that stress the interdependency of academic and production experiences, the importance of a broad theatre background, and the mastery of theatre fundamentals in preparation for future 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 five faculty-directed productions in the mainstage season, and several productions in the Studio Series. Additional plays are presented in the laboratory theatre program and in the directing process. All regularly enrolled students in good academic standing are eligible to participate in these productions.

The Department of Theatre is fully accredited by the National Association of Schools of Theatre. The requirements for entrance and for graduation are in accordance with the published guidelines of NAST.

Admission as a Major

Admission to Western Michigan University is granted only by the Office of Admission and Orientation for undergraduate students. Application forms may be obtained by writing to the Office of Admissions and Orientation, 2240 Seibert Administration Building.

Enrollment in a theatre curriculum is contingent upon admission to the University and approval of the Department of Theatre. Department approval is obtained through the theatre audition/interview program. The student may proceed by making application to the University at which time notification will be sent about the audition/interview program in the Department, or a request may be made for an opportunity to audition prior to making application to the University by obtaining an Audition/Application Application from the Department of Theatre. The student is urged to commence application procedures early in the senior year of high school, or in the final year at a community college.

Approval to become a theatre major is based upon the student's capabilities in theatre, as demonstrated by the audition or interview, and upon academic abilities reflected in grade point average and various scholastic test scores as they are available. All students who apply to be a major in theatre, with common "core" requirements and are, therefore, considered for entry into the major with this common basis in mind.

The Department of Theatre's audition/interview program has helped many students make intelligent choices regarding their career options. Further information regarding admission to a theatre curriculum may be obtained by writing the academic advisor in 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. Vern Stillwell
Shaw Theatre: (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. Theatre majors and minors must confer with the theatre advisor, who will help them plan their program and complete the required major or minor slip as soon as they begin their course work in theatre.

Transfer Credit

It is department policy to accept no more than 18 hours of transferred credit toward a non-teaching major, 12 hours toward a teaching major, and 9 hours toward a minor.

Baccalaureate Writing Requirement

Students who have chosen the Theatre or Theatre Education major will satisfy the Baccalaureate Writing Requirement by successfully completing the following:

THEA 370 Theatre History I
THEA 371 Theatre History II
THEA 372 Music Theatre Script Analysis

Programs

The Department of Theatre offers curricula including two majors, and one minor.

Theatre Major

Bachelor of Arts
57 Credit Hours

This program is designed for the students who want to prepare for graduate study in theatre or advanced, specialized professional training. It offers a program combining a broad background in theatre with concentration in performance or design and technical production.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>THEA 120</td>
<td>Stagecraft I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 121</td>
<td>Stagecraft II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 141</td>
<td>Improvisation</td>
<td>3</td>
</tr>
<tr>
<td>THEA 142</td>
<td>Acting I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 170</td>
<td>Script Analysis</td>
<td>3</td>
</tr>
<tr>
<td>THEA 232</td>
<td>Scenic Design</td>
<td>3</td>
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<tr>
<td>THEA 290</td>
<td>Theatre Practicum</td>
<td>6</td>
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<tr>
<td>THEA 331</td>
<td>Costume Design</td>
<td>3</td>
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<tr>
<td>THEA 332</td>
<td>Lighting and Sound Design</td>
<td>3</td>
</tr>
<tr>
<td>THEA 351</td>
<td>Directing I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 370</td>
<td>Theatre History I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 371</td>
<td>Theatre History II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 470</td>
<td>Development of Theatre Art</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Course of Study in Performance

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEA 241</td>
<td>Voice and Movement I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 242</td>
<td>Voice and Movement II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 341</td>
<td>Acting I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 342</td>
<td>Acting II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 441</td>
<td>Acting Studio</td>
<td>3</td>
</tr>
<tr>
<td>THEA 442</td>
<td>Period Styles of Acting</td>
<td>3</td>
</tr>
</tbody>
</table>

SUGGESTED COURSE OF STUDY FOR PERFORMANCE MAJORS

First Year—Fall (These courses may be taken either semester)
THEA 120, 170, 290

First Year—Winter (These courses may be taken either semester)
THEA 141, 142, 290

Second Year—Fall
THEA 241, 331, 290

Second Year—Winter
THEA 242, 232, ENG 252 (General Education, prerequisite to THEA 370), THEA 290

Third Year—Fall
THEA 341, 351, 370, 290

Third Year—Winter
THEA 332, 342, 352, 371

Fourth Year—Fall
THEA 441, Direct Lab Show (Elective), THEA 290

Fourth Year—Winter
THEA 470, 442

SUGGESTED COURSE OF STUDY FOR DESIGN AND TECHNICAL PRODUCTION MAJORS

First Year—Fall (These courses may be taken either semester)
THEA 120, 170, 290

First Year—Winter (These courses may be taken either semester)
THEA 141, 142, ENG 252, (General Education, prerequisite to THEA 370), THEA 290

Second Year—Fall
THEA 220, 231, 370, 290

Second Year—Winter
THEA 232, 371, 290

All students following this course of study are reviewed by the Design and Technical Production faculty/staff at the end of the second year. Satisfactory review is necessary for the student to elect upper-level courses.

Third Year—Fall
THEA 331, 351, 290

Third Year—Winter
THEA 332, 333, Electives (see list below)

All students following this course of study are reviewed by the Design and Technical Production faculty/staff 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 431, Electives, (see list below)

Fourth Year—Winter
THEA 420, 470

ELECTIVES: Design and Technical Production students must elect six hours from the following list. The remainder of these courses are strongly recommended as elective to complement your major.

ART 140 Studio Experience (20)
ART 201 Drawing
ART 202 Acrylic Painting
ART 208 Watercolor
ART 220 History of Art
ART 221 History of Art II

CRT 124 Clothing Construction

THEATRE 251

Required Course of Study in Design and Technical Production

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEA 220</td>
<td>Stagecraft II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 231</td>
<td>Drafting and Color Media</td>
<td>3</td>
</tr>
<tr>
<td>THEA 420</td>
<td>Advanced Technical Problems</td>
<td>3</td>
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<tr>
<td>THEA 431</td>
<td>Advanced Design</td>
<td>3</td>
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<td>THEA 331</td>
<td>Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>CRT 124</td>
<td>Clothing Construction</td>
<td>3</td>
</tr>
</tbody>
</table>

A grade of "C" or better is required in all courses.

SUGGESTED COURSE OF STUDY FOR PERFORMANCE MAJORS

First Year—Fall (These courses may be taken either semester)
THEA 120, 170, 290

First Year—Winter (These courses may be taken either semester)
THEA 141, 142, 290

Second Year—Fall
THEA 241, 331, 290

Second Year—Winter
THEA 242, 232, ENG 252 (General Education, prerequisite to THEA 370), THEA 290

Third Year—Fall
THEA 341, 351, 370, 290

Third Year—Winter
THEA 332, 342, 352, 371

Fourth Year—Fall
THEA 441, Direct Lab Show (Elective), THEA 290

Fourth Year—Winter
THEA 470, 442

SUGGESTED COURSE OF STUDY FOR DESIGN AND TECHNICAL PRODUCTION MAJORS

First Year—Fall (These courses may be taken either semester)
THEA 120, 170, 290

First Year—Winter (These courses may be taken either semester)
THEA 141, 142, ENG 252, (General Education, prerequisite to THEA 370), THEA 290

Second Year—Fall
THEA 220, 231, 370, 290

Second Year—Winter
THEA 232, 371, 290

All students following this course of study are reviewed by the Design and Technical Production faculty/staff at the end of the second year. Satisfactory review is necessary for the student to elect upper-level courses.

Third Year—Fall
THEA 331, 351, 290

Third Year—Winter
THEA 332, 333, Electives (see list below)

All students following this course of study are reviewed by the Design and Technical Production faculty/staff 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 431, Electives, (see list below)

Fourth Year—Winter
THEA 420, 470

ELECTIVES: Design and Technical Production students must elect six hours from the following list. The remainder of these courses are strongly recommended as elective to complement your major.

ART 140 Studio Experience (20)
ART 201 Drawing
ART 202 Acrylic Painting
ART 208 Watercolor
ART 220 History of Art
ART 221 History of Art II

CRT 124 Clothing Construction
Theatre Minor

24 credit hours

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>THEA 120 Stagecraft I</td>
<td>3</td>
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<tr>
<td>THEA 142 Acting I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 170 Script Analysis</td>
<td>3</td>
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<tr>
<td>THEA 232 Scenic Design</td>
<td>3</td>
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<tr>
<td>THEA 290 Theatre Practicum</td>
<td>3</td>
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<tr>
<td>THEA 331 Costume Design</td>
<td>3</td>
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<tr>
<td>THEA 332 Lighting and Sound Design</td>
<td>3</td>
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<tr>
<td>THEA 351 Directing I</td>
<td>3</td>
</tr>
</tbody>
</table>

A grade of "C" or better is required in all courses.

Theatre Education Major

Bachelor of Arts

39 credit hours

This program is designed for students planning to teach and direct theatre programs in secondary schools.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>THEA 120 Stagecraft I</td>
<td>3</td>
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<tr>
<td>THEA 142 Acting I</td>
<td>3</td>
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<tr>
<td>THEA 170 Script Analysis</td>
<td>3</td>
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<tr>
<td>THEA 232 Scenic Design</td>
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<td>THEA 331 Costume Design</td>
<td>3</td>
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<tr>
<td>THEA 332 Lighting and Sound Design</td>
<td>3</td>
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<tr>
<td>THEA 351 Directing I</td>
<td>3</td>
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<tr>
<td>THEA 352 Directing II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 370 Theatre History I</td>
<td>3</td>
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<tr>
<td>THEA 371 Theatre History II</td>
<td>3</td>
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<tr>
<td>THEA 470 Development of Theatre Art</td>
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<tr>
<td>THEA 471 Methods of Teaching</td>
<td>3</td>
</tr>
<tr>
<td>Theatre in High School</td>
<td>3</td>
</tr>
</tbody>
</table>

A grade of "C" or better is required in all courses.

Students electing this major are strongly urged to choose a second major to enhance their prospects for employment. Although Theatre Education is a bona fide major, Michigan Secondary Certification does not apply to this program. All teachers seeking certification must meet the requirements of the University, College of Education, and the State Board of Education.

SUGGESTED COURSE OF STUDY FOR THEATRE EDUCATION MAJORS (THN)

First Year—Fall (These courses may be taken either semester)

THEA 120, 170

First Year—Winter (These courses may be taken either semester)

THEA 141, 142

Second Year—Fall

THEA 331

Second Year—Winter

THEA 232, ENG 252 (General Education; prerequisite to THEA 370)

Third Year—Fall

THEA 351, 370

Third Year—Winter

THEA Students 262, 271, 471

Fourth Year—Fall

Student Teaching

Fourth Year—Winter

THEA 470

Music Theatre Performer

See "Interdisciplinary Program" in the College of Fine Arts.

Theatre Courses (THEA)

(Courses described in italics are approved for General Education)

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 Black Theatre
3 hrs.

A survey/lecture course from a black American perspective examining the activities and developments of black American life as evidenced through its theatre, with emphasis on history, philosophy, dramatic creations, criticism, and concerns. Includes lectures on traditional theatre of Westerl Civilization and African contributions.

THEA 110 Explorations in Performance
3 hrs.

Instruction and practice in the various forms of performance for non-theatre majors.

THEA 120 Stagecraft I
3 hrs.

A beginning course in technical production including familiarization with theatrical equipment and materials; the planning and construction of basic stage scenery, costumes, and properties; the fundamentals of stage lighting; and laboratory work on University Theatre Productions. (Lab fee required for materials)

THEA 141 Improvisation
3 hrs.

Techniques of improvisational performing. This course includes spontaneous and planned exercises to evoke and inspire the actor's capacity for inventive imagination and sense of ensemble.

THEA 142 Acting I
3 hrs.

Study and practice of the basic principles of acting.

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 arts: cinema, photography, theatre, sculpture, music, poetry, dance and architecture. Classroom discussions are held following the student's participation in the various art events scheduled each semester, with students expected to write journals and response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross listed with DANCE 148, MUS 148, 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 220 Stagecraft II
3 hrs.

A course in technical production including the planning and construction of complex stage scenery, costumes and properties; scenery painting; lighting technology; and laboratory work on University Theatre productions. Prerequisite: THEA 120. (Lab fee required for materials)

THEA 230 Stage Makeup
3 hrs.

Study and practice of the basic principles and techniques of stage makeup.

THEA 231 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. Prerequisite: THEA 120.

THEA 232 Scenic Design
3 hrs.

A course in scenography covering the design of stage settings and properties expressed through color renderings and/or the scenic model, including further development of skills in drafting for the theatre. Prerequisite: THEA 120.

THEA 241 Voice and Movement I
3 hrs.

Development and training of the actor's vocal and physical instrument for theatrical performance. Prerequisites: THEA 141 and THEA 142.

THEA 242 Voice and Movement II
3 hrs.

Continued development and training of the actor's vocal and physical instrument for theatrical performance. Prerequisite: THEA 241.

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 Music Theatre History
3 hrs.

A chronological study of all performing aspects of musical theatre (opera, oratorio, singspiel, vaudeville, dance theatre, musical comedy), especially from 1600 to the present. The performing aspects are integrated with the life and times of the people involved.

THEA 290 Theatre Practicum
1-8 hrs.

Supervised experience in various areas of theatre in the University Theatre program. May be repeated for credit up to a maximum of eight semester hours (only six of which can apply toward major and three toward minor). (Lab fee required)

THEA 331 Costume Design
3 hrs.

A course in the design of theatrical costumes and accessories expressed through color rendering and including an overview of the history of the costume. Prerequisite: THEA 120 (THEA 231 recommended).

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, 232, 331.

THEA 341 Acting II
3 hrs.

This course integrates theories and practices of Improvisation, Acting I, and Voice and Movement I and II in the process of role study and development. Satisfactory staff evaluation of students in this course is...
required to elect more advanced acting courses. Prerequisite: THEA 242.

THEA 342 Acting III
3 hrs.
The application of role study and analysis to the preparation and performance of scenes from full-length plays. Prerequisite: THEA 341 and approval of Performance Area staff.

THEA 351 Directing I
3 hrs.
Functions of the play director as teacher, interpreter, coordinator, and collaborator. Focus is upon principles and problems of directing on the proscenium stage. Prerequisites: THEA 141, THEA 142, THEA 170, THEA 232.

THEA 352 Directing II
3 hrs.
A continuation of THEA 351. Focus is upon the principles and problems of directing for the non-proscenium stage and expansion of directional 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. Prerequisite: ENGL 252.

THEA 371 Theatre History II
3 hrs.
Survey of theatre history from 1642 to the twentieth century. Playwrights, acting styles, theatre production, theatre architecture and audience taste are studied. Prerequisite: THEA 370.

THEA 372 Music Theatre Script Analysis and Critique
3 hrs.
Students will learn how to analyze the libretti and scores of opera, operetta, musical comedy, ballet, and dance theatre. Students are required to attend and submit critiques of several live productions.

THEA 390 Professional Theatre Internship
3 or 6 hrs.
Advanced theatre majors may receive credit for participating in the Professional Theatre Internship Program with major professional theatres. Students must arrange an internship application and number of credits with the department's Internship Coordinator. A maximum of six credit hours may be accumulated. Prerequisite: Consent of Internship Coordinator.

THEA 400 Special Topics in Theatre
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, technical direction. Prerequisites: Variable.

THEA 420 Advanced Technical Problems
3 hrs.
An investigation of the application of modern materials and techniques to the problems of the technical production of scenery, costumes, properties, lighting and/or sound in the theatre. Prerequisites: THEA 200, or 235, or 331, or 332.

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 232, or THEA 331 or THEA 332.

THEA 441 Acting Studio
3 hrs.
An advanced course in the art of acting with emphasis on the individual needs of the student actor. May be repeated for a maximum of 6 credit hours, only 3 of which are applicable toward major. Prerequisite: THEA 342.

THEA 442 Period Styles of Acting
3 hrs.
Study and practice of acting in plays from selected major periods of theatre activity prior to the twentieth century. Topics may include Greek, commedia dell'arte, Shakespeare, Moliere, Restoration, and examples from eighteenth and nineteenth century drama. Prerequisite: THEA 441.

THEA 470 Development of Theater Art
3 hrs.
A survey of the development of theatre art and its relationship to the concurrent development in other arts. Recommended for students considering graduate work in the fine arts. Prerequisite: THEA 371.

THEA 471 Methods of Teaching Theatre in High School
3 hrs.
Approaches to teaching theatre in secondary schools. Emphasis on curriculum planning, syllabi, lesson plans, texts, relationship between theatre classes and co-curricular productions. Prerequisite: THEA 352 and ED 301 and ED 302.

THEA 490 Individualized Study in Theatre Variable
Designed to enable upper division theatre majors, or students in special programs, to initiate, plan and execute projects in particular aspects of theatre. Must be planned in collaboration with a member of the theatre faculty who will act as supervising teacher. Not designed to replace other theatre courses. A maximum of six semester hours may be accumulated, though the student may register for a maximum of three credits each time. Projects may involve study and research in an area of special interest, special performances or other creative activities. Prerequisite: Consent of performance or tech/design area, departmental advisor, and departmental chair.
The College of Health and Human Services provides education, research, and community assistance through its programs. Students receive training and education in direct service roles as well as in policy development, planning, and administration. Students may earn the degrees of Bachelor of Science in occupational therapy or employee assistance, Bachelor of Arts or Science in speech pathology and audiology, and Bachelor of Medical Science for physician assistant; Master of Arts in blind rehabilitation and speech pathology and audiology; Master of Science in occupational therapy; and Bachelor and Master of Social Work through their studies.

The School of Community Health Services in the College of Health and Human Services also provides programs in Holistic Health Care, Alcohol and Drug Abuse (both at the graduate level), Gerontology (at the undergraduate and graduate levels), and a concentration in Health Care Administration (graduate level).

Mission

The mission of the College of Health and Human Services at Western Michigan University is to contribute to the improvement of the quality of health and human services in the west Michigan area, the State of Michigan, and the nation as a whole through degree and non-degree instructional programs, research, and community service activities. The mission includes a commitment to foster development of a comprehensive health and human service care system responsive to the citizens of the state and the nation and which contributes to enhancement of the overall quality of life in general.

Through the qualitative and innovative educational and professional service programs of the College a commitment is being made to the integration of education—within the College, between the College and other colleges of the University, and between the College and its communities, both professional and geographic. The College is further committed to ensuring that its teaching, learning, and discovery processes will focus on preparing people who understand their professional tasks in the context of a concept of quality that embraces the wholeness, challenge, and beauty of life and who will be prepared for leadership in a moral and professional sense as well as in an organizational sense.

Advising

Students admitted to Western Michigan University must also be admitted formally to the College's programs through the individual departments, school 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 for most programs in the College. Please refer to the section on Scholarships and Financial Aid.

Interdisciplinary Program

Integrated Language Arts Minor (ILAM)

The Department of Speech Pathology and Audiology is one of five participating departments in the Integrated Language Arts Minor—a program designed particularly for preservice elementary school teachers. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section of the College of Arts and Sciences. This program is currently not accepting applications.
This course is designed to introduce the training in the use of low vision aids to visually impaired persons. Students will be exposed to computer technology as it relates to productivity, as well as the software used with them. In addition to the development of the student's sensory information by severely visually impaired individuals, the student will have the opportunity to observe all types of eye conditions and eye prostheses. BLRH 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 types of eye conditions and eye prostheses.

BLRH 591 Braille and Other Tactual Communication Systems 2 hrs. Provides students with a basic knowledge of the braille literary code—reading and writing, and an overview of other communication methods available to the visually impaired.


BLRH 593 Principles of Orientation and Mobility 2-3 hrs. An examination and application of the fundamental principles underlying the acquisition of sensory information by severely visually impaired individuals.

BLRH 596 Introduction to Electronic Travel Aids 1 hr. Systematic instruction in use of Fundamental Electronic Travel Aid and Overview of Major Electronic Devices. Prerequisite: BLRH 595.

BLRH 597 Introduction to Low Vision 2 hrs. Exploration of ways to assess the functional use of residual vision. Methods and means of increasing the functional use of residual vision and defining its limitations.

BLRH 598 The Dynamics of Blindness and Rehabilitation 2 hrs. The development of the status of persons who are blind and their integration into a sighted society. The relationship of the emotional and social correlates of blindness to the development of the blind individual as a contributing member of society.

BLRH 589 Inter-Professional Seminar Regarding Blind Multihandicapped Persons 1 hr. Interdisciplinary approach to the study of multi-handicapped conditions in which blindness is a common denominator.

The purpose of this course is to provide basic information to students and workers in the health and human service professions so that they will be able to work more effectively with blind individuals. It is also intended for students who may be interested in entering a career in blind rehabilitation and would like to further explore their interest. An overview of visual impairment will be provided with both theoretical and practical components.

Open to Upperclass Students

BLRH 584 Computer Technology for Visually Impaired Persons 2 hrs. This course is designed to introduce the student to computer technology as it relates to visually impaired 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 output will be investigated, including speech, braille, and large print. Experimental aspects will be stressed. Students planning to enter this course should have the ability to touch type. Prerequisite: Computer literacy or permission of instructor.

BLRH 587 Low Vision Evaluation and Training 1 hr. Simulation of common visual impairments are experienced. Evaluation of visual function and training in the use of low vision aids to enhance visual efficiency through environmental manipulation—a hands-on approach. This course is to be part of the core program for Orientation and Mobility and Rehabilitation Teaching degree students.

BLRH 588 The Dynamics of Blindness and Rehabilitation 2 hrs. The development of the status of persons who are blind and their integration into a sighted society. The relationship of the emotional and social correlates of blindness to the development of the blind individual as a contributing member of society.

COMMUNITY HEALTH SERVICES

The School of Community Health Services promotes and provides effective high quality educational opportunities and experiences for a variety of health and human service-related professions, disciplines, and specialty areas. The major goal of the school is to be responsive and supportive to emerging health and human service areas. As such, the school encompasses educational programs targeted at the significant unmet health and human service needs of our society, at developing health and human service professions and disciplines, and at emerging health and human service specialty and research areas.

The school endeavors to accomplish this mission and goal by promoting the visibility, demonstration, expansion, and evaluation of professional and specialty educational programs for the benefit of citizens, students, and community organizations and agencies. The school recognizes the common developmental problems and opportunities of emerging professions, disciplines, and specialty areas and therefore encourages interdisciplinary cooperation and collaboration in research, demonstration, and educational activities.

Health and Human Services Courses (HHS)

HHS 100 Choices in Living 3 hrs. The course will focus on the relationship between individual choices, social responsibilities, and optimal human functioning. Students will be introduced to 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.

HHS 110 Introduction to Health and Human Services 3 hrs. This course provides an overview of the issues, philosophies, political ideologies, economic theories, and American values which have an impact on health and human service delivery. In addition, students will be introduced to the historical development, areas of services, and models of service delivery which are part of health and human services. The course will also provide students with the opportunity of learning about potential careers in the various professions within the field.

HHS 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 administration environment and on the use of financial information in healthcare 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 organizational 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 issues in effective health care services, alternative planning frameworks, and technical approaches to the planning process. In addition, the course surveys the history of planning in the health systems as well as the current structure arrangements for carrying out planning in the health arena both at the macro and micro levels.

HHS 515 Administrative Functions in the Health Care Setting
3 hrs.
This course focuses on the knowledge and skills necessary for the major administrative functions in health organizations. These include goal setting, decision making, personnel management, data processing, service design, and general principles of financial management.

HHS 530 Clinical Theory for Health and Human Services
1-4 hrs.
This course covers selected theories which form the foundation for health and human service practice in specialized areas. Students are expected to master the content as a basis for building 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 areas of study. The specific topics are announced each semester.

HHS 560 Clinical Practice in Selected Health and Human Service Areas
1-4 hrs.
This course covers variable topics in clinical health and human service practice. It is a skills and development course which helps students to become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biofeedback, clinical practice in generic 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 are among the possible areas of studies. The specific areas are announced each semester.

HHS 561 Problem-Solving in Health and Human Service Organizations
1-4 hrs.
This seminar covers variable topics relating to problem-solving in health and human services. It is a skills development course which helps students to become proficient with theoretical constructs and specific procedures for application in the health and human services system. Technology for health planning, the health system and its environment, organization of health practice teams, and financial problem-solving in the health agency are among the topics covered. The specific topics to be discussed are announced each semester.

HHS 569 AIDS: Natural History of an Epidemic
1 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 Studies
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.

EMPLOYEE ASSISTANCE PROGRAMS
Margaret M. Bernhard, Director
The Employee Assistance Academic Program is a professional program that prepares the student to implement employee assistance programs in either private or public businesses or institutions. The curriculum is designed to meet the needs of both traditional and non-traditional students, with courses offered both on campus and through the Office of Distance Education. This multi-disciplinary education focuses on community health services, psychology, social work, management, education, and counselor education and counseling psychology, as these areas apply to employee assistance programming. The major consists of 36 credit hours, including 12 hours of field placement. The six major field work is graded on a scale similar to the course. Students who fail to attain a grade of "C" or better in a professional course will be placed on departmental probation following the grade lower than "C". Students who fail to attain a grade of "C" or better in a professional course will be permitted to continue in the program. The department may refuse to permit a student to continue in the curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Employee Assistance Programs major will satisfy the Baccalaureate Writing Requirement by successfully completing EAP 420 Employee Assistance Program (3 credits).

PROGRAM LEADING TO THE BACHELOR OF SCIENCE DEGREE
Minimum hours required for this curriculum — 122 credit hours

Course Requirements
General Education .............................. 35
Intelectual Skills (if necessary) .............. 6
Computer Literacy Requirement ............ 3
Electives ......................................... 21

Required Psychology coursework .......... 6
PSY 100 General Psychology ............... 3
PSY 250 Abnormal Psychology ............. 3
Professional Major Curriculum .......... 36
EAP 220 Introduction to EAPs .............. 3
MGMT 352 Personnel Management for EAP . 3

ADMISSION
Students who desire to major in Employee Assistance Programs (EAP) are admitted in to a pre-EAP curriculum at the time of admission to the University. Upon successful (2.0 average) completion of PSY 100 General Psychology, PSY 250 Abnormal Psychology, and EAP 220 Introduction to EAPs: EAP Structure and Process in the Worksetting, the student will be admitted into the major. Prior to taking any of the other EAP courses, students must complete the major's prerequisite course, EAP 220 Introduction to EAPs: EAP Structure and Process in the Work Setting.

FIELD WORK
In addition to the required course work, students must complete a total of 720 clock hours of Field Placement. The 720 clock hours are broken into two 3 credit hour courses. The first course (EAP 470) is a field based learning experience assuming responsibilities in work organization and human resource management and EAP administration. The second three credit hour course (EAP 471) assumes responsibilities in EAP direct service, substance abuse and addiction, and personnel psychology and problems. Through these courses, students will be able to actively apply the foundation of their knowledge and skill. There will be no waiver of field experience.

To be eligible for field work, students must first complete all other major and minor courses and have maintained a cumulative grade point average of 2.00 or above, with no grades less than 2.00 in required and prerequisite courses.

Field work is graded on a scale similar to academic coursework. Students are evaluated by a field supervisor who assesses areas of performance and proficiency. Each area must be passed at minimum competency to receive academic credit.

REMEDIATION AND CONTINUANCY POLICY
1. Students will complete all required departmental courses and all required prerequisites with a grade of "C" or better. Subsequent courses cannot be taken until prerequisites are completed successfully.

2. Students can repeat only one required departmental course, and that course only once, to attain a grade of "C" or better.

3. Students who fail to attain a grade of "C" or better in a professional course will be placed on departmental probation following the grade lower than "C".

4. Students who do not successfully complete departmental probation will not be permitted to continue in the program.

5. The department may refuse to permit a student to continue in the curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.
This course is designed to provide an overview of the operational responsibilities 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 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 diagnoses and individual-specific treatment plans. Open only to Employee Assistance Programs majors.

EAP 326 Substance Abuse Treatment Processes 3 hrs.
This course focuses on the continuum of care for substance abusers. Modalities of prevention, casefinding, detoxification, inpatient treatment, residential treatment, therapeutic communities, day care, intensive outpatient treatment, outpatient treatment, and aftercare are presented both in theory and practice arenas. Open only to Employee Assistance Programs majors.

Professional Minor Curriculum (Substance Abuse Services) 18 hrs.
EAP 225 Legal and Illicit Drugs 3 hrs.
EAP 325 Substance Abuse Diagnosis and Treatment Planning 3 hrs.
EAP 326 Substance Abuse Treatment Processes 3 hrs.
EAP 420 EAP Consultation 3 hrs.

Employee Assistance Programs Courses (EAP)

EAP 220 Introduction to EAPs: EAP Structure and Process in the Work Setting 3 hrs.
This course serves as the introductory and prerequisite for all courses in the major and is offered on a self-instructional basis. Content focuses on the organization of business and industry (both public and private), the organizational 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 226 Legal and Illegal Drugs 3 hrs.
To increase understanding of substance abuse, alcohol and other drug use is examined through the public health disease model with an emphasis on psychological, physiological, and social consequences of use and abuse. An overview of prevention, casefinding, and treatment strategies are provided. Open only to Employee Assistance Programs majors.

EAP 318 EAP Assessment Interviewing 3 hrs.
This course focuses on the theories and methods of assessment interviewing for EAP services. Course content addresses client readiness, relationships, rationality and resources, and drug training. Prerequisite: EAP 220.

EAP 319 EAP Administration 3 hrs.
This course is designed to provide an overview of the operational responsibilities within the various program models. Through student examination, manual preparation, selected readings, oral presentation, and class room 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...

COMMUNITY HEALTH SERVICES 257

GERONTOLOGY MINOR
Ellen K. Page-Robin, Director

Gerontology, the study of the aging process and of old age, is offered as a multidisciplinary minor at Western Michigan University. Gerontology provides the study of aging through a disciplinary perspective, as well as the medical specialty known as geriatrics.

Interest in gerontology has burgeoned in the United States with the recognition that currently our population includes more than 30,000,000 persons 65 years of age—and that population segment is growing. Universities have responded through research and teaching to increase an understanding of the older portion of our population and to provide trained personnel to work with older persons.

The minor in gerontology is well designed to supplement formal training in other fields such as sociology, social work, occupational therapy, physical education and recreation, blind rehabilitation, speech pathology, and others. It cannot, however, be used for teacher certification. Knowledge and understanding gained from formal courses in the gerontology minor are supplemented by direct work with older persons through field experience. Study of gerontology can lead not only to vocational interests in services to older persons but can also prepare one for graduate and professional work, enrich awareness of the society in which one lives, and allow the thoughtful and intelligent personal planning of one’s own middle and later years.

The minor consists of twenty or more hours from the courses listed, of which fourteen are required and six are electives. Courses must be selected in consultation with one of the advisors. Exceptions to the program specified, such as the inclusion of independent studies through departmental readings courses, may be made with the approval of the advisor.

Required Courses
Hrs.
SOC 352 Introduction to Social Gerontology 3
SWRK 464 Social Work Practice in Gerontology 3
OT 470 Functioning of the Older Adult 3
Field Education
Either HHS 570 4 or a practicum in a participating department 3 or 4
Electives
BIOC 531 Biology of Aging 3
FCL 326 Investment Analysis 3
ECON 313 Poverty and Economic Security 3
ECON 318 Economics of Medical Care 3
ED 504 Adult Development and Learning 3
PHIL 434 Biomedical Ethics 4
CRT 260 Nutrition OR
CRT 266 Food for Man 3
CRT 413 Marriage and Family in Maturity 3
HPER 572 Recreation for the Aging 2
SWRK 572 Community Agency Resources 2
SOC 122 Death, Dying, and Bereavement 3
SOC 373 Sociology of Health and Illness 3
SOC 552 Sociology of Aging 3
SPFA 552 Communication Problems of the Aged 3

GERONTOLOGY MINOR
SPECIALTY PROGRAM IN ALCOHOL AND DRUG ABUSE

Advisor:
Jan Dekker
Room 329, Ellisworth Hall

Western Michigan University offers a program for the professional education of substance abuse specialists through the Graduate Certificate Program in Alcohol and Drug Abuse (SPADA). The departments of Biological Science, Counselor Education and Counseling Psychology, Psychology, Sociology, the School of Social Work, the Center for Public Administration Programs, and Occupational Therapy provide a multidisciplinary and interdisciplinary basis to the certificate program. Courses are planned and taught by faculty from the contributing disciplines.

Students receive preparation for dealing with various aspects of substance abuse including prevention, community education, treatment and rehabilitation, program management, and evaluation. Program graduates are employed by many public and private organizations, including social agencies, psychological clinics, family counseling services, alcohol and drug councils, hospitals, schools, and industries. Students receive their graduate degrees in their respective disciplines and, upon completion of the eighteen-hour SPADA program requirements, receive a Certificate of Specialty in Alcohol and Drug Abuse. Further details regarding the program are available in The Graduate College Catalog.

OCCUPATIONAL THERAPY

Mary Ann Bush
Richard Cooper
Sandra Edwards
Debra L. Hazel
Barbara Hemphill
Margaret Hunter
Shirley Lukens
Cindiee Peterson
Joye Williams
Dean Tyndall

The Undergraduate Professional Program
Bachelor of Science

SPECIAL NOTE: The Department will be submitting a proposal to change the admission requirements and criteria effective for the Fall 1994 admission. Applicants are advised to contact the department after November 1, 1993, for updated information on the admission process.

The undergraduate professional curriculum of occupational therapy is designed to prepare the student to treat clients with various disabilities and to be eligible for certification as an occupational therapist, following the successful completion of a Bachelor of Science degree.

Successful applicants are admitted at junior status or above. The program can be completed in four semesters, plus the required six months of fieldwork. The Baccalaureate degree in occupational therapy requires 128 semester hours with 51 semester hours of professional course work in the occupational therapy curriculum. This program is jointly accredited by the American Occupational Therapy Association and the American Medical Association. Graduates are qualified to take the American Occupational Therapy Certification Board Examination and are eligible to apply for licensure or registration in those states regulating occupational therapy practice.

The Professional Curriculum

The professional curriculum uses a holistic and integrated approach in developing those characteristics identified for our graduated student. Key to the educational philosophy of the department is the developmental sequencing of content and learning experiences related to professionalism, personal environment, and the occupational therapy process. The implementation of the philosophy into course design results in the inclusion of most learning objectives into several courses in a simple to complex pattern. This design maximizes the development of clinical reasoning skills.

Admission Requirements

The Occupational Therapy Department has established a maximum enrollment number for each admission period. Consequently, this department has established an admission selection procedure.

Minimum criteria for admission consideration to the professional curriculum:
1. Admission to the Western Michigan University Pre-Occupational Therapy Curriculum.
2. Junior status (at least 40 semester hours at the time of application and 56 semester hours at the time of enrollment).

3. Satisfactory completion (or in progress) of basic course work:
   • General or Introductory Psychology ........ 3 hrs.
   • Behavior Sciences (Psychology, Sociology or Anthropology) ........ 6 hrs.
   • Basic Course in Biological Science ........ 3 hrs.
   • Normal Growth and Development
     Covering the Life Span .................... 3 hrs.
   • English Composition ........................ 3 hrs.
   • Completion of all intellectual skills requirements.
   • Completion of all above courses with a "C" or better.

4. Documentation of a minimum of 40 hours of service contact with handicapped individuals or mental health clients.

5. Documentation of a minimum of 3 hours of contact with one or more occupational therapists.

6. Completion of Department Application Form.

7. Completion of Allied Health Professions Admissions Test. (Test offered only in November, January, March, and May)

Specific criteria for selection are based upon:
1. Fifty percent weighting on rank-ordered scores from the Allied Health Professions Admissions Test (AHPAT). This test is administered through The Psychological Corporation and is offered four times per year. (Contact the Occupational Therapy Department for test dates and application procedures.)
2. Fifty percent weighting on cumulative grade point average.
3. Space available in the program.

The equal consideration date for fall semester admission is February 14, and July 1 for winter admission. Applications from diversity candidates are welcomed and encouraged. Contact the department office for information. Students interested in applying for Departmental Admission are encouraged to contact a Department Advisor well in advance of expected admission. Imposed deadlines are strictly enforced.

In addition to the coursework required for admission, students must successfully complete three preprofessional courses before beginning courses in the professional curriculum: Abnormal Psychology, 3 credit hours; Human Anatomy (with lab), 3-4 credit hours; and Human Physiology (with lab) 3-4 credit hours.

The Pre-Occupational Therapy Curriculum is designed for those students considering Occupational Therapy as a professional choice. The courses recommended for Pre-Occupational Therapy students are those designed to meet Department admission criteria and University requirements including General Education and Physical Education.

Program leading to the Bachelor of Science Degree

Minimum hours required for this curriculum ............................................. 128
General Education Requirements .................................................... 35
Physical Education Requirements ..................................................... 2

Courses Required for Admission Consideration:
(General Psychology required)
1. Basic course in Biological Sciences (BIOS 101 or 112 or equivalent) ........ 3-4
2. Normal Growth and Development (covering the life span; OT 225 or equivalent) ........ 3
3. English Composition ............................ 3
5. Satisfactory completion of all Basic Skills Remediation Requirements.

Pre-Professional Courses: (Prerequisite to related courses in Occupational Therapy theory and techniques)

1. Human Anatomy with lab (BIOC 211 or equivalent) 3-4
2. Human Physiology with lab (BIOC 240 or equivalent) 3-4
3. Abnormal Psychology (PSY 250 or equivalent) 3

Professional Curriculum

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<td>Professional Language and Interaction</td>
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<td>OT 335</td>
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<tr>
<td>OT 491</td>
<td>OT Fieldwork II</td>
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SEQUENCING OF COURSES

Courses in the professional program are completed in a sequential pattern toward developing complex clinical problem solving skills. The courses are not designed to stand alone, but to build upon the knowledge base from previous semesters.

The prerequisite and pre-professional courses build a solid knowledge base in the biological and behavioral sciences. The first semester centers on human function, physiology, pathoanatomy and basic problem solving. Students also learn the history of the profession and current practice roles of therapists.

The second semester centers on developing skill in activity analysis, the role of activity in occupational therapy treatment, formal assessments used by therapists, introduction to treatment theory and techniques, and constructing appropriate treatment plans.

The third semester centers on additional treatment techniques used in therapy, administration of clinical programs, and a clinical treatment experience with clients in the on-campus occupational therapy clinic.

The fourth semester of the professional program centers on a clinical treatment experience with clients in clinical programs in the Kalamazoo area and developing an appreciation for the role of research in validating occupational therapy treatment and theory.

The fifth semester centers entirely on the completion of six months, full-time, fieldwork experience as a student therapist in two clinical practice sites (one being a medical model site and one being a community model site). The University utilizes fieldwork sites primarily in Michigan and the Midwest states with some sites throughout the United States.

PROFESSIONAL PROGRAM COURSE TRACKS

The Occupational Therapy Department has in operation a course tracking system designed to assure each student of a seat in appropriate professional OT courses. Any variation from this plan must be approved by the department.

First Semester

OT 202, OT 303, OT 321, OT 344

Second Semester

OT 312, OT 335, OT 351, OT 355

Third Semester

OT 352, OT 443, OT 451, OT 480

Fourth Semester

OT 453, OT 460

FIELD WORK

Students are required to successfully complete two three-month fieldwork experiences. One is taken in a medical model (usually a hospital setting) and the other in a community agency (e.g., a day treatment program or school). To attain competency for practice and eligibility for the national AOTCB certification examination, students should avoid selecting both experiences in settings that focus on the same area of disability.

To be eligible for fieldwork, students must have a cumulative grade point average of 2.00 or above, with no grades less than "C" in required and prerequisite courses.

Fieldwork is graded on a scale similar to academic coursework. Students are evaluated by a clinical supervisor who assesses areas of performance, judgment, and attitude. Each of the three areas must be passed at minimum competency for entry level practice.

An optional third fieldwork experience, of grade lower than "C", is required for OT 490.

REMEDY AND CONTINUANCE POLICY

1. Students will complete all required departmental courses and all required prerequisites with a grade of "C" or better. Subsequent courses cannot be taken until prerequisites are completed successfully.

2. Students can repeat only one required pre-professional or departmental course, and that course only once, to attain a grade of "C" or better.

3. Students who fail to attain a grade of "C" or better in a professional or pre-professional course will be placed on departmental probation following the grade lower than "C".

4. Students who do not successfully complete departmental probation will not be permitted to continue in the program.

5. The department may refuse to permit a student to continue in the curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.

FIELDWORK REMEDIATION AND CONTINUANCE POLICY

1. Successful completion of OT 443 is a prerequisite for OT 453.

2. Students who receive a failing grade in fieldwork level I (OT 443, 453) or level II (OT 490, 491) are subject to the academic policy for remediation and continuance, and will repeat the experience in a similar setting.

3. Successful completion of OT 453 and all professional and prerequisite coursework is required for OT 490.

4. Successful completion of all undergraduate coursework for graduation is required for OT 491.

5. Students who fail fieldwork, or who are asked to withdraw, are subject to review in accordance with the departmental remediation and continuance policy.

MISCELLANEOUS

The following course is offered on a credit/no credit basis only. OT 236. Materials fees are required for some courses.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Occupational Therapy major will satisfy the Baccalaureate Writing Requirement by successfully completing the following courses:

OT 303 Professional Language and Interaction 3
OT 312 Adapted Activities 4
OT 355 Life Skills and Personal/Environmental Adaptations 4
OT 443 Practicum I 3

The Combined Bachelor of Science and Master of Science Program (BS/MS)

This combined BS/MS program is designed to facilitate movement of a limited number of exceptional undergraduate students into the Graduate Program. Outstanding undergraduates, who were admitted to the undergraduate professional program through the established admission process, are eligible to apply.

This program is designed to prepare the student to treat clients with various disabilities, and to be eligible for certification by the AOTCB as an occupational therapist after successfully completing both the Bachelor of Science and Master of Science Degrees. Under University regulation, both degrees are awarded simultaneously. This program can be completed in twenty-four to twenty-eight months, depending on the admission date and includes at least one Spring and Summer session. This program is jointly accredited by the American Occupational Therapy Association and the American Medical Association. Graduates are qualified to take the American Occupational Therapy Certification Board Examination and are eligible to apply for licensure or registration in those states regulating occupational therapy practice.

The Professional Curriculum

The professional curriculum uses a holistic and integrated approach in developing those characteristics identified for the graduated student. Key to the educational philosophy of the department is the developmental sequencing of content and learning experiences related to professionalism, personal environment and the occupational therapy process. The implementation of this philosophy into course design results in the inclusion of most learning objectives into several courses in a simple to complex pattern. This design maximizes the development of clinical reasoning skills.
Admission Requirements

Students are encouraged to make a declaration of intent before formal application. Formal application is due during the second semester in the undergraduate professional curriculum. Students will be admitted in the first semester of their senior year as space is available.

To be eligible for regular admission to this program, each applicant must present evidence of the following criteria:

1. Completion of one year in the undergraduate professional curriculum.
2. A grade point average of 3.0 or better.
4. Positive Faculty recommendation.
5. Completion of the Graduate College Application.

Because admission is competitive, the academic criteria listed above should be considered as minimum standards. Selection is based upon an equal weighting combination of cumulative grade point average and Graduate Record Examination scores and available space in the graduate program.

Program Requirements

Completion of 122 semester hours of undergraduate courses including the following 45 semester hours of professional occupational therapy education which includes six months of full-time fieldwork. OT 202 Orientation to Occupational Therapy must be completed before or during the first year of professional study.

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>OT 202</td>
<td>Orientation to Occupational Therapy</td>
<td>2</td>
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<tr>
<td>OT 303</td>
<td>Professional Language and Interaction</td>
<td>3</td>
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<td>OT 312</td>
<td>Adapted Activities</td>
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<tr>
<td>OT 321</td>
<td>Integrated Medical Sciences</td>
<td>6</td>
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<tr>
<td>OT 335</td>
<td>Assessment Principles and Instruments</td>
<td>3</td>
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<td>OT 344</td>
<td>Disabling Conditions</td>
<td>1</td>
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<tr>
<td>OT 351</td>
<td>Introduction to Theory and Treatment Process I</td>
<td>4</td>
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<tr>
<td>OT 352</td>
<td>Introduction to Theory and Treatment Process II</td>
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<tr>
<td>OT 355</td>
<td>Life Skills and Personal/Environmental Adaptations</td>
<td>4</td>
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<tr>
<td>OT 443</td>
<td>Occupational Therapy Practicum I</td>
<td>3</td>
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<tr>
<td>OT 451</td>
<td>Applied Theory and Treatment Process</td>
<td>2</td>
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<tr>
<td>OT 453</td>
<td>Occupational Therapy Practicum II</td>
<td>3</td>
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<tr>
<td>OT 490</td>
<td>Field Work Level I</td>
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<td>OT 491</td>
<td>Field Work Level II</td>
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The forty-five semester hour sequence of professional education is designed to prepare the student to treat clients with various disabilities, and to be eligible for certification.

The graduate component includes the completion of 30 semester hours of graduate courses which include the following:

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<tr>
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<tbody>
<tr>
<td>OT 610</td>
<td>Professional Issues</td>
<td>3</td>
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<tr>
<td>OT 633</td>
<td>Administration of Occupational Therapy</td>
<td>3</td>
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<td>OT 640</td>
<td>Theory in Occupational Therapy</td>
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<tr>
<td>OT 660</td>
<td>Research in Occupational Therapy</td>
<td>3</td>
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<tr>
<td>OT 686</td>
<td>Graduate Seminar</td>
<td>3</td>
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<tr>
<td>OT 700</td>
<td>Thesis</td>
<td>4 OR</td>
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<tr>
<td>OT 710</td>
<td>Independent Research</td>
<td>6</td>
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This thirty-hour graduate component is designed to enhance growth in professional leadership potential by developing skills in administration, program development, theories of practice, professional issue resolution and research.

Please read the WMU Graduate College Bulletin for information on other requirements for completion of a masters degree.

SEQUENCE OF COURSES

Courses in the professional program are completed in a sequential pattern toward developing complex clinical problem solving skills. The courses are not designed to stand alone, but to build upon the knowledge base from previous semesters.

The prerequisite and pre-professional courses build a solid knowledge base in the biological and behavioral sciences. The first semester centers on human function, pathology, dysfunction and basic problem solving. Students also learn the history of the profession and current practice roles of therapists. The second semester centers on developing skills in activity analysis, the role of activity in occupational therapy treatment, formal assessments used by therapists, an introduction to treatment therapy and techniques used, and constructing appropriate treatment plans. The third semester centers on additional treatment techniques used in therapy, administration of clinical programs, and the clinical treatment experience with clients in the on-campus occupational therapy clinic. The fourth semester of the professional program centers on a clinical treatment experience with clients in clinical programs in the Kalamazoo area. In addition, the student will enroll in those courses necessary to complete University requirements for the baccalaureate degree. For students who may have met these requirements, a modified schedule may be arranged including enrollment in OT 610, the graduate course in Professional Issues. The BS/MS student next enrolls in the Summer Session and takes the graduate research course to develop research and writing skills as applied to occupational therapy. In addition, the student would add an elective or cognate course. The following fall and winter semesters are devoted fully to the graduate component designed to enhance growth in professional leadership. The spring session could be used to complete thesis or project requirements if necessary. The next enrollment period, summer session, the student enrolls in OT 490 and 491 for the required six months of full-time fieldwork experience as a student therapist in two clinical practice sites (one being a medical model site and one being a community model site). Western Michigan University utilizes fieldwork sites primarily in Michigan and the Midwest states with some sites throughout the United States.

A summary of the course sequence for the BS/MS student may be obtained from the departmental advisor.

An overall grade point average of at least 3.0 (A=4.0) is required for the graduate program. No undergraduate credit is computed into the graduate grade point average. Honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by credits earned at another university.

REMEDIATION AND CONTINUANCE POLICY

1. Students will complete all required departmental prerequisites and courses with a grade of "C" or better. Subsequent courses cannot be taken until prerequisites are completed successfully.
2. Students can repeat only one required pre-professional or departmental course, and that course only once to attain a grade of "C" or better.
3. Students who fail to attain a grade of "C" or better in a professional or preprofessional course will be placed on departmental probation following the grade lower than "C".
4. Students who do not successfully complete departmental probation will not be permitted to continue in the program.
5. The department may refuse to permit a student to continue in the curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.

FIELDWORK REMEDIATION AND CONTINUANCE POLICY

1. Successful completion of OT 443 is a prerequisite for OT 453.
2. Students who receive a failing grade in fieldwork level I (OT 443, 453) or level II (OT 490, 491) are subject to the academic policy for remediation and continuance, and will repeat the experience in a similar setting.
3. Successful completion of OT 453 and all professional and prerequisite coursework is required for OT 490/491.
4. Successful completion of all undergraduate coursework for graduation is required for OT 491.
5. Students who fail fieldwork, or who are asked to withdraw, are subject to review in accordance with the departmental remediation and continuance policy.

Occupational Therapy Courses (OT)

OT 202 Orientation to Occupational Therapy
2 hrs. Orientation to the profession of occupational therapy. Will include the history of the profession, current professional roles, issues and trends in the field.

OT 225 Growth, Development, and Aging
3 hrs. Fall, Winter
A study of physical, mental, emotional, and social patterns of growth, development, and aging. Aspects to be given special emphasis for the occupational therapy student will be motor development, physical growth patterns, and functional development in any of the above aspects. Prerequisite: Pre-OT or nursing.

OT 303 Professional Language and Interaction
3 hrs.
A basic course which includes medical terminology, techniques of information gathering, and professional interpersonal communications. Prerequisite: OT Major.

OT 312 Adapted Activities
4 hrs.
Includes basic tool use, instruction in core craft and group activities including leather, ceramics, copper tooling, recreation, games and music. Emphasis placed on activity analysis and performance processes. Class demonstration and the application of selected activities to community groups is required. Prerequisite: OT major.

OT 321 Integrated Medical Sciences
6 hrs.
An integrated study of human systems as they relate to normal and abnormal functional performance. Emphasis will be placed on the musculoskeletal, neurological, and neuro-muscular systems. Prerequisites: Anatomy, Physiology, and OT major.
OT 335 Assessment Principles and Instruments
3 hrs.
This course will cover core components of assessment including process and procedures and testing situations. An integrated approach to psychological and physiological assessments throughout the life span is included. Students will learn the evaluative process, how to critique instruments and the research methodology used to develop assessments. Selected assessments are covered including their administration and interpretation. Prerequisite: OT 321.

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 344 Disabling Conditions
4 hours
This course will introduce pathogenic processes and their impact upon the total individual. Prerequisite: OT 321 or concurrent, PSY 250.

OT 351 Introduction to Theory and Treatment Process I
3 hrs.
This course is designed to introduce the student to the development of a theory and demonstrate the relationships of theory to current professional practice. Students will learn and apply occupational therapy theory, assessments, and techniques to treatment programs for clients with physical dysfunction accompanied by psychosocial problems. Emphasis is on an integrative approach and holistic intervention. Prerequisite: OT 344, OT 335, or concurrent.

OT 352 Introduction to Theory and Treatment Process II
2 hrs.
Companion course to Introduction to Theory and Treatment Process I. Application of occupational therapy theory, assessment, and treatment programs for clients with psychosocial problems accompanied by physical dysfunction. Emphasis is on the integrative and holistic approach to client intervention. Prerequisite: OT 351 or concurrent.

OT 355 Life Skills and Personal/Environmental Adaptations
4 hrs.
Examination of the role of occupational therapists regarding life skills. Students will learn to design or adapt the physical environment to assist self-care, work, and play/leisure performance by using orthotics, prosthetics, and assistive/adaptive devices. Prerequisite: OT 312, OT 335, OT 351, or concurrent.

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 443 Occupational Therapy Practicum I
9 hrs.
This course is designed to provide clinical experience in client assessment, the development of treatment plans, the implementation of treatment, and the evaluation of the client's progress related to the treatment plan. Emphasis is directly related to the content in OT 351 and OT 352. Prerequisite: OT 335, OT 351, OT 355, OT 352 or concurrent.

OT 451 Applied Theory and Treatment Process
2 hrs.
This course is designed to provide the student with occupational therapy theory and principles related to community practice. The content will include group dynamics, social and work adjustment, and pre-vocational assessment. Prerequisite: OT 335.

OT 453 Occupational Therapy Practicum II
3 hrs.
This course is designed to provide clinical experience in community agencies in order to develop skill in the utilization of assessments, the development of treatment plans, the implementation of treatment plans, and the evaluation of the patient's growth related to the treatment plan. Emphasis is directly related to the content of OT 451. Prerequisite: OT 353, OT 451.

OT 460 Research Methodology
3 hrs.
A course designed to utilize methodologies of research and apply them to occupational therapy practice. Students will critically analyze research literature and will write a research proposal. Prerequisite: Senior status, and OT 303.

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 480 Administration-Supervision-Consultation
3 hrs.
This course will cover the basic principles of administration in Occupational Therapy including planning, organizing, staffing, directing, and controlling. Administrative skills including leadership, decision-making and professional writing, health care delivery systems, and the consulting process and its relationship to the delivery of OT services will be covered. Prerequisite: Senior status and OT major.

OT 490 Field Work Level II
3 hrs.
A three-month affiliation in hospitals or community agencies providing the student experience in designated areas of occupational therapy. Departmental consent only. Prerequisite: Completion of all basic professional course work and prerequisite courses.

OT 491 Field Work Level II
3 hrs.
A three-month affiliation in hospitals or community agencies providing the student experience in designated areas of occupational therapy. Prerequisite: Graduate students—completion of all basic professional course work and prerequisite courses; undergraduate students—completion of all academic work.

OT 492 Fieldwork Level II
2-3 hrs.
An optional three-month affiliation in hospitals or agencies providing the student experience in designated area of occupational therapy. Prerequisites: OT 490, OT 491.

OT 530 Sensory Integration and The Child
3 hrs.
Study of theoretical principles and their application to evaluation and treatment of the child with sensory integration dysfunction. Students will observe and participate in screening and evaluation of children, and they will design treatment plans for selected clients. Prerequisites: OT 335, OT 351, OT 353 or concurrent; or OTR, RPT, or consent.

OT 597 Studies in Occupational Therapy
2-4 hrs.
Examines selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit. Prerequisites: Advanced OT major or departmental permission.
PHYSICIAN ASSISTANT

Laura M. Capozzi, Chair
James B. Hammond
Samuel G. Shorter

The Physician Assistant Program in the Physician Assistant Department is a professional program which educates assistants to primary care physicians. These assistants perform many of the tasks required in a medical practice and free the physician to spend more time on the difficult and complex matters of medicine. Through the appropriate use of a physician assistant, patients receive more individualized quality care.

Graduates of the program are awarded the Bachelor of Science in Medicine degree and are eligible to sit for the National Certifying Examination for Physician Assistants prepared by the National Board of Medical Examiners (NBME).

Western’s Physician Assistant Program has been fully accredited by the Committee on Allied Health Education and Accreditation (CAHEA) since its inception. A major goal of the Program is to increase the availability of health care services to underserved areas.

As a member of the health care team, the physician assistant works under the supervision of a licensed physician. Together they form a team to better meet the time constraints and needs of the patients. To accomplish this, students are provided a wide variety of opportunities and learn the theory of disease and health care situations. To accomplish this, students are provided a wide variety of opportunities and learn to (1) obtain comprehensive health histories; (2) perform complete physical examinations; (3) record data; (4) perform uncomplicated diagnostic laboratory tests; (5) understand and use data received from all major diagnostic laboratory tests; (6) prepare diagnosis and treatment plans; (7) perform certain basic treatment procedures and (8) make appropriate clinical responses to commonly encountered emergency care situations.

ADMISSION REQUIREMENTS

The PA Program has the following requirements for application to the professional curriculum. No applicant missing one or more of these requirements will be considered for admission.

1. A minimum of 1,000 hours (six months) of health care experience (not including education). Many types of experiences are acceptable. The program staff will answer questions about applicability of health care experiences.

2. A minimum of sixty (60) semester hours of college credits, including CHEM 101 and CHEM 120 and either CHEM 365 or CHEM 360-361 or equivalents.

3. University requirements for admission.

RECOMMENDED

1. Life science credits in the range of 15-20 semester hours, including the Chemistry requirements.

2. Humanities, social and behavioral sciences and the arts are positive selection factors.

APPLICATION PROCEDURE

Admission to the professional curriculum of the PA Program requires separate application. Application forms may be obtained from the PA Office in A311 Elsworth Hall.

SELECTION PROCESS

The selection committee has established the following policies for selection to begin in the junior year. The three-step process consists of:

1. Review of application data. Each application is reviewed by at least three members of the selection committee; candidates are selected for interviews.
2. Interviews: selected candidates are scheduled for separate required interviews.
3. Final selections: the selection committee reviews all the data including the results of the interviews and recommends candidates for admission.

Students are admitted to the program at the beginning of the junior (Pre-Clinical) academic year each fall semester. Because of the keen competition for class positions, priority is given to those candidates who present the best overall profile. Selection is based on the following:

- Academic record
- Assessment of previous health care experience, evidence of good character, and possession of those attitudes and aptitudes required for the effective health care professional.

THE CURRICULUM

This upper-division curriculum is divided into two parts. The first part is devoted to the basic medical sciences upon which the theoretical concepts of disease can be built. Subjects covered in this portion include anatomy, biochemistry, pharmacology, microbiology, and pathophysiology. During this time, the students begin instruction in the clinical areas and gain interviewing, history-taking and physical diagnosis.

During the senior or clinical year, each senior PA student enrolls in seven required clinical rotations including community and mental health, family medicine, internal medicine, surgery, obstetrics and gynecology, pediatrics, and an elective clerkship.

BACCALAUREATE WRITING REQUIREMENT

 Students who have chosen the Physician Assistant Program will satisfy the Baccalaureate Writing Requirement by successfully completing the following courses:

- MDSC 304 Patient Evaluation I
- MDSC 314 Patient Evaluation II
- MDSC 324 Patient Evaluation III
- MDSC 334 Patient Evaluation IV

CURRICULUM REQUIREMENTS

1. All courses listed (103 hrs.) are required.

2. Students are required to obtain at least a grade of "C" in each course or they must undergo a prescribed academic review process to determine their continuance in the program.

3. Students are required to successfully pass a comprehensive examination in medical terminology at the start of the fall semester of their junior year.

4. Students must meet Intellectual Skills and Computer Literacy requirements.

JUNIOR (PRE-CLINICAL) YEAR

FA L L S E M E T E R Y

- B I O S 4 0 1 Pathogenetic Microbiology for P.A.'s
- C H E M 3 5 0 Chemistry for P.A.'s
- M D S C 3 0 1 Medical Terminology
- M D S C 3 0 4 Patient Evaluation I
- M D S C 3 1 1 Gross Human Anatomy
- B I O S 3 1 9 Clinical Physiology for P.A.’s

W I N T E R S E M E T E R Y

- M D S C 3 0 3 PA History and Legislation Seminar
- M D S C 3 1 4 Patient Evaluation II
- D S C 3 1 7 Internal Medicine
- M D S C 3 0 6 Pathophysiology
- M D S C 4 1 0 Pharmacology I for P.A.’s
- M D S C 4 0 9 Allergy
- M D S C 4 1 3 Dermatology

SP R I N G S E M E T E R Y

- M D S C 3 2 4 Patient Evaluation III
- M D S C 3 3 7 Pediatrics
- M D S C 3 0 2 General Surgery
- M D S C 3 2 7 Internal Medicine II
- M D S C 3 1 2 Community and Mental Health

S U M M E R S E M E T E R Y

- M D S C 3 3 4 Patient Evaluation IV
- M D S C 3 4 7 Obstetrics and Gynecology
- M D S C 4 1 2 Pharmacology II for P.A.’s
- M D S C 4 1 5 Emergency Medicine Lectures

S E N I O R (C L I N I C A L) Y E A R


- M D S C 3 0 7 Techniques of Patient Counseling
- M D S C 4 2 2 Pediatrics Clerkship
- M D S C 4 3 2 Pediatrics Seminar
- M D S C 4 2 3 Obstetrics and Gynecology Clerkship
- M D S C 4 3 3 Obstetrics and Gynecology Seminar
- M D S C 4 2 4 Internal Medicine Clerkship
- M D S C 4 3 4 Internal Medicine Seminar
- M D S C 4 2 5 Surgery Clerkship
- M D S C 4 3 5 Surgery Seminar
- M D S C 4 2 6 Community and Mental Health Clerkship
- M D S C 4 3 6 Community and Mental Health Seminar
- M D S C 4 2 8 Elective Clerkship
- M D S C 4 3 8 Elective Seminar

S U M M E R S E M E T E R Y

- M D S C 4 2 7 Family Medicine
- P receptorship
- M D S C 4 3 7 Family Medicine Seminar

Physician Assistant Program Courses (MDSC)

MDSC 301 Medical Terminology
1 hr.

The language of medicine—through an understanding of the Greek and Latin derivations and construction of medical terms, the student learns the vocabulary of the health-related professions.

MDSC 302 General Surgery Lecture
2 hrs.

This course presents topics related to general surgery including acute, chronic, and emergent problems. Topics will include preoperative care techniques, nutrition, fluid, and electrolyte balance as well as presentations on selected surgical conditions and their management. Prerequisites: MDSC 317 and PA curriculum.

MDSC 303 PA History and Legislation Seminar
1 hr.

Principle events in the history of the Physician Assistant profession are discussed. Legislative history and current developments are discussed. Additional topics include: importance of professional associations, hospital privileges, PA/physician agreements, and the process for interviewing, resume writing, and other preparation for employment.

MDSC 304 Patient Evaluation I
3 hrs.

This is the first in a series of four courses presented sequentially through the pre-clinical year. It provides instruction in the systematic evaluation of patient problems through history taking and physical examination. Lectures, demonstrations, student examination of patients, and critique
This course is designed to help the Physician Assistant in the health care system. Prerequisites: MDSC 317 and PA curriculum.

MDSC 306 Pathophysiology
3 hrs.
This course focuses on the altered physiology of common disease states. It serves as an introductory foundation to more specific medical courses within the PA curriculum.

MDSC 307 Techniques of Patient Counseling
1 hr.
An introduction to patient counseling with emphasis upon interviewing techniques, current theories of personality and psychopathology and includes such specialized techniques as methods of crisis intervention, and counseling patients with substance abuse, coping, and sexual dysfunction problems. In addition, psychotherapeutics counseling is discussed.

MDSC 311 Gross Human Anatomy
5 hrs.
This course is designed to help the Physician Assistant student achieve a sound understanding of the structure of the human body through lectures, discussions and laboratory cadaver dissection. Topographical and regional anatomy as applied to clinical medicine are stressed.

MDSC 312 Community and Mental Health Lecture
1 hr.
This course introduces topics in community and mental health that range from descriptions of community resources to diagnostic categories and terms in the field of psychiatry. Emphasis will be placed on acquainting students with a wide range of clinical presentations, referral options, and therapeutic guidelines related to the role of the Physician Assistant in the health care system. Prerequisites: MDSC 317 and PA curriculum.

MDSC 314 Patient Evaluation I
3 hrs.
Second in a series of courses beginning with 304.

MDSC 317 Internal Medicine I
6 hrs.
This course has two principle elements. The first is to introduce the student to the broad concepts of medical service emphasizing the psychosocial aspects of care. The second is to begin surveying the etiology, pathophysiology, diagnosis and treatment of common diseases and disorders by body systems. This survey will be completed in MDSC 337.

MDSC 324 Patient Evaluation III
1 hr.
Third in a series of courses beginning with 304.

MDSC 327 Internal Medicine II
3 hrs.
This course surveys the etiology, pathophysiology, diagnosis and treatment of common diseases and disorders by body systems. It is a continuation of MDSC 317 Internal Medicine I.

MDSC 334 Patient Evaluation IV
1 hr.
Fourth in a series of courses beginning with 304.

MDSC 335 Pediatric Medicine Lecture
3 hrs.
This course deals with the systematic developmental approach to the etiology, clinical presentation of signs and symptoms, diagnosis and treatment of common medical disorders in pediatrics, and toxic areas such as human growth and development, neonatal problems, infectious diseases of childhood, and selected disorders of each body system. Prerequisite: MDSC 317 and PA curriculum.

MDSC 347 Obstetrics/Gynecology Lecture
3 hrs.
This course introduces the student to women’s health care through inquiry into the fields of obstetrics and gynecology, knowledge of normal processes and abnormal conditions, and increased awareness of the unique needs of women seeking health care. Prerequisite: MDSC 317 and PA curriculum.

MDSC 409 Allergy
1 hr.
This course covers basic theoretical and proven concepts of allergy and immunology. Emphasis is placed on clinical recognition of allergic symptoms, importance of accurate etiologic diagnosis, and the relationship between pathophysiologic changes and their corrections by proper therapy.

MDSC 410 Pharmacology I for PAs
4 hrs.
This course emphasizes the general principles of pharmacology as a basis for the rational clinical use of drugs. The course is comprehensive but pragmatic. Factors affecting drug action, such as rates of absorption, metabolism, and excretion are discussed. Mechanism of action is covered. The principle thrust is to acquaint the student with drugs commonly used in therapy, their side effects, and toxic manifestations.

MDSC 412 Pharmacology II for PAs
3 hrs.
This course deals with the practical aspects of pharmacology as they relate to the primary-care Physician Assistant. This is a continuation of Pharmacology I.

MDSC 413 Dermatology
1 hr.
This course provides an introduction to the general field of dermatology including normal structure and function of the skin, techniques of history-taking and examination, recognition of common skin diseases, and basic concepts of treatment.

MDSC 415 Emergency Medicine Lectures
3 hrs.
This course presents the etiology, evaluation and initial treatment of common medical and surgical emergencies. It also presents practice on basic skills needed in the practice of emergency medicine such as suturing, casting, and CPR.

MDSC 422 Pediatric Rotation
4 hrs.
During this six-week rotation, emphasis is placed on normal variations of growth and development and childhood illnesses. Emphasis is placed on well-child care, immunizations, nutrition, and general patient and parent education. The student is exposed to treatment of the acutely ill in the office and hospital, and assessment of normal growth and development through physical examination.

MDSC 423 Obstetrics and Gynecology Rotation
4 hrs.
This six-week rotation is designed to provide an opportunity for the PA Student to develop proficiency in the special history-taking and examination of the Obst/Gyn patient. While on the obstetric service, the management principles of pregnancy, labor and delivery, including prenatal and postnatal complications are taught. The gynecology emphasis is placed on exposing the students to methods and programs relating to cancer detection, venereal disease, and birth control. Emphasis is on those obstetric and gynecologic disorders most commonly encountered by the primary care physician assistant.

MDSC 424 Internal Medicine Rotation
4 hrs.
A six-week rotation during which the indications, limitations, and methods of performing the necessary diagnostic procedures and therapeutic measures used in the treatment of general medical disorders are reviewed. Patient problems and conditions as experienced in the out patient clinic, emergency room, and the hospital are covered in this course. The student, through the collection and review of historical, physical and laboratory data, develops an understanding of patient evaluation and treatment.

MDSC 425 General Surgery Rotation
4 hrs.
This six-week surgical rotation is designed to prepare the student to function as an assistant to the generalist. The student’s time is divided between out patient and in patient surgical services. Students then follow through pre-operative preparations, assists in surgery, and helps in post-operative care. In this way, the student learns to assist not only in the management of routine surgical cases, but also in the treatment of various complications.

MDSC 426 Community and Mental Health Rotation
4 hrs.
This is a six-week rotation which emphasizes common problems found in primary care settings which involve mental stresses and mental illness. The objectives center around proper data collection, problem recognition, basic counseling techniques and referral mechanisms. There is also emphasis on patient’s legal rights and common treatment modalities. Experience is gained with both pediatric and adult patients and with both out patient and in patient situations. The student becomes acquainted with the community and mental health framework including major types of problems encountered by patients in the community and the services provided by agencies which care for clients needs.

MDSC 427 Family Medicine Preceptorship
8 hrs.
Family Medicine is an eight-week rotation during the last two months of the program prior to graduation. It provides an opportunity for students to bring the knowledge gained on the previous rotations to bear on primary care. Emphasis is on proper data collection through history and physical examination, formulation of accurate problem lists, accurate investigation, and treatment plans. Students are evaluated on their professional manner. Specific objectives include recognition and treatment of problems encountered in family medicine. Emphasis is placed on acquaintance with available community resources such as child welfare, mental health, public health, welfare, drug and alcohol abuse, crisis centers, etc. Students assist physicians in medical and surgical procedures. Emphasis is also placed on counseling patients and family members about medical problems and health.
This six-week rotation is intended to cover the many sub-specialties of medicine, including emergency medicine, dermatology, otolaryngology, ophthalmology, urology, orthopedics, cardiology, and oncology. The student may elect to take any combination of these specialties to fill the six-week period. In addition to the specialties, the student may elect to seek further experience in one of the other main specialties such as community and mental health, surgery, internal medicine, ob/gyn, pediatrics, or family practice.

MDSC 432 Pediatrics Seminar 2 hrs.
During the six-week clinical rotation in pediatrics, the student reviews selected readings which include major areas of pediatrics, newborn care, disorders of the newborn, infectious diseases of the newborn, musculoskeletal system, neurologic system, infectious diseases, poisonings, child neglect, psychological aspects of childhood, digestive system disorders. Within these topics, emphasis is placed on etiology, signs and symptoms, clinical presentation, diagnosis and management, common pediatric problems. Emphasis is also placed on preventive medicine, care and assessment of well children, immunizations, patient and parent education.

MDSC 433 Obstetrics and Gynecology Seminar 2 hrs.
This is a self-directed seminar in obstetrics and gynecology which accompanies the obstetrics and gynecology rotation. The student must complete required assignments in obstetrics and gynecology. Here again, emphasis is on common problems in obstetrics and gynecology with which a physician assistant would be involved including preventive medicine and patient education.

MDSC 434 Internal Medicine Seminar 2 hrs.
This is a self-directed seminar which accompanies the internal medicine clinical rotation. The reading list centers on the etiology, clinical presentation, diagnosis and management of common problems in adult medicine.

MDSC 435 Surgery Seminar 2 hrs.
This is a self-directed seminar in surgery which accompanies the clinical rotation in surgery, and deals with the etiology, clinical presentation, diagnosis, and management of common problems of surgery.

MDSC 436 Community and Mental Health Seminar 2 hrs.
This is a directed, self-study seminar which accompanies the community and mental health clinical experience and which centers on common problems frequently encountered by patients and emphasizes their recognition and proper treatment. It also emphasizes referral mechanisms and utilization of community resources. The problems include such things as marriage and family counseling, alcohol and drug abuse, anxiety problems, learning disabilities, personality disorders in addition to depression and schizophrenia.

MDSC 437 Family Medicine Seminar 2 hrs.
This is a self-directed seminar in family medicine which accompanies the clinical experience in family medicine. The student is provided with a required reading list which focuses on problems commonly found in primary care in family medicine. These include knowledge of the family structure and function, family dynamics, preventive medicine, periodic health screening, utilization of community resources and common medical problems in dermatology, orthopedics, ophthalmology, internal medicine, nutrition, allergy, immunology, urology, neoplastic disorders, emergency problems, surgery, pediatrics, obstetrics, and gynecology.

MDSC 438 Elective Seminar: Variable Title 2 hrs.
This independent study seminar takes place during the elective rotation. Through readings and discussion with the preceptor, emphasis is placed on academic knowledge of the elected area of medicine. Prerequisite: PA curriculum.

Social Work

Phillip Popple, Interim Director
Thomas Blakely
Donald Cooney
John Flynn
Judy Halseth
Leithronee Jones
Peter Judd
Raymond Lish
Frederick MacDonald
Gary Mathews
Edward Pawlak
Deborah J. Phillips
Linda Reeser
Kenneth E. Reid
Danny H. Thompson
Robert Werthkin
Marion Winberg

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. The undergraduate professional program is designed to prepare students for beginning level social work practice, to provide preparation for graduate training in social work, and to offer social welfare content as part of the student’s Liberal Arts Education. The graduate/professional program is designed to educate students for social treatment and policy planning/administration positions in the field of social welfare. Students enrolled in the undergraduate social work curriculum are required to complete a major consisting of 32 hours, including a minor consisting of a minimum of 15 hours is offered for students in other curricula. In addition, the School of Social Work participates in a University gerontology minor. Social work students should consult their curriculum advisor and program planning for the gerontology minor.

Admission

Students who desire to major in social work will be admitted into the pre-social work curriculum at the time of admission to the University. This status, however, does not assure admission to the social work major. The selection of students to be admitted to the social work major occurs after review of all applicants by the admissions and student services committee composed of social work faculty. This a competitive process.

On completion of 45 semester hours (midway through the sophomore year) and SWRK 210 Social Work Services and Professional Roles, students submit an Application for Admission to Undergraduate Social Work Major to the Director of Admissions of the School of Social Work. SWRK 210 should be taken in the first semester of the sophomore year. Deadlines for submitting applications are January 15, May 15, and October 1 of each year. Applicants are encouraged to apply as early as is possible because there are limited seats available for the major each year. This admission process is competitive.

Social Work Curriculum

Offerings in the social work major cover four substantive components. The first component provides knowledge about social welfare systems and policies. The second deals with psychological and sociological issues concerned with individual, family, group, organization, and social systems. The third component focuses on social work practice content. The fourth component provides an introduction to social research. A guided interdisciplinary minor of 22-23 hours is required to fulfill the program requirements. In addition, a student may
choose to select a second regular curriculum minor from another department. If so, the student should consult the undergraduate social work advisor for approval. Further questions concerning the Social Work major or minor may be directed to the School of Social Work.

The graduate-professional program focuses on contemporary social problems and problem-solving processes. It provides a two-year curriculum leading to a master’s degree in social work. Further information about this program can be found in the Graduate Bulletin.

Baccalaureate Writing Requirement

Students who have chosen the Social Work major will satisfy the Baccalaureate Writing Requirement by successfully completing ENGL 305 Practical Writing.

Program

MINIMUM HOURS REQUIRED FOR GRADUATION 122 hrs.

General Education Requirements 35 hrs.

Requirements for the undergraduate Social Work major 32 hrs.

SWRK 210 Social Work Services and Professional Roles 3

SWRK 300 Social Welfare as a Social Institution 3

SWRK 350 Social Work Concepts in Individual and Family Behavior 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 II 4

SWRK 411 Field Experience and Seminar IV 3

SWRK 433 Dynamics of Race and Culture for Social Work Practice 3

*Completed field applications are due at least 15 weeks prior to the semester in which field work is to be taken.

Note: Following completion of SWRK 210, students must be accepted into the social work curriculum to complete the major.

Required Research Component SOC 382 and 383 Methods of Sociological Inquiry (Prerequisites: SOC 182 and SOC 200) 6 hrs.

Required Guided Interdisciplinary Minor 22-23 hrs.

Includes:

COM 170 Interpersonal Communication I 3
ENGL 305 Practical Writing 4
BIO 112 Introduction to Biomedical Sciences 3

Any one of the following:

ECON 100 Contemporary Economic Problems 3
ECON 313 Poverty and Economic Security 3

Any one of the following:

PSCI 202 State and Local Government 4

PSCI 300 Urban Politics 3

Any one of the following:

PSY 100 General Psychology 3
PSY 160 Child Psychology 3
PSY 250 Abnormal Psychology 3

Any one of the following:

SOC 210 Modern Social Problems 3
SOC 300 Sociological Theory 3
SOC 362 Introduction to Social Gerontology 3

Physical Education 2 hrs.

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 100 Introduction to Social Services 3

SWRK 464 Problem Solving in Gerontology 3

SOC 455 Correctional Process and Techniques 3

SOC 457 Institutional Treatment 3

SOC 458 Non-institutional Treatment 3

SOC 459 Juvenile Justice 3

SWRK 512 Social Policy and Service Delivery in Selected Problem Areas 3

SWRK 513 Social Welfare and the Law 3

SWRK 561 Community Development in Selected Countries 3

SWRK 562 Community Organization in Urban Areas 3

SWRK 563 Work Concepts in Rehabilitation 3

SWRK 564 Special Studies in Social Welfare Practice 1-4

SWRK 566 Social Service in the Schools 3

SWRK 572 Community Agency Resources 2

SWRK 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas 1-4

SWRK 598 Readings in Social Work 1-4

The student must satisfy the requirements for the B.S.W. degree.

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 will be in jeopardy of being dropped from the social work major.

1. The student must receive a “C” or higher in each required social work course to remain in the major. You may repeat one required social work course to raise your grade. The exceptions to this minimum grade of “C” requirement are the research methods courses (SOC 382-383) where a “D” is acceptable.

2. The student must maintain an overall average of 2.0 in the interdisciplinary minor. Transfer students note that courses transferring into the minor core in no grade (so your “A” at a two-year college can’t be used to balance a lower grade in a course here).

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 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

SWRK 210 Social Work Services and Professional Roles 3

SWRK 300 Social Welfare as a Social Institution 3

Three of the following social work courses: 350, 351, 433, 464, 465, any 500 level social work course (Excluding SWRK 572)

Social Work Courses (SWRK)

(Courses described in italics are approved for General Education.)

SWRK 100 An Introduction to Social Services 3 hrs.

A descriptive course covering knowledge content relating to operation of social service programs. It is a study of the philosophy and value base for these services. Observation visits to field agencies, films, guest lectures and other lab and volunteer experiences may be arranged with the instructor to promote appreciation of knowledge content.

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, commitment to social justice, and historical development. The course examines the evolution of social work as a profession, acquaints students with contemporary social work roles and fields of practice, and examines the profession’s responsibilities in the delivery of social work services to minority and majority groups in the public and private sectors. Prerequisite: Sophomore status or consent of instructor.

SWRK 300 Social Welfare as a Social Institution 3 hrs.

This course analyzes social welfare as a response to social problems and human needs. It examines the social, economic, political, and philosophical forces that have led to the historic development and institutionalization of social welfare. It encourages students to develop a critical perspective on social welfare policies and programs and stresses an understanding of the impact of age, race, gender, sexual orientation, and social class upon social policy and service delivery. Prerequisites: SWRK 210.


This course provides the student with a basic understanding of human behavior, related to human developmental processes, ego psychology, learning theory, and family, social and cultural dynamics. The course examines socialization and its influence on human behavior and identifies significant physical, mental, emotional, social, and cultural factors which affect the development of the personality, biological, and family systems. The social and cultural factors examined include social class, race, gender, age, sexual orientation, etc. Prerequisite: SWRK 210 and junior status.
and fourteen (14) hours in a campus-based agency, students develop a working understanding of human behavior related to social work. This course provides the student with information about social welfare programs, both institutional and non-institutional, which are available to our aged, frail population. The student is introduced to different approaches to service delivery and interventional 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: Consent of instructor. Open only to senior undergraduates and graduate students.

SWRK 556 Social Service in the Schools 3 hrs.
The role of the social worker in elementary and secondary schools and the necessary adaptations in the changes taking place in the educational scene are examined and evaluated. Problem solving approaches are given special attention with regard to the structure and organization of the schools and their relationships with the surrounding community. The specific contributions of a school social worker as a helping person to the pupils, the school staff and the homes by various interventive means are explored. Prerequisite: Consent of instructor.

SWRK 569 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. Personal and organizational factors that are associated with or that determine offenders' passage through the juvenile court are examined. Prerequisite: Consent of instructor.

SWRK 572 Community Agency Resources 2 hrs.
A study of community agencies and resources for those concerned with family and personal problems. Emphasis is placed upon the availability of these resources and their effective use by business and industry, speech therapists, guidance counselors,
teachers, etc. Not recommended for social work majors or minors.

SWRK 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas
1-4 hrs.
The course focuses on the development of educational skills for social workers through faculty-directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area.

SWRK 598 Readings in Social Work
1-4 hrs.
Offers advanced students with good scholastic records an independent program of study, arranged in consultation with the instructor. One to four hours credit per semester.

SPEECH PATHOLOGY AND AUDIOLOGY
John M. Hanley, Chair
Harold L. Bate
Jan Bedrosian
Susan K. Boersma
Connie C. Carlson
Michael J. Clark
Robert L. Erickson
Sandra Glista
James M. Hilsenbrand
Gary D. Lawson
Nickola W. Nelson
Donna B. Oas
Karen S. Seelig
Candis Warner

Adjunct Faculty
Cindy Beachier
William L. Locke
Neil Shepard
John Tecca

Communication is the most complex aspect of human behavior. Impairments in the process of communication—speech, language, and hearing—leave myriad problems in their wake. Speech pathology and audiology is the area of professional specialization that has developed out of concern for persons with disorders of communication.

The basic educational mission of the Department of Speech Pathology and Audiology is to prepare professional personnel who will be maximally effective in the delivery of diagnostic, habilitative, rehabilitative, and preventive services to individuals handicapped by speech, language, and hearing impairments.

The undergraduate program is preprofessional in nature and is designed to prepare students for graduate professional education in speech and language pathology or audiology. Because the bachelor’s degree does not qualify the recipient for employment, students must plan for enrollment in a master’s degree program in order to complete their professional preparation. Admission to a graduate program typically requires a grade point average of "B" or higher in the undergraduate major as well as in undergraduate coursework (overall GPA). Completion of the undergraduate major in speech pathology and audiology does not guarantee a student’s admission into WMU’s or any other school’s graduate program. Information about the department’s master’s degree program can be found in the WMU Graduate Catalog.

Admission
Students who desire to major in speech pathology and audiology will be admitted into the Pre-Speech Pathology and Audiology curriculum at the time of admission to the University. This status, however, does not assure admission to the departmental major. The selection of students to be admitted to a speech pathology and audiology major occurs after review of all applicants by a departmental faculty committee.

Further information regarding requirements and procedures for admission to the departmental major may be obtained by contacting the department directly.

Transfer Students
It is recommended that transfer students enroll at Western at the beginning of the first semester of the sophomore year. Those who enroll at a later stage may find that an additional period of study will be required to complete the undergraduate curriculum.

Teacher Certification Track
Students who seek careers as speech-language pathologists in the public schools in Michigan (or in other states which require teacher certification for such employment) must arrange to complete a minor in elementary education which is required for the Elementary Provisional Teaching Certificate. Requirements and approval for this minor are obtained from the Education Advising and Admissions Office, 250 Sangren. Students must obtain an approved minor slip signed by an approved elementary education advisor.

Completion of the foregoing requirements, together with completion of the curricular requirements described below, and completion of a master’s degree program in speech pathology and audiology (with major emphasis in speech pathology, and including a graduate level speech and language therapy practicum in the schools), will result in recommendation of the student for Elementary 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 linguistics, social work, computer science, physics, psychology, gerontology or other 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 Pathology and Audiology Curriculum
A major in speech pathology and audiology consists of a minimum of 35 to 37 hours in speech pathology and audiology plus additional coursework specified by the department. These additional requirements include coursework in general education, physical education, supporting courses outside the department, and an academic minor. Each student is responsible for obtaining information on degree requirements and for taking the steps necessary to meet those requirements.
Students interested in a major in speech pathology and audiology should contact the department office in the Speech and Hearing Center at East Campus for an appointment with an undergraduate advisor. Because the sequencing of courses included in this major is critically important, students must seek academic advising from the department on an early and regular basis. Students who fail to do so may be dropped from enrollment in departmental courses.

Baccalaureate Writing Requirement
Students who have chosen the Speech Pathology and Audiology major will satisfy the Baccalaureate Writing Requirement by successfully completing SPPA 459 Special Studies in Communication Disorders.

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 coursework. 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 203 and SPPA 401, both of which are clinical practicum registrations available only to departmental majors. Minor slips are required.

Integrated Language Arts Minor (ILAM)
The Department of Speech Pathology and Audiology is one of five participating departments in the Integrated Language Arts Minor—a program designed particularly for preservice elementary school teachers. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section of the College of Arts and Sciences or its listing in the College of Education or the College of Health and Human Services. This program is currently not accepting applications.

Speech Pathology and Audiology Courses (SPPA)
(Courses described in italics are approved for General Education.)

SPPA 200 Introduction to Communication Disorders
3 hrs.
This course provides a broad view of the nature of language as the primary means of human communication, its normal acquisition, the common disorders of speech, language and hearing, the social and emotional consequences of these disorders, and individual and societal ways of dealing with communication disorders.

SPPA 203 Normal Language Acquisition
3 hrs.
A study of normal language acquisition as a basis for investigating disordered language. The course involves a survey of the stages of language acquisition and a consideration of mechanisms of language acquisition. Prerequisite: Consent of instructor or LING 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 LING 105 and BIOS 112 or BIOS 101. Majors must take concurrently with SPPA 203 and SPPA 207.

SPPA 205 Voice and Respiration
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. Prerequisite: Consent of instructor or SPPA 203, SPPA 204, PHYS 107 and PHYS 108, MATH 110 or MATH 116. Majors must take concurrently with SPPA 206.

SPPA 206 The Auditory System
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. Prerequisite: SPPA 203, SPPA 204, PHYS 107 and PHYS 108, MATH 110 or MATH 116, 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 taken concurrently 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 is 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 360 Practicum in Speech Pathology and Audiology I
2 hrs.
Clinical experience in the management of speech, language, and/or hearing disorders. Prior departmental approval required.

SPPA 401 Practicum in Speech Pathology and Audiology II
2 hrs.
Clinical experience in the management of speech, language, and/or hearing disorders. Prerequisite: SPPA 400.

SPPA 403 Speech Science
3 hrs.
Building on the student's prior understanding of anatomic, physiologic, and neurologic bases of speech, this course examines normal speech production with reference to the acoustic and perceptual products of interacting respiratory, phonatory, articulatory, and resonance systems. Prerequisite: Consent of instructor or SPPA 205 and SPPA 206.

SPPA 456 Rehabilitative Audiology
3 hrs.
Principles and clinical management of communication problems associated with auditory impairment.

SPPA 459 Special Studies in Communication Disorders
3 hrs.
A survey of neuropathologies and structural deviations which result in communication disorders, including infanile cerebral palsy and cleft palate. Prerequisite: Consent of instructor.

SPPA 552 Communication Problems of the Aged
3 hrs.
This course is designed to acquaint the student with receptive and expressive communication problems common to older adults. Emphasis is on the clinical management of characteristic organic speech disorders and impaired auditory functions associated with aging.

SPPA 554 Speech and Hearing Therapy in the Schools
2 hrs.
Study of clinical work with speech, language, and hearing disordered children in the school setting.

SPPA 556 Rehabilitative Audiology
3 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment.

SPPA 595 Oral Language Development and Dysfunction
2 hrs.
This course is designed to provide the student preparing to be a classroom or special teacher with information about the nature of oral language, its development, and conditions associated with dysfunction. Does not apply toward a major in speech pathology and audiology.

SPPA 597 Topics in Speech Pathology and Audiology
1-4 hrs.
Selected topics in speech pathology and audiology are systematically explored through lectures, laboratory experiences, and student projects. Possible areas of study are: instrumentation in audiology, manual communication, electrophysiologic audiometry, computer applications to speech pathology and audiology, augmentative communication, and contemporary professional issues.
The Graduate College offers a wide variety of programs leading to the master's, specialist, and doctoral degree.

The University has fifty-nine master's degree programs. Master of Arts degrees are awarded in numerous programs in the following general categories within the College of Education: Counselor Education and Counseling Psychology, Curricula in Teaching, Early Childhood Education, Educational Leadership, Physical Education, Reading, Special Education, Teaching in the Elementary School, and Teaching in the Middle School.

A number of other programs at Western also lead to the Master of Arts degree: Anthropology, Art, Chemistry, Communication, Comparative Religion, Economics, English, English as a Second Language, Geography, History, Home Economics, Mathematics, Mathematics Education, Medieval Studies, Orientation and Mobility, Philosophy, Physics, Political Science, Psychology, Rehabilitation Teaching, Sociology, Spanish, and Speech Pathology and Audiology.


In 1960 programs leading to the Specialist in Education degree were introduced. This degree is offered in Educational Leadership and in School Psychology.

Doctoral programs were initiated in 1966 and were fully accredited by the North Central Association in 1971. Thirteen of these programs—those in Computer Science, Educational Leadership (Educational Evaluation, Measurement, and Research Design), English, Geology, History, Mathematics, Mathematics Education, Physics, Political Science, Psychology, Science Education, Sociology and Statistics—lead to the Doctor of Philosophy degree. The Doctor of Education degree is offered in Counselor Education and Counseling Psychology, Educational Leadership, and Special Education. The Doctor of Public Administration is also offered.

Please refer to The Graduate College Catalog for further information on these programs.

Inquiries about financial assistance should be directed to The Graduate College; inquiries about research opportunities should be directed to the Office of Research and Sponsored Programs.
The Division of Continuing Education offers educational opportunities to qualified persons who wish to pursue their education on a part-time basis. Increasing numbers of men and women are interested and involved in improving their educational backgrounds for a variety of reasons—to improve career opportunities, to supplement past educational experience, to meet certification and licensure requirements, and to satisfy personal learning needs.

In response to the needs of these adult learners, Western's continuing education activities have been expanded to include extension courses for both undergraduate and graduate credit; satellite, correspondence, television, and other types of self-instructional courses; conferences, seminars, and workshops; and short courses for business, community, educational, and industrial leaders and other interested adults. Course and program offerings in the twenty-five southwestern Michigan counties served by Western's Division of Continuing Education are planned in conferences between representatives from academic units and continuing education professionals who continuously analyze student's needs and interests. In-service educational programs are planned with business, civic, educational, and professional groups. Consultation services are offered as well as actual training programs.

Western's on campus adult, part-time, and evening students are served by the Office of Adult Learning Services. The office offers step-by-step guidance in entering or re-entering the University and works with each of the six colleges to plan, monitor, and promote evening degree programs. It also provides pre-admission counseling to part-time students and academic advising to General University Studies students.

The Office of Conferences and Institutes develops and manages conferences and non-credit seminars in cooperation with university departments, professional groups, and community organizations. The Division's central office is located in A-Wing of Ellsworth Hall on Western's main campus in Kalamazoo. Six additional regional centers are located as follows:

- Grand Rapids Regional Center
  2333 East Beltline, S.E.
  Grand Rapids, MI 49546-5936
- Kalamazoo Off Campus Programs
  B-103 Ellsworth Hall
  Western Michigan University
  Kalamazoo, MI 49008-5161
- Kendall Center
  50 W. Jackson
  Battle Creek, MI 49017
- Lansing Regional Center
  300 N. Washington Square, Suite 200
  Lansing, MI 48933-1204

Muskegon Regional Center
444 S. Quarterline Road
Muskegon, MI 49442-2532

Southwest Regional Center
2510 Lakeview Avenue
St. Joseph, MI 49085

General University Studies

The Division has developed a baccalaureate program for adult students who are unable to take courses on the Kalamazoo campus. It especially serves those with a community college background or its equivalent. This undergraduate degree program is known as the General University Studies curriculum, which leads to either the Bachelor of Arts or the Bachelor of Science degree, depending upon the subject matter content of the program. Specific course requirements vary with the selected area of concentration. All programs must be planned with an academic advisor for the area of concentration. Arrangements for consultation with an advisor will be provided at the student's convenience. Inquiries about the General University Studies programs should be directed to any of the Division's offices.

General Requirements

The general requirements for a bachelor's degree in the General University Studies curriculum include the following:

1. Complete at least 122 hours of credit, with a minimum of 60 hours of academic work from an accredited four-year, degree-granting institution. At least 30 hours of credit must be taken through Western Michigan University.

2. Completion of a planned area of concentration, involving a minimum of 45 semester hours of credit. Some work may include credit completed in the first two years of the student’s preparation or credit given for non-accredited training or experience.

3. Completion of the General Education requirement of 35 semester hours of credit. This work does not have to be exclusive of work included in the area of concentration.

Areas of Concentration

American Studies

Lewis H. Carlson, Advisor

This bachelor's degree program is designed for those who wish to broaden their understanding and appreciation of American life and institutions. Students with an interest in the humanities, fine arts, or social sciences will find this program to their liking. Although the program is primarily nonvocational, it
provides a useful background for a number of professional degree programs, such as business administration, public administration, social work, and the law. The requirements for this 45-hour concentration are as follows:

1. A minimum of 25 credit hours, with at least two courses in each of four of the following subject matter fields:
   - A. Anthropology, Philosophy, Religion
   - B. Art, Music, Theatre
   - C. English
   - D. History
   - E. Economics, Social Work, Sociology
   - F. Political Science
2. An additional 9 hours in one of the four fields chosen above, thus bringing the total hours in that field to 15 hours.
3. A 3-hour course, General 333 An Introduction to American Studies, or advisor-approved substitutes.
4. An independent study project (3-8 hrs.) on some aspect of the American experience, designed to encourage imaginative and innovative application of previous study. This project may draw on local resources, as in the case of regional history and community arts, or it may deal with more general aspects of the American experience. Students may arrange for credit in a variety of ways, such as community workshops, independent study involving directed research, travel projects, and community service.

Applied Liberal Studies
David A. Ede, Advisor

This program, which leads to the Bachelor of Arts degree, is available to those who have completed two years of undergraduate study. This program will be of particular interest to those adults who, through previous formal study and practical experience, are eligible for promotion to positions of supervisory, managerial, or executive responsibility, but who lack the formal education qualifications necessary for such advancement. The requirements for this 45-hour concentration are as follows:

1. A minimum of 27 credit hours, with at least 9 hours (a minimum of 3 courses (3-4 credit hour)) selected from each of the following topical areas:
   - A. Community concerns
   - B. Communication skills
   - C. Environmental concerns
   - D. Human relations
   - E. International concerns
   - F. Technical skills
2. An additional 18 hours in the six areas chosen above.
3. Up to 15 hours of work taken previously may be applied toward this concentration. Coursework from other universities may be applied toward this concentration. Acceptance of this credit does not imply transferability to other degree programs at Western.

Applied Professional Studies
Michele M. Moe, Advisor

Admission
The admission process is continuous. Applications may be submitted at any time during the calendar year. The University’s terms begin in September (Fall), January (Winter), May (Spring) and June (Summer). To be admitted to this program, students should complete the admission steps at least two months prior to the start of classes.

This program is designed for students who have a transferable associate’s degree or junior standing (56 hours), who are in good standing. Exceptions will be considered under special circumstances.

To apply for admission, the student must:
1. Complete the regular [long form] admission application for a degree program and submit with the application fee to the University Admissions Office.
2. Request official transcripts to be sent to the WMU Office of Admissions and Orientation from all previously attended post-secondary institutions.

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.

Advising
Student advising for this program will be handled by Professor G. Schuster, the Director of the Haworth College of Business Advising Office.

Requirements
1. Complete the following core courses (15 hours):
   - ACTY 210 Principles of Accounting 3
   - ACTY 211 Principles of Accounting 3
   - FCL 320 Fundamentals of Management 3
   - MKTG 370 Marketing 3
   - A minimum of a "C" grade is required in each of the core courses.
2. Complete a minimum of 30 semester hours of credit from four of the six "Applied Professional Leadership Studies" concentration blocs. The 30 hours are to be completed as follows:
   - A. A minimum of nine semester hours in at least three of the six topic areas:
     - 1. Quantitative Studies
     - 2. Communication Skills
     - 3. Analytical Studies
     - 4. Environmental Concerns
     - 5. Human Relations Skills
     - 6. International Concerns
   - B. Additional course work from any of the above, to bring the total from these areas to 45 hours.

Concentrations

Analytical Studies
The core problems of today's world require a variety of approaches, as well as skill in analyzing those problems and making decisions. The courses in this block help to develop flexibility in approaching problems, and skill in analysis.

- CS 111 Computer Science I 4
- ECON 100 Contemporary Economic Problems 3
- ED 230 The Nature of Creativity 3
- GSCI 134 Problems Solving and Decision Making 3
- IE 305 Work Analysis 3
- PHIL 100 Critical Thinking and Writing 4
- PHIL 310 Moral Philosophy 4
- REL 311 Myth and Ritual 4
- REL 334 Religion in Modern Society 4

Communication Skills
Effective communication is increasingly viewed as the basis of cooperative human interaction. Business enterprises and governmental agencies have come to value the communication effectiveness of those in leadership positions. Courses in this bloc are designed to improve communication skills.

AREAS OF CONCENTRATION

ANTH 370 Culture and Communication 3
BIS 340 Introduction to Business Communications 3
COM 104 Public Speaking 3
COM 170 Interpersonal Communication 3
COM 200 Introduction to Communication Theory 3
COM 331 Persuasive Speaking 3
COM 482 Communication Processes in the Workplace 3
ENG 105 Thought and Writing 4
ENG 305 Practical Writing 4
LING 105 The Nature of Language 4

Environmental Concerns
Today's leader must have an understanding of the environment in which the organization must operate. Today's environment is much broader than in previous years. The leader must understand the economic, ecological and legal environments in which the firm operates. Courses in this block are designed to improve the leader's knowledge of these environmental issues.

BIDS 105 Environmental Biology 3
BAS 100 Ecology and The Black Community 3
ECON 319 Environmental Economics 3
EVNS 350 Environmental Problem Solving 3
FCL 380 Legal Environment 3
GEOG 100 World Ecological Problems and Man 4
GEOG 205 Human Geography 3
HIST 204 Business History 3
HIST 301 Law and Justice in Western History 3
PHIL 313 Philosophy of Law 4
PHIL 314 Philosophy and Public Affairs 4
PSCI 306 Environmental Politics 3

Human Relations Skills
Developing effective relations between individuals and groups is an important activity of today's leader. Courses in this bloc are intended to develop a sensitivity to the importance of good human relations and enhance those skills necessary for effective inter-and intra-group cooperation.

BAS 300 Black Experience: From the African Beginnings to 1665 3
BAS 301 Black Experience: 1665 to Present 3
COM 332 Group Problem Solving 3
COM 432 Group Communication Theory 3
ED 250 Human Development and Learning 3
IE 402 Supervision of Industrial Organizations 3
IE 403 Industrial Labor Relations 3
PHIL 201 Introduction to Ethics 3
PSY 100 General Psychology 3
SOC 100 American Society 3
SOC 375 Sociology of Work 3

International Concerns
Those in positions of authority in public and private organizations are becoming increasingly cognizant of the "global village" — economic, social, and political interdependence of nations. It is vitally important, therefore, to become more knowledgeable of some of the principal features in the global market. Courses in this bloc will sharpen one's ability to think critically about international affairs.

ANTH 120 Peoples of the World 3
ANTH 220 Cultural Anthropology 3
ANTH 332 Topics in World Culture 3
ECON 480 International Economics 3
GEOG 361 Population: The Crowding World 3
GEOG 383 Western and Southern Europe........... 3
GEOG 386 Sub-Saharan Africa: Man, Environment, Resources... 3
GEOG 389 Monsoon Asia 3
GEOG 386 Sub-Saharan Africa: Man, Environment, Resources... 3
HIST 280 Emerging Nations 3
PSCI 350 American Foreign Policy 4

Leaders must be equipped with the tools and techniques necessary to solve a variety of problems which they will meet in their work and their daily lives. Courses in this block are designed to provide such tools and techniques. (One statistics course is required.)

BIS 102 Introduction to Information Processing... 3
CS 105 Introduction to Computers.............. 3
ECON 400 Managerial Economics............. 3
MATH 116 Finite Mathematics with Applications... 3
MATH 200 Calculus with Applications.............. 4

One of the following statistics courses is required:

MATH 216 Business Statistics............. 3
MATH 366 Introduction to Statistics............. 4
PSY 300 Statistics for the Behavioral Sciences... 3

Criminal Justice

Carole J. Rogers, Advisor

The General University Studies Bachelor's degree in Criminal Justice is designed for persons who have completed an associate's degree in law enforcement, corrections, or police administration and wish to complete a bachelor's degree through part-time study.

Sixty hours of upper division study beyond the associate's degree is required to complete the bachelor's degree in criminal justice. The degree program is interdisciplinary with core courses in law enforcement, courts, and corrections. In addition, each student has an opportunity to take advanced courses in one of these areas. The requirements are as follows:

Required Prerequisites

The following courses are required for transfer credit to Criminal Justice.

SOC 200 Principles of Sociology
SOC 210 Modern Social Problems........... 3
SOC 260 Introduction to Criminal Justice........... 3
SOC 262 Criminology............ 3

These courses are prerequisites to the criminal justice curriculum and do not count as part of the 45 hours required in the area of concentration.

Writing Expectation

Students are expected to write at the college level before enrolling in the following advanced courses. Students should have completed ENGL 105 or equivalent. You are encouraged to take SOC 261 Writing/Research in Criminal Justice.

Core Courses

All of the following courses (19 hours) are required. It is important to check with the advisor so courses are taken in proper sequence:

SOC 462 Criminal Justice Process........... 3
SOC 464 Sociology of Law............. 3
SWRK 485 Correctional Process and Techniques........... 3
SOC 564 Juvenile Delinquency and The Community........... 3

FCL 360 Criminal Law and Procedure........... 4
SOC 566 Advanced Criminology............ 3

Research Methods Requirement

One of the following courses is required:

SOC 382 /383 Methods of Social Research Inquiry........... 6
PSY 590 Research Methodology........... 3

Special Area of Concentration

Completion of one of the following areas is required:

Corrections (6 hours)

SOC 565 Community Corrections........... 3
SWRK 567 Advanced Institutional Treatment of Offenders........... 3
SWRK 568 Non-Institutional Treatment of Offenders........... 3

Courts (6-8 hours)

PHIL 313 Philosophy of Law............. 4
PSY 300 Principles of Legal Process............ 4
PSI 325 Criminal Justice Policy............ 3
PSCI 330 Introduction to Public Administration........... 3
PSCI 522 Civil Rights and Civil Liberties........... 3

Juvenile Justice (6 hours)

SOC 521 Juvenile Socialization........... 3
SOC 522 Adolescent Socialization........... 3
SWRK 567 Advanced Institutional Treatment of Offenders........... 3
SWRK 569 Organizational Perspectives on Juvenile Justice........... 3

Law Enforcement Administration (6 hours)

SOC 467 Police and Community Dynamics........... 3
SOC 468 Police and Crime Prevention........... 3

Law Enforcement Certification

Students complete the following courses during the last two semesters at WMU (MLEOTC ruling). See the advisor for further information:

PER 112 First Aid........... 3
LEN 201 Criminal Investigation........... 4
LEN 202 Traffic........... 4
LEN 206 Psychological Driving........... 4
LEN 241 Police Physical Skills........... 4
LEN 242 Firearms........... 3
LEN 243 Patrol Procedures........... 4
LEN 252 MLEOTC Objective Review........... 1

Electives

To complete the required total of 36 hours, students may include any courses listed in another special area of concentration with the exception of the Law Enforcement Certification, or the following:

ACTY 210 Principles of Accounting........... 3
BAS 300 Black Experience........... 3
FCL 340 Legal Environment........... 3
PSCI 202 State and Local Government........... 4
PSCI 300 Urban Politics in United States........... 3
PSCI 533 Public Personnel Administration........... 3
SWRK 433 Dynamics of Race and Class in Social Work Practice........... 3
SOC 314 Ethnic Relations........... 3
SOC 320 Introduction to Social Psychology........... 3
SOC 495 Special Topics (Sociology/Criminal Justice when applicable)........... 3
SOC 497 Student Internship (Program with permission)........... 3
SOC 498 Criminal Justice Internship (with permission)........... 3

SOC 512 Child Abuse........... 3
SOC 556 Social Stratification........... 3
SOC 560 Corporate and White Collar Crime........... 3
SOC 561 Violence and the Violent Offender........... 3
SOC 562 Victimology........... 3
SOC 563 Organized Crime........... 3
SOC 588 Directed Independent Study (with permission)........... 2-6

Health Studies

Charles Spaniolo and Patricia Dolly, Advisors

This program is intended for allied health professionals including registered nurses (R.N.), registered dental assistants (R.D.A.), dental hygienists, radiologic technologists, respiratory therapists, histotechnologists, cytotechnologists, and medical laboratory technicians who have achieved licensure or registry in their health profession and who wish to earn a bachelor's degree.

Areas of concentration in health studies require a minimum of 45 semester hours. This total consists of:

1. 15 semester hours from the credit transferred for registry or licensure;
2. 15 semester hours in the following core requirements: Health Science, 3 hours; Human Behavior and Interview, 9 hours; and Planning, Organization, and Leadership Skills, 3 hours; and
3. 15 semester hours of coursework that satisfy the student's specialized interest area.

The area of concentration represents the student's opportunity to further develop individual objectives. Although requirements in the area of concentration are uniform for all students, there is considerable room to accommodate individual interests and objectives.

Social Science Studies

David Houghton, Advisor

This program was designed to provide career-related preparation for students interested or employed in public service occupations, such as community development, social services (not certified), firefighting, state and local government. The program will appeal to those with an interest in the social sciences and who are considering a related vocational field, as well as to those interested in the study of public issues, politics, and social questions. A bachelor's degree is conferred upon those completing the program requirements.

The requirements for this 45-hour social science concentration are as follows:

1. A minimum of 12 semester hours of credit selected from the following: ANTH 220, Cultural Anthropology, or ANTH 240, Principles of Cultural Anthropology; ECON 201, Principles of Economics; HIST 210, American History since 1890; or HIST 211, American History since 1890, GEOG 205, Our Human World, PSCI 100, Introduction to Political Science, PSY 130, Introduction to Human Behavior, SWRK 210, Social Work Services and Professional Roles; SOC 200, Principles of Sociology, or SOC 300, Sociology and Social Theory.
2. At least 33 semester hours of additional social science credit in anthropology, economics, geography, history, political science, psychology, social work, and/or sociology. These courses must be approved by the program's academic advisor, and may be interdisciplinary—drawn from a number of
departments; disciplinary—drawn from a single social science discipline; or applied—identified with the needs of a particular area of study, such as public administration, sociology of education, social science research techniques, or applied social service.

Technical-Scientific Studies
Sandra F. Blanchard, Advisor

This program was designed for those interested in technical studies, including the study of aviation, automotive technology, engineering graphics, manufacturing, supervision, and technical vocational education. A student who has completed a two-year vocational-technical study program at a community college, or one who has achieved a comparable level of preparation through a combination of study and work experience, will find this program of interest. A career oriented program, particularly for those in manufacturing and industrial education, it leads to the Bachelor of Science degree.

The requirements for his 45-hour concentration are as follows:

1. A minimum of 45 semester hours of credit from such areas as graphics, materials and processing, technical analysis, transportation technology, and manufacturing management. Students interested in technical vocational education, such as teachers in skills centers, may substitute such areas as industrial arts, drawing, graphic arts, metal working, woodworking, and auto mechanics.

2. Up to 15 hours taken previously may be applied towards this concentration. Some of these credits may be earned through examination, evaluation of previous experience, and non-accredited training.

3. At least 15 hours must be earned through courses at Western. Students desiring certification as teachers in vocational-technical areas must take additional professional courses in methods course construction and evaluation.

Self-Instructional Courses
Self-Instructional courses are available when students cannot participate in on-campus courses. The Office of Self-Instructional Programs offers over 112 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.
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Supplement to

WESTERN MICHIGAN UNIVERSITY

Undergraduate Catalog
Kalamazoo, Michigan
1993 • 1995

Since the printing of the 1993-1995 Undergraduate Catalog, a number of undergraduate-level programs and courses have been added, modified, deleted, or reassigned. These programs and courses are listed under their respective colleges and by department name and prefix.

Course descriptions shown in italics are approved for General Education.

For more complete information, consult the advisor in the appropriate department or area.

It is the policy and commitment of Western Michigan University not to discriminate on the basis of race, sex, sexual orientation, age, color, national origin, religion, or handicap in its educational programs, student programs, admissions, or employment policies. Western Michigan University complies with all requirements of Title VII of the Civil Rights Act of 1964, Title IX of the 1972 Amendments, Executive Order 11246 as amended, and Section 504 of the Rehabilitation Act of 1973, and all other pertinent state and federal regulations.

Supplement (June 1994) to Bulletin — Western Michigan University (USPS 078-980)
Vol. 88, No. 3, June 1993

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UNIVERSITY CURRICULUM
Refer to page 71.

UNIV 102 Career Exploration and Development (NEW) 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.

COLLEGE OF ARTS AND SCIENCES

ARTS AND SCIENCES COLLEGE COURSES
Refer to page 73.

A-S 100 Career Exploration and Development (DELETED)
A-S 300 Peace and Global Futures (DELETED)
A-S 320 Interinstitutional Study (NEW) 1-12 hrs.
Students may take classes at Davenport College, Kalamazoo College, and Kalamazoo Valley Community College through a cooperative program using this course number for credit toward a WMU degree. Information and enrollment forms may be obtained from the Registrar's Office. Where credit toward the major or minor is desired, prior approval must be obtained from the student's major and/or minor department.

A-S 330 Study Abroad—WMU Programs (NEW) 1-16 hrs.
Student participation in an approved program of study abroad 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. May be repeated for up to 32 credit hours.

A-S 331 Study Abroad—Non-WMU Programs (NEW) 1-16 hrs.
Student participation in an approved program of study abroad organized through institutions 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. May be repeated for up to 32 credit hours.

A-S 390 Arts and Sciences Seminar (NEW) 1-4 hrs.
A variable topics course in interdisciplinary studies or other subjects that fall outside the traditional disciplines. May be taken as an elective or for credit in an Arts and Sciences major or minor by special arrangement with the department. Topics will be announced in Schedule of Classes. May be repeated once when topic differs. Prerequisites: Permission of the instructor.

A-S 404 Foreign Studies Seminar (MODIFIED from A-S 504) 1-6 hrs.
Seminars in the Social Sciences conducted outside the U.S. 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. May be repeated for credit.

A-S 405 Foreign Studies Seminar (MODIFIED from A-S 505) 1-6 hrs.
Seminars in the humanities conducted outside the U.S. Students who complete such a seminar may receive credit in the Departments of Communication, Comparative Religion, English, Languages and Linguistics, Philosophy, and departments in the College of Fine Arts, if credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.

A-S 498 Directed Independent Study (NEW) 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 501 Studies in American Culture (DELETED)
A-S 502 Studies in American Culture (DELETED)
A-S 503 Studies in American Culture (DELETED)
A-S 598 Independent Readings in American Culture (DELETED)

INTERDISCIPLINARY PROGRAMS

Refer to pages 74-83.

BLACK AMERICANA STUDIES

BLACK AMERICANA STUDIES—TEACHING MINOR (DELETED)
BAS 450 History and Significance of Black Pop Culture — 1906 to Present (NEW) 3 hrs.
This course will focus on the continuum to Black Pop Culture in the twentieth century, its developmental stages and its emergence as the nucleus of Pop Culture in "mainstream" America. Students will survey Black theatre, art, music, and literature in twentieth-century America and study the institutions, persons, sites, and traditions that it inspired. Prerequisites: 16 hours must include ENGL 292.

INTEGRATED LANGUAGE ARTS MINOR

INTEGRATED LANGUAGE ARTS MINOR (ILAM) (DELETED)

INTERNATIONAL AND AREA STUDIES

AFRICAN STUDIES PROGRAM—TEACHER CERTIFICATION (DELETED)
ASIAN STUDIES PROGRAM—TEACHER CERTIFICATION (DELETED)

LATIN AMERICAN STUDIES PROGRAM—TEACHER CERTIFICATION (DELETED)
SLAVIC STUDIES PROGRAM—TEACHER CERTIFICATION (DELETED)

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GROUP SCIENCE MAJORS (DELETED)

GROUP SOCIAL SCIENCE MAJORS AND MINORS

GROUP SOCIAL SCIENCE NON-TEACHING MAJOR (DELETED)
GROUP SOCIAL SCIENCE NON-TEACHING MINOR (DELETED)

SSCI 300 Teaching of Social Studies in Secondary Schools (DELETED)

WOMEN'S STUDIES

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

WMS 596 Independent Readings in Women's Studies (MODIFIED) 1-4 hrs.
Individual study project available to the advanced student by permission of faculty advisor with departmental approval of project application. Prerequisite: WMS 200.

WORLD LITERATURE MINOR

THE PROGRAM (MODIFIED)

REQUIREMENTS
Twenty hours, with the following distribution:

1. ENGL 312 Western World Literature or 313 Asian Literature or 314 African Literature (MODIFIED)

2. Two courses 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 ............. 4
   - ENGL 410 Special Topics in Literature (If the topic is appropriate it may be approved by the minor advisor) ............... 4
   - ENGL 442 Modern Drama .................. 4
   - ENGL 530 Medieval Literature in English Translation .................. 3
   - ENGL 538 Modern Literature ................ 3
   - ENGL 555 Studies in Major Writers (If the authors studied are appropriate, this course may be approved by the minor advisor) ............... 3
   - ENGL 598 Readings in English: Independent Study (with the approval of the minor advisor) ............... 1-4
ANTHROPOLOGY

Refer to pages 83-85.

SECONDARY EDUCATION CURRICULUM (DELETED)

SOCIOLOGY/ANTHROPOLOGY MAJOR (DELETED)

PROGRAM DESCRIPTION (MODIFIED)
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.

MAJOR (MODIFIED)
A major in anthropology consists of a minimum of 24 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) hours of course work at the 400-level or above
4. no more than six (6) hours of course work at the 100 level
5. a grade of "C" or better in every anthropology class counted toward the major

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

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 100
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

A minor in anthropology consists of a 4-hour minimum of course work at the 400-level or above and must include:

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

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 400 Midwest Prehistory
ANTH 410 Ethnography
ANTH 450 Primate Behavior and Ecology
ANTH 501 Rise of Civilization
ANTH 520 Social Science Theory
ANTH 552 Forensic Anthropology

ANTH 120 Peoples of the World (MODIFIED)
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 140 Anthropology in Action (NEW)
3 hrs.
This course applies anthropological knowledge to the study of sociocultural problems of contemporary life and provides an analytic process relevant to the needs of modern multicultural societies. It includes basic concepts, theoretical approaches, and methodologies useful to the discussion of potential solutions to world problems.

ANTH 220 Introduction to Cultural Anthropology (DELETED)
ANTH 250 Introduction to Biological Anthropology (MODIFIED)
4 hrs.
A survey of biological anthropology: hominid and primate evolution; the living primates, human osteology, human genetics, and population variation.

ANTH 303 Historical Archaeology (NEW)
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 through not exclusive focus, on North America. Prerequisite: ANTH 210 or consent of instructor.

ANTH 305 World Prehistory (DELETED)
ANTH 306 Archaeology of Civilization (NEW)
3 hrs.
The course focuses the forces leading to the rise of the state and the emergence of cities. 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 (NEW)
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 (NEW)
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 311 African Archaeology (NEW)
3 hrs.
This course will investigate power relations and resistance through the integration of documentary, archaeological and oral historical data. Particular attention will be given to the role of the global political economy as a context for investigating transformations in Africa. The course will also concentrate on the production of archaeological knowledge and the social forces that shape and influence archaeological interpretations in Africa. Prerequisite: ANTH 210 or consent of instructor.

ANTH 312 African American Archaeology (NEW)
3 hrs.
Employing written documents, oral texts, material culture, cultural landscape, and biohistorical studies, this course investigates the dynamic role of material culture of African Americans in the colonial encounter and the development of capitalism. The primary focus is on the archaeology of African Americans to reveal the multifaceted nature of the African diasporic experiences in the Americas, although the Caribbean and West Africa are also sampled. Prerequisite: ANTH 210 or consent of instructor.

ANTH 340 Cultures of Asia (NEW)
3 hrs.
A problem oriented approach to the study of peoples and cultures of Asia, dealing with rural, urban, peasant, and elite groups. Topics such as social structure, religion, and culture change may be included.

ANTH 341 Cultures of Africa (NEW)
3 hrs.
A problem oriented approach to the study of peoples and cultures of Africa, dealing with rural, urban, peasant, and elite groups. Topics such as social structure, religion, and culture change may be included.

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

ANTH 344 Indians and Eskimos (NEW)
3 hrs.
A survey of Native American cultures, from the initial peopling of the New World by immigrants from Asia into the period of exploration and colonization of North America by Europeans. Various societies from selected areas will be examined to illustrate both the ingenuity and diversity of human responses to changing environmental conditions over time and in space.
ANTH 347 Ethnicity/Multiculturalism (NEW) 3 hrs. Studies the problems and prospects of multiculturalism, including medical, legal, social, and political institutions. Within this framework various theories on ethnic dynamics will be examined, as well as ethnographic descriptions of several ethnic groups.

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

ANTH 350 Human Evolution (MODIFIED) 3 hrs. This course is designed to provide students with an understanding of the evolution 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 or consent of instructor.

ANTH 351 Human Osteology (MODIFIED) 3 hrs. Emphasizes in this course will be human morphological variation, species definition and recognition, functional anatomical complexes, adaptive processes, and human morphological variation. Prerequisite: ANTH 250 or consent of instructor.

ANTH 352 Research Methods in Anthropology (DELETED) 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 354 Topics in Sociocultural Anthropology (MODIFIED) 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 355 Topics in Biological Anthropology (MODIFIED) 3 hrs. A consideration of the biological relationships of specific population groups or general problems in human biology (e.g. human genetics, growth and constitution, paleoanthropology, 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 598 Readings in Anthropology (DELETED)

**BIOLOGICAL SCIENCES**

Refer to pages 85-88.

**BIOLOGY MINOR (DELETED)**

**BOTANY MINOR (DELETED)**

**ZOOLOGY MINOR (DELETED)**

**PROGRAM DESCRIPTION (MODIFIED)**

An understanding of the biological sciences is essential if we are to solve the pressing social, environmental, and economic problems of our time. The Department of Biological Sciences offers major and minor programs designed to provide today's student with effective knowledge and training in various areas of the Life Sciences and Medicine. The Biology Major explores the broad spectrum of the life sciences with opportunities to study botany, zoology, ecology, or physiology. Students completing this major should be prepared for one or more of the following goals: (1) graduate study towards 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, and physiology. The specific objectives of the Biomedical Sciences major include: (1) providing basic training in the biological sciences, research laboratories, industrial laboratories and 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.P.H., or D.V.M.; and (3) preprofessional 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.

Students are invited to contact the departmental offices (Biology, Room 100 Wood Hall, 616-387-5600) or Biomedical Sciences, Room 5332 McCracken Hall, 616-387-5625) for information concerning the Biology and Biomedical Sciences majors and minors. 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 114 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. Only departmental courses in which a grade of "C" or better is obtained may be counted towards a major or minor in Biological Sciences.

**BACCALUREATE WRITING REQUIREMENT (MODIFIED)**

Students who have chosen the Biology major, Biomedical Sciences major and Biology major in Secondary Education can satisfy the Baccalaureate Writing Requirement by successfully completing one of the capstone courses BIOS 497, BIOS 499 or BIOS 404 (Secondary Education).

**LIFE SCIENCE REQUIREMENT (NEW)**

Students completing a major and minor in any of the Biological Sciences programs will be considered eligible provided they fulfilled the Life Science component of the University General Education Program.

**BIOLOGY MAJOR (MODIFIED)**

**REQUIREMENTS**

A Major in Biology consists of a minimum of 32 credits of Biological Sciences courses and 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/or 499.

**INTRODUCTORY COURSE REQUIREMENTS**

**BIOS 150 and 151**

**INTERMEDIATE LEVEL COURSES**

**BIOS 250, 301, 319 or 350; 202 or 312**

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

BIOS 312, 425, 498, 499, 518, 524, 527, 528, 529, 530, 533, 537, 539, 541, 542, 547, 549, 553, 555, 556, 557, 574, 597. (Minimum 6 hrs.)

**CAPSTONE EXPERIENCE**

**BIOS 497 or 499**

**COGNATE REQUIREMENTS**

CHEM 101 or 102, 120, 360, 361, 356, 537, 570, 574. (Minimum 6 hrs.)

**BIOMEDICAL SCIENCES MAJOR (MODIFIED)**

**REQUIREMENTS**

A major in Biomedical Sciences (BIMS) consists of a minimum of thirty-four credits of course work relevant to the major. 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/or 499.

**INTRODUCTORY COURSES**

**BIOS 150 and 151**

**INTERMEDIATE LEVEL COURSES**

**BIOS 211, 250, 312 and 350.**

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

425, 498, 499, 507, 518, 520, 524, 534, 536, 537, 570, 574, 597. (Minimum 6 hrs.)

**CAPSTONE EXPERIENCE**

**BIOS 497 or 499**

**COGNATE REQUIREMENTS**

CHEM 101 or 102, 120, 360, 361, 356, 537, 570, 574. (Minimum 6 hrs.)

**PHYSICS, 2 semesters with labs.**

**BIological SCIENCES MINOR (MODIFIED)**

The Biological Sciences Minor consists of a minimum of 20 credits of biological sciences courses. Twelve of these credits must be from 200 or higher level courses. Cognate requirements are CHEM 101 or equivalent. Minors in health related fields can take the following courses to fulfill a minor: BIOS 112, 105, 211, 240, 232 and 1 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 (MODIFIED)**

The Biology Minor, SED curriculum consists of a minimum of 24 hours of course work in Biological Sciences including BIOS 150, 151, 202, 250, 301, a Physiology course (240, 319 or 350) and 404. Cognate requirements include: CHEM 101 or 102, 120; MATH 118 (or 122 or 200).

**SCIENCE AND MATHEMATICS TEACHING MINOR (UNCHANGED)**

The Department of Biological Sciences participates in the science and mathematics teaching minor for students in the elementary education curriculum (EED). For a full description of the program, consult its listing
under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

TRANSFER STUDENTS (UNCHANGED)
A minimum of fifteen hours of coursework in the Biology Major, the Secondary Education Biology Major, and the Biomedical Sciences Major must be earned at Western Michigan University. At least twelve hours in the Biological Sciences Minor must be earned at Western Michigan University.

Transfer students should consult with the Undergraduate Advisor in Room 114 Wood Hall (616-387-5617), before registering for classes.

BIOS 101 Animal Biology (DELETED)

BIOS 102 Plant Biology (DELETED)

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

BIOS 151 Organismal Biology (NEW)
4 hrs.
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 behavior. Prerequisite: BIOS 150.

BIOS 202 Botany (NEW)
4 hrs.
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, BIOS 151.

BIOS 240 Human Physiology (MODIFIED)
4 hrs. Fall, Winter
This course is designed to provide non-majors with an understanding of the basic functioning of the organ systems of the human body and their regulation and control. The molecular and cellular mechanisms involved are emphasized. Applications to exercise physiology are made. Clinical applications are introduced where they provide additional insight into basic function and regulatory mechanisms. Prerequisite: BIOS 112 or BIOS 150.

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

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

BIOS 312 Microbiology (MODIFIED)
5 hrs. Fall, Winter
An introduction to the fundamental relationship 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 (MODIFIED)
4 hrs.
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 structure of plant cells and tissues is observed, in order to provide an understanding of the localization of functions. The lab uses up-to-date techniques and equipment to investigate processes such as enzyme action, respiration and the movement of substances through membranes. Prerequisites: BIOS 202 and a course in organic chemistry.

BIOS 497 Senior Seminar: Topic to be specified (NEW)
3 hrs.
This writing-intensive capstone course integrates a variety of biological concepts and defines the role of a biology professional. The student's record will indicate the nature of the seminar in which he/she has participated. This course will meet the baccalaureate-level writing requirement. Not repeatable for credit. Prerequisite: Senior standing and an approved major slip.

BIOS 499 Independent Research in Biological Sciences (MODIFIED)
1-4 hrs.
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 experiment 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. This course meets the baccalaureate writing requirement. Prerequisites: Approved application (if used as a capstone course), junior standing and a declared major in the Biological Sciences Department.

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

BIOS 515 Plants for Food and Industry (MODIFIED)
3 hrs.
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. The course is enriched with several demonstrations and lab experiments that include diverse practical applications. Prerequisites: BIOS 202 and a course in organic chemistry.

BIOS 520 Human Genetics (MODIFIED)
3 hrs.
A detailed comparative study of the morphology, life cycles, and ecology of the algae, fungi, and bryophytes. Laboratory study will be complemented by field investigations. An independent project may be required. Prerequisite: BIOS 202.

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

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

BIOS 541 Invertebrate Zoology (MODIFIED)
3 hrs.
A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: BIOS 151.

BIOS 542 Entomology (MODIFIED)
4 hrs.
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 549 Field Ecology (MODIFIED)
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 (MODIFIED)
3 hrs.
Biological, chemical, and physical aspects of lakes, ponds, and streams. Ecological relationships of invertebrate animals and lower plants are emphasized. Prerequisites: BIOS 151.

BIOS 557 Water Pollution Biology (MODIFIED)
3 hrs.
A comparison of organisms which 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. Prerequisites: BIOS 202.

BIOS 574 Embryology (MODIFIED) 4 hrs. Fall
Embryology is the study of the development of an organism from a single fertilized cell to a complex multicellular fetus. This course will present this material from both a classical descriptive 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 in vitro and in vivo. Prerequisite: BIOS 250.

COMMUNICATION
Refer to pages 91-96.

INTEGRATED LANGUAGE ARTS MINOR (ILAM) (DELETED)
NOTE: Students applying for a major in the Department of Communication must meet the deadlines of September 15, January 15, and May 15. (MODIFIED)

PUBLIC RELATIONS MAJOR (MODIFIED) 48-50 hours
1. Pre-Communication Requirements . 6 hrs.
   COM 170 Interpersonal Communication I 3
   COM 200 Intro. to Communication Theory 3
2. Public Relations core requirements 30 hrs.
   A. Required courses (9 hrs.)
      COM 449 Public Relations and Organizations 3
      COM 450 Public Relations Program Development 3
      COM 482 Communication Processes in the Organization* 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 104 Public Speaking 3
      COM 204 Advanced Public Speaking 3
   D. Select one of the following (3 hrs.):
      COM 332 Group Problem Solving 3
      COM 335 Leadership 3
      COM 483 Interviewing 3
   E. Select two of the following (6 hrs.):
      COM 256 Broadcast Operations 3
      COM 257 Radio Programming and Production 3
      COM 355 Small Format Video Production 3
      COM 356 Film Production 3
      COM 357 Television Studio Production 3
      COM 458 Television Performance 3
   F. Select two of the following (6 hrs.):
      COM 240 Introduction to Telecommunication 3
      COM 443 Mass Communication and Social Change 3
      COM 444 Mass Communication, News and Public Affairs 3
      COM 447 Organizational TV Production 3
   G. Cognate Course Requirements 12-14 hrs.
      A. This course is required:
         ENGL 364 Feature/Article Writing 3
   H. Select one of the following (3 hrs.):
      ED 548 Audio Visual Media I 3
      ED 549 Audio Visual Media II 3
   I. Select two of the following (required courses in English can be used toward a journalism minor) (6-8 hrs.):
      ENGL 264 News Writing 4
      ENGL 266 News Editing 4
      ENGL 363 Advanced Reporting 3
      ENGL 364 Feature/Article Writing 3

Recommended minors include: Journalism, General Business, Marketing, Management, and Public Administration. Other cognate majors or minors may be appropriate depending on professional career objectives.

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.

*Writing Intensive Course Requirement. These courses satisfy the upper-level writing intensive requirement.

COM 365 Oral Communication and the Elementary School Child (DELETED)
COM 366 Oral Communication and the Early Elementary Child (DELETED)
COM 367 Oral Communication and the Later Elementary Child (DELETED)
COM 564 Creative Drama for Children (MODIFIED to THEA 564)

COMPARATIVE RELIGION
Refer to pages 145-147.

TEACHING MINOR IN THE ACADEMIC STUDY OF RELIGIONS (DELETED)

COMPUTER SCIENCE
Refer to pages 97-100.

SECONDARY TEACHING MAJOR (DELETED)

TEACHING MINOR (DELETED)

CS 105 Introduction to Computers (MODIFIED) 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 computing 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 111 Computer Science I (MODIFIED) 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 algorithms as solutions to problems in a structured high level computer language. Applications will solve both numerical and non-numerical problems for the computer. Co-requisite: MATH 118.

CS 112 Computer Science II (MODIFIED) 3 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 203 Programming in C (NEW) 2 hr.
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 223 Computer Organization and Assembly Language (MODIFIED) 3 hrs.
This course introduces concepts of computer architecture and assembly language. CISC and RISC instruction sets, along with associated hardware issues (e.g., data representation and instruction formats, instruction pipelining, register windows, context switching, and memory management) will be discussed. The student will program in both assembly language and the C programming language as well as interfacing the two languages. Prerequisite: CS 111.

CS 224 System Programming Concepts (MODIFIED) 3 hrs.
Topics include: program development tools, basic testing, timing, profiling and benchmarking, characteristics of physical devices, memory management, device drivers, pseudo-devices, file structures, file I/O (both buffered and unbuffered), processes, shells, inter-process communications, signals, exceptions, pipes, sockets, shared memory and file and record locking. All topics are viewed from a UNIX system programming perspective. Prerequisite: CS 112 and CS 223.

CS 331 Design and Analysis of Algorithms and Data Structures (MODIFIED) 3 hrs.
This course is a continuation of the study of data structures and algorithms. The design of algorithms using paradigms such as divide and conquer, greedy method, dynamic programming, backtracking, and branch and bound is covered. Binary search trees and 2-3 trees are discussed along with their applications to algorithm implementation. Design and implementation of graph based algorithms are covered. Algorithms will be analyzed for their complexity. Prerequisites: CS 112.
SECONDARY EDUCATION CURRICULUM (DELETED)

ECON 201 Principles of Microeconomics (MODIFIED) 3 hrs. Fall, Winter, Spring, Summer
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 (MODIFIED) 3 hrs. Fall, Winter, Spring, Summer
An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and introduction to international trade and development.
Prerequisite: ECON 201.

ECON 304 The Organization of Industries (MODIFIED from ECON 404) 3 hrs. Fall, Winter, Spring, or Summer
This course examines the various ways in which the organization of industries affects pricing and other business behavior and more generally, the 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 and 202.

ECON 310 Labor Economics (MODIFIED from ECON 410) 3 hrs. Fall, Winter, Spring or Summer
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisites: ECON 201 and 202.

ECON 320 Money and Banking (MODIFIED from ECON 420) 3 hrs. Fall, Winter, Spring and/or Summer
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, ECON 202.

ECON 324 Public Finance (MODIFIED from ECON 424) 3 hrs. Fall, Winter, Spring or Summer
Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation. Prerequisites: ECON 201 and 202.

ECON 345 Business, Government, and Society (MODIFIED from ECON 445) 3 hrs. Fall, Winter, Spring or Summer
This course examines the interrelationships among business, government and society. The course attempts to provide insights into how, when, and what 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 (MODIFIED from ECON 480) 3 hrs. Fall, Winter, Spring and/or Summer
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, ECON 202.

ECON 387 Studies in Asian Economies (MODIFIED from ECON 487) 3 hrs.
The course concentrates on the study of the Japanese, Chinese, and Indian economic systems. These models are then applied as a basis of comparison between the other Asian economies. Prerequisites: ECON 201, ECON 202.

ECON 403 Intermediate Microeconomics (MODIFIED from ECON 303) 3 hrs. Fall, Winter, Spring, Summer
An examination of microeconomic theory, with emphasis on the theory of consumer behavior (the derivation of the demand curve), the theory of the firm and factor pricing.
Prerequisites: ECON 201, ECON 202.

ECON 406 Intermediate Macroeconomics (MODIFIED ECON 306) 3 hrs. Fall, Winter, Spring, Summer
An examination of macroeconomic theory with particular emphasis on business cycles, economic growth, and price level instability. The interplay between theory and policy is analyzed. Prerequisites: ECON 201, ECON 202.

ECON 409 Econometrics (NEW) 3 hrs.
Instruction is given on the design and conduct of economic research and the analysis of economic data. Each student designs a research project drawing upon economics courses already taken by the student. In addition to examinations, the student conducts in-depth research, gives an oral report, and submits a written report.
Prerequisites: ECON 402, ECON 403, ECON 406, or equivalent.

ENGLISH
Refer to pages 102-107.

MAJORS
ARTS AND SCIENCES CURRICULUM (MODIFIED) 35 hours
1. Required Entry-Level Course (4 hrs.)
ENGL 110 Literary Interpretation........... 4

2. Suggested Elective Course at 200-300 Level (3-4 hrs.)
Students are encouraged to elect one of the following courses before taking courses in the "Required" part of the major.
ENGL 210 Film Interpretation........... 4
ENGL 223 Black American Literature .. 4
ENGL 252 Shakespeare........... 4
ENGL 315 The English Bible as Literature........... 3

3. Required Courses (27/28 hrs.)
A. Three of the following four:
ENGL 320 American Literature I........... 3
ENGL 321 American Literature II........... 3
ENGL 330 British Literature I........... 3
ENGL 331 British Literature II........... 3

B. One of the following three:
ENGL 371 Structures of Modern English........... 4
ENGL 372 Development of Modern English........... 4
ENGL 472 American Dialects........... 4

C. Two courses at the 400 level, including at least one of the following four. Students who use ENGL 472 to satisfy requirement 3B. may not use that course to satisfy this requirement.
ENGL 415 Practical Literary Criticism .. 4
ENGL 440 Studies in Poetry........... 4

ECONOMICS
Refer to pages 100-102.

ECONOMICS MAJOR (MODIFIED) A major in economics consists of a minimum of 30 hours of work in the department. The following are required courses for majors:

Principles of Economics (201, 202), Statistics (402), Intermediate Microeconomics (403), Intermediate Macroeconomics (406), and Econometrics (409). In addition, majors should choose between the following courses in consultation with the undergraduate advisor, with careful attention paid to achieving a proper spread. A major in economics who intends to do graduate work in economics is advised to take MATH 122 and 123 at least.
4. Elective Courses

SECONDARY EDUCATION CURRICULUM

1. Required Entry-Level Course (4 hrs.)
   ENGL 452 Shakespeare Seminar 4

Students who use ENGL 452 to satisfy D. At least two of the following courses.

ENGL 442 Studies in Drama 4
ENGL 522 Studies in American

2. Required Journalism Core Courses

ENGL 530 Medieval Literature 3
ENGL 532 Renaissance Literature 3
ENGL 534 Restoration and 18th Century Literature 3
ENGL 536 Romantic Literature 3
ENGL 537 Victorian Literature 3
ENGL 538 Modern Literature 3
ENGL 555 Studies in Major Writers 3

4. Elective Courses

At least one additional English Department course at the 200, 300, 400, or 500 levels to complete the major, unless an elective course has already been taken under #2 above. The following courses cannot be used for this purpose: ENGL 100, 105, 107, 111, 307, 311 or 480.

4. Capstone Experience

A capstone experience for this program will be specified by September 1994 after approval by appropriate departmental and college committees and the department.

5. Professional Component (4 hrs.)

ENGL 479 Writing in the Secondary School 4

6. Foreign Language Requirement

Minimum of two semesters of a modern or classical foreign language at the college level, or two years of such study at the high school level. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.

CREATIVE WRITING EMPHASIS

(modified) 35 hours

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

2. Required Courses (24-26 hrs.)

A. One of the following British Literature courses:
   ENGL 252 Shakespeare 4

B. One of the following American Literature courses:
   ENGL 320 American Literature I 3
   ENGL 321 American Literature II 3
   ENGL 495 Internship/Fieldwork (two semesters at 1 hr. each) 2

D. One of the following English Language courses:
   ENGL 371 Structures of Modern Language 4
   ENGL 477 Development of Modern English 4
   ENGL 478 American Dialects 4
   ENGL 574 Grammar for Teachers 4

E. One literature course with a multi-cultural focus:
   ENGL 223 Black American Literature 4
   ENGL 313 Asian Literature 3
   ENGL 314 African Literature 3
   ENGL 339 Post-Colonial Literature 3
   ENGL 582 Multi-Cultural Adolescent Literature 3

F. One of the following courses at the 400 level:
   ENGL 415 Practical Literary Criticism 4
   ENGL 440 Studies in Poetry 4
   ENGL 442 Studies in Drama 4
   ENGL 444 Studies in the Novel 4

G. Additional Requirement
   ENGL 479 Writing in the Secondary School 4

3. Elective Courses

At least two additional English Department courses at the 200, 300, 400, or 500 levels to reach minimum of 35 credit hours to complete the major. It is recommended that one of these courses emphasize development of writing skills. The following courses cannot be used for this purpose: ENGL 100, 105, 107, 111, 307, 311.

4. Capstone Experience

A capstone experience for this program will be specified by September 1994 after approval by appropriate departmental and college committees and the department.

5. Foreign Language Requirement

Minimum of two semesters of a modern or classical foreign language at the college level, or two years of such study at the high school level. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.

COMMUNITY JOURNALISM EMPHASIS

(modified) 35 hours

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

2. Required Journalism Core Courses (18 hrs.)
   ENGL 252 Shakespeare Seminar 4
   ENGL 364 Feature and Article Writing 3
   ENGL 365 Reporting Community Affairs 4
   ENGL 366 Advanced Feature Writing 3
   ENGL 367 Advanced Poetry Writing 3
   ENGL 368 Playwriting 3
   ENGL 369 Editing 3
   ENGL 370 Creative Writing Workshop 4
   ENGL 371 Literature and Creative Writing 3

3. Literature and English Language Courses (13-14 hrs.)

A. Two of the following courses:
   ENGL 320 American Literature I 3
   ENGL 321 American Literature II 3
   ENGL 330 British Literature I 3
   ENGL 331 British Literature II 3
   ENGL 495 Internship/Fieldwork (two semesters at 1 hr. each) 2

4. Elective Courses

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, 311, or 480.

5. Capstone Experience (2 hrs.)

ENGL 495 Internship/Fieldwork (two semesters at 1 hr. each) 2

6. Foreign Language Requirement

Minimum of two semesters of a modern or classical foreign language at the college level, or two years of such study at the high school level. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.

PRACTICAL WRITING EMPHASIS

(modified) 35 hours

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

2. Required Courses (18 hrs.)
   ENGL 305 Practical Writing 4
   ENGL 364 Feature and Article Writing 3
   ENGL 365 Reporting Community Affairs 4
   ENGL 366 Advanced Feature Writing 3
   ENGL 367 Advanced Poetry Writing 3
   ENGL 368 Playwriting 3
   ENGL 369 Editing 3
   ENGL 370 Creative Writing Workshop 4
   ENGL 371 Literature and Creative Writing 3

3. Language and Literature Courses (10-12 hrs.)

A. Two 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

   OR

   ENGL 322 American Literature III 3
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, 311, or 480.

5. Capstone Experience
A capstone experience for this program will be specified by September 1994 after approval by appropriate departmental and college committees and the department.

6. Foreign Language Requirement
Minimum of two semesters of a modern or classical foreign language at the college level, or two years of such study at the high school level. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.

MIDDLE SCHOOL/JUNIOR HIGH SCHOOL CURRICULUM (MODIFIED) 38 hours
1. Required Entry-Level Course (4 hrs.)
   - ENGL 110 Literary Interpretation

2. Required Advanced Courses (13-15 hrs.)
   A. One of the following:
      - ENGL 223 Black American Literature
      - ENGL 330 British Literature
      - ENGL 331 British Literature

   B. At least one of the American Literature survey courses: ENGL 320/321, which attend to the diversity of American culture.

3. Electives
   - At least one additional English Department course, which attend to cultural diversity or has a multi-cultural focus, selected from the following:
     - ENGL 223 Black American Literature
     - ENGL 330 British Literature
     - ENGL 331 British Literature
     - ENGL 320 American Literature

   C. Required course:
      - ENGL 479 Writing in the Secondary School

4. Electives
   - At least one additional English Department course, which attend to cultural diversity or has a multi-cultural focus, selected from the following:
     - ENGL 223 Black American Literature
     - ENGL 330 British Literature
     - ENGL 331 British Literature
     - ENGL 320 American Literature

5. Capstone Experience
   A capstone experience for this program will be specified by September 1994 after approval by appropriate departmental and college committees and the department.

6. Foreign Language Requirement
   Minimum of two semesters of a modern or classical foreign language at the college level, or two years of such study at the high school level. One year at the high school level coupled with the second semester of the same language at the college level is also satisfactory.
ENGL 305 Practical Writing .......... 4
ENGL 364 Feature and Article Writing, 3
ENGL 366 Advanced Fiction Writing ... 3
ENGL 367 Advanced Poetry Writing ... 3
ENGL 368 Playwriting .................. 3
ENGL 462 Advanced Writing .......... 4
(ENGL 366, 367, and 368 may be repeated one time for credit.)

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

JOURNALISM MINOR (MODIFIED)
21 hours

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

2. Required Journalism Core Courses
ENGL 264 News Writing (Prerequisite: grade of B or better in ENGL 105, or equivalent) .......... 4
ENGL 265 News Editing .......... 4
ENGL 363 Reporting .......... 3

3. Other Requirements (6-7 hrs.)
Two courses chosen from the following:
ENGL 320 American Literature I .......... 3
ENGL 321 American Literature II .......... 3
ENGL 362 Literary Journalism .......... 3
ENGL 364 Feature and Article Writing .......... 3
ENGL 365 Reviewing for the Press .......... 3

PRACTICAL WRITING MINOR (MODIFIED)
21 hours

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

2. Required Courses (14 hrs.)
ENGL 305 Practical Writing .......... 4
ENGL 362 Literary Journalism .......... 3
ENGL 364 Feature and Article Writing .......... 3
ENGL 462 Advanced Writing .......... 4

3. Literature Courses (3 hrs.)
One course chosen from among the following:
ENGL 312 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

INTEGRATED LANGUAGE ARTS MINOR (ILAM) (DELETED)

ENGL 110 Literary Interpretation
(MODIFIED)
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 264 News Writing (MODIFIED)
4 hrs.
Introduction to journalistic principles with an emphasis on writing news stories and learning news style. Students should be able to type. Prerequisite: Minimum of "B" in ENGL 105 or equivalent.

ENGL 283 Literature for Adolescents
(DELETED)

ENGL 310 Literary History and Criticism
(DELETED)

ENGL 312 Western World Literature
(MODIFIED)
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, Approved for General Education under Area I.

ENGL 313 Asian Literature (MODIFIED)
3 hrs.
Study of works selected from the great literature of Asia, especially the Chinese, Japanese, and Indian traditions. Works will be studied in English. Approved for General Education under Area IV (Non-Western World).

ENGL 314 African Literature (MODIFIED)
3 hrs.
Study of works selected from the great literature of Africa, including both traditional and contemporary material. Works will be studied in English, Approved for General Education under Area IV (Non-Western World).

ENGL 315 The English Bible as Literature
(MODIFIED)
3 hrs.
Study of selections from the Old and New Testaments and the Apocrypha. Some attention will be given to the influence of the English Bible on a few representative writers, musicians, and artists, but emphasis will be on the poetic, philosophical, and narrative elements of the Bible itself.

ENGL 320 American Literature I (NEW)
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 (NEW)
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 322 American Literature—Major Writers (DELETED)

ENGL 330 British Literature I (NEW)
3 hrs.
A survey of British literature from its beginnings through the Romantics. Prerequisites: ENGL 105 (or equivalent); ENGL 110.

ENGL 331 British Literature II (NEW)
3 hrs.
A survey of British literature from the Romantics to the present. Prerequisites: ENGL 105 (or equivalent); ENGL 110.

ENGL 340 Development of English Verse
(DELETED)

ENGL 362 Literary Journalism (MODIFIED from ENGL 461)
3 hrs.
A course in literary analysis of the form and development of the non-fiction prose of literary journalism. Prerequisites: ENGL 105; ENGL 110.

ENGL 363 Reporting (MODIFIED)
3 hrs.
Instruction and practice in covering news beats, writing complex news stories, and developing good interviewing skills. Prerequisite: ENGL 284.

ENGL 364 Feature and Article Writing
(MODIFIED)
3 hrs.
Study and practice in writing feature and magazine articles; attention to contemporary techniques and styles in documentary and personal reportage. Prerequisite: A previous college-level writing course.

ENGL 365 Reviewing for the Press
(MODIFIED)
3 hrs.
Theory and practice in writing reviews of books, drama, films, television, concerts, and exhibitions for various kinds of mass-audience publications. Prerequisite: Previous course work in journalism, creative writing, literature, or media.

ENGL 366 Advanced Fiction Writing
(MODIFIED)
3 hrs.
An advanced course in the writing of fiction, with emphasis on class discussion and criticism of each student's writing. Prerequisite: ENGL 266 or permission of the department.

ENGL 367 Advanced Poetry Writing
(MODIFIED)
3 hrs.
An advanced course in the writing of poetry, with emphasis on class discussion and criticism of each student's writing, and including study of selected examples of drama in print and in production. Prerequisite: ENGL 266 or permission of the department.

ENGL 368 Playwriting (MODIFIED)
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. Prerequisite: ENGL 266 or permission of the department.

ENGL 369 Writing in the Elementary School
(MODIFIED)
4 hrs.
Focuses on writing development of pre-school through middle school children, and on ways one can encourage and respond to student writing, assess writing growth, and use writing as a means of learning. Fosters a theoretical understanding of the writing process in part by writing in varied genres and forms. Emphasizes writing as an integral component of the entire curriculum.

ENGL 379 Writing for Secondary Teachers
(DELETED)

ENGL 380 Teaching Literature in the
Secondary Schools (DELETED)

ENGL 415 Practical Literary Criticism
(NEW)
4 hrs.
Practical applications of critical theory, with some attention to the history of this genre of literary writing from Plato to post-structuralism. In addition to New Criticism, special attention will be paid to more recent developments such as reader-response criticism, feminist criticism, and other contemporary critical modes. Strongly recommended for all students planning to pursue graduate study. Prerequisites: At least two courses at the 300-level that count toward the English major.
ENGL 440 Studies in Verse (MODIFIED from ENGL 340) 4 hrs.
A historical and formal study of poetry, emphasizing the development of poetic techniques. Major verse forms and styles, and their relation to theories of poetry. Attention shall be paid to the critical and theoretical bases of interpretation. Prerequisites: Two courses at the 300-level that count toward English major.

ENGL 442 Studies in Drama (MODIFIED) 4 hrs.
Studies in the major styles and forms of drama. Attention shall be paid to the critical and theoretical bases of interpretation. Prerequisites: Two courses that count toward the English major at the 300-level.

ENGL 444 Studies in the Novel (MODIFIED) 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. Prerequisites: Two courses that count toward the English major at the 300-level.

ENGL 461 Form in Non-Fiction (DELETED)
ENGL 479 Writing in the Secondary School (MODIFIED from ENGL 379) 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 (MODIFIED from ENGL 380) 4 hrs.
A study of techniques and theories of teaching literature to young adults. Does not count as credit toward the major or minor. 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 (NEW) 3 hrs.
A course designed to develop an understanding of the cultural diversity of the American experience through multi-cultural oral and written literature for young people. Attention will be paid to developing criteria for selecting and evaluating literature which reflects diversity within the American heritage. Prerequisite: 16 hours must include ENGL 282.

ENGL 522 Studies in American Literature (MODIFIED from ENGL 322) 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 (MODIFIED) 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 (MODIFIED) 3 hrs.
Readings in representative writers of the period 1500-1660.

ENGL 534 Restoration and 18th Century Literature (MODIFIED) 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 (MODIFIED) 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 (NEW) 3 hrs.
Readings emphasizing such writers as Carlyle, Mill, Dickens, Thackeray, George Eliot, Tennyson, Robert Browning, Elizabeth Barrett Browning, and Arnold.

ENGL 538 Modern Literature (MODIFIED) 3 hrs.
Readings in representative writers of the period 1890-1945, not exclusively in British and American literature.

ENGL 539 Post-colonial Literature (NEW) 3 hrs.
Readings in representative writers from colonial and post-colonial cultures.

ENGL 540 Contemporary Literature (MODIFIED) 3 hrs.
Readings in representative writers who have come to prominence chiefly since 1945.

ENGL 555 Studies in Major Writers (MODIFIED) 3 hrs.
Study of the works of classical, European, British or American writers. Limited to one or two authors.

ENGL 582 Studies in Children's Literature (MODIFIED) 3 hrs.
A study in depth of significant themes, movements, types in children's literature. Prerequisites: ENGL 282 or permission of the department.

ENGL 583 Multi-Cultural Language Literature for Adolescents (MODIFIED from ENGL 283) 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.

ENGLISH COURSES FOR INTERNATIONAL STUDENTS

ENGL 160 Developing Fluency and Clarity in English: Emphasis on Reading and Writing (NEW) 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 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 (NEW) 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 listening skills. Graded on credit/no credit basis. Prerequisite: Minimum of 500 on TOEFL.

ENGL 360 Achieving Academic English: Emphasis on Reading (NEW) 5 hrs.
This course is for undergraduates and graduates who are non-native speakers of English and who have sufficient language proficiency to be admitted to the University, but who need to improve their reading and writing skills in order to perform successfully in their academic work. The course promotes further development in the ability to read academic prose and to write in the genres needed for academic success, including the research paper. Attention will be paid to critical reading and editing for grammatical correctness in writing. Prerequisite: Minimum of 500 on TOEFL.

ENGL 361 Developing Proficiency in English: Emphasis on Speaking and Listening (NEW) 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.

GEOLOGY
Refer to pages 111-114.

GEOLOGY MAJOR (MODIFIED) Minimum 38 Hours
Required Courses ........................................ Hrs.
GEOL 130 Physical Geology .................. 4
GEOL 131 Historical Geology ............... 4
GEOL 335 Mineralogy ............................. 4
GEOL 336 Optical Mineralogy ............... 3
GEOL 430 Structural Geology ............... 3
GEOL 439 Geologic Mapping ................ 3
GEOL 440 Petrology and Petrography ....... 3
GEOL 445 Sedimentation and Stratigraphy . 4
GEOL 503 Introduction to Geophysics ....... 3
Elect one of the following:
GEOL 432 Geomorphology .................. 3
GEOL 433 Invertebrate Paleontology ........ 4
GEOL 512 Principles of Hydrogeology ...... 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 Geology major will satisfy the Baccalaureate Writing
BACCALAUREATE WRITING REQUIREMENT

(Required) (MATH)

CS 306 Introduction to Programming

COGNATE REQUIRED COURSES

CHEM 101, 102 or 120; PHYS 113, 114 and 115, 116 or 205, 206 and 207, 208; BIOS 101 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. A summer field course in geology is strongly recommended for all geology majors and is indispensable for students planning professional careers. In addition, at least one year of foreign language is recommended.

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.

GEOPHYSICS MAJOR (MODIFIED)
The Geology and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study and who also plan to require taking mathematics courses which correspond to a minor in mathematics. Students contemplating a geophysics major should contact the Geology Department as early as possible for advising.

Total Major Hours: 49-54

Major Core: 40-42

Geology (GEOL) (20 hours)

GEOL 130 Physical Geology 4

GEOL 131 Historical Geology 4

GEOL 301 Minerals and Rocks 4

GEOL 430 Structural Geology 3

GEOL 439 Geologic Mapping 3

GEOL 560 Introduction to Geophysics 3

Physics (PHYS) (17-18 hours)

PHYS 205 Mechanics and Heat 4

PHYS 206 Mechanics and Heat Laboratory 1

PHYS 207 Electricity and Light 4

PHYS 208 Electricity and Light Laboratory 1

PHYS 309 Introductory Modern Physics 3

PHYS 310 Introductory Modern Physics Laboratory 1

PHYS 342 Electronics 3

One of the following (3-4 hours)

PHYS 330 Thermodynamics and Kinetic Theory 3

PHYS 352 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).

MATHEMATICS MINOR (Required) (MATH) (21 hours)

MATH 122 Calculus I 4

MATH 123 Calculus II 4

MATH 272 Vector and Multivariable Calculus 4

CS 306 Introduction to Programming 4

MATH 374 Linear Algebra and Differential Equations 4

MATH /CS 506 Scientific Programming 3

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Geophysics major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

GEOL 432 Geomorphology

GEOL 435 Sedimentation and Stratigraphy

ENGL 305 Practical Writing

REQUIRED SUPPORTING COURSE

CHEM 101 or 102 (4 hours)

Total Required Hours: 71-77

STRENGHY RECOMMENDED

Field course in geology, 6-8 hours.

EARTH SCIENCE: NON-TEACHING MAJOR AND MINOR (MODIFIED)
The non-teaching earth science major and minor program is a broad and flexible course of instruction for students anticipating careers in conservation and related professions, state and federal parks and planning agencies. The program is interdisciplinary in nature and offers students an opportunity to select earth science and geology courses which correspond to a minor in earth science and geology courses.

Cognate requirements include a college level chemistry course (101, 102, or 103) and a college level physics course (107/108 or 113/ 114).

Required Courses

Hrs.

GEOL 130 Physical Geology 4

GEOL 131 Historical Geology 4

GEOL 301 Minerals and Rocks 4

GEOL 430 Structural Geology 3

GEOL 439 Geologic Mapping 3

GEOL 560 Introduction to Geophysics 3

Or

Physics (PHYS) (17-18 hours)

PHYS 205 Mechanics and Heat 4

PHYS 206 Mechanics and Heat Laboratory 1

PHYS 207 Electricity and Light 4

PHYS 208 Electricity and Light Laboratory 1

PHYS 309 Introductory Modern Physics 3

PHYS 310 Introductory Modern Physics Laboratory 1

PHYS 342 Electronics 3

One of the following (3-4 hours)

PHYS 330 Thermodynamics and Kinetic Theory 3

PHYS 352 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 COGNATE COURSES

MATH 115 Precalculus Mathematics AND

MATH 200 Calculus Applications

OR

MATH 122 Calculus I 4

8/4

MATH 260 Elementary Statistics

OR

MATH 366 Introduction to Statistics 4

CHEM 101 General Chemistry I

OR

CHEM 102 General Chemistry I

OR

CHEM 120 General Chemistry II

OR

PHYS 107 and 108 Elementary Physics

OR

PHYS 115 and 114 General Physics

EARTH SCIENCE: NON-TEACHING MAJOR AND MINOR (MODIFIED)
The non-teaching earth science major and minor program is a broad and flexible course of instruction for students anticipating careers in conservation and related professions, state and federal parks and planning agencies. The program is interdisciplinary in nature and offers students an opportunity to select earth science and geology courses which correspond to a minor in earth science and geology courses.

Cognate requirements include a college level chemistry course (101, 102, or 103) and a college level physics course (107/108 or 113/114).

Required Courses

Hrs.

GEOL 130 Physical Geology 4

GEOL 131 Historical Geology 4

GEOL 301 Minerals and Rocks 4

GEOL 430 Structural Geology 3

GEOL 432 Geomorphology 3

GEOL 435 Sedimentation and Stratigraphy 3

ENGL 305 Practical Writing 4

FIELD HYDROLOGY MAJOR (MODIFIED)

Core: 32 hrs., Total: 53-57 hrs.

The Field Hydrogeology program is designed to educate individuals in a cluster of skills that are required to gather and process hydrogeological information. The program is designed so graduates may enter first-level positions in a wide range of consulting firms and governmental agencies.

Required Courses

Hrs.

GEOL 130 Physical Geology 4

GEOL 131 Historical Geology 4

GEOL 301 Minerals and Rocks 4

GEOL 412 Introduction to Hydrogeology 3

GEOL 432 Geomorphology 3

GEOL 438 Field Studies in Geology 4

GEOL 525 Surface Geophysics 1

GEOL 526 Principles and Practices of Aquifer Testing 1

GEOL 527 Principles and Practices of Ground-water Sampling and Monitoring 1

GEOL 528 Principles and Practices of Aquifer Testing 1

CHEM 120 General Chemistry II 4

JH 115 and 116 Field Geophysics 3

PAPR 350 Water Quality and Microbiology I 3

PAPR 351 Water Quality and Microbiology II 2

PHYS 115 and 116 Physics 3

GEOL 260 Evolution of Life—A Geological Perspective (NEW)

A total of 24 hours must be chosen from the following with the consent of the field hydrogeology advisor: or

BIOI 102 Plant Biology 4

BIOI 105 Environmental Biology 4

BIOI 234 Outdoor Science 4

CHEM 222 Quantitative Analysis 4

CHEM 255 Organic Chemistry 4

CHEM 525 Techniques in Water Analysis 2

EE 100 Fundamentals of Circuits 3

EE 335 Soil Mechanics 3

GEOG 265 Map, Chart, and Air Photo Reading 3

GEOG 375 Cartography 3

GEOG 553 Water Resource Management 3

GEOG 557 Environmental Impact Assessment 3

GEOG 567 Geodata Handling 4

GEOG 582 Remote Sensing 3

GROUP SCIENCE MINOR FOR FIELD HYDROGEOLOGY (NEW)

The Field Hydrogeology major will satisfy the Baccalaureate Writing Requirement by successfully completing:

GEOL 432 Geomorphology
GEOL 307 Teaching Earth Science (MODIFIED) 2 hrs.
Methods, educational philosophy, objectives, activities, professionalism and problems related to teaching earth science in the junior and senior high school. Designed for Earth Science majors and minors. One hour lecture and two hours of lab. Prerequisites: 12 hours of GEOL courses or consent of the instructor.

GEOL 355 Minealogy (MODIFIED) 4 hrs. Fall
Introduction to crystallography, crystal chemistry, and determinative mineralogy. Physical and chemical properties, occurrence, uses and determination of about 100 minerals. Lecture 3 hrs. and lab 1 hr. a week. Laboratory 3 hours a week. Prerequisite: GEOL 100; GEOL 130; CHEM 101, CHEM 102, or CHEM 103; or consent of instructor.

GEOL 336 Optical Mineralogy (MODIFIED) 3 hrs. Fall
Principles and methods of optical crystallography. Study of minerals in crushed grains and in thin sections. Lecture 2 hours a week.
Laboratory 3 hours a week. Prerequisite: GEOL 335 or consent of instructor.

GEOL 344 Introduction to Environmental Geology (MODIFIED) 3 hrs.
An introduction to geology of the environment. Emphasis is placed on the geology of natural hazards, waste disposal systems, earthquakes, floods, erosion and sedimentation, volcanic processes related to human occupation of land, and aspects of urban geology. Prerequisite: GEOL 131 and junior standing; GEOL 301 or GEOL 335; or consent of instructor.

GEOL 412 Introduction to Hydrogeology (MODIFIED) 3 hrs. Fall
This general survey course in hydrogeology introduces the occurrence, movement, and contamination of ground and surface water. Prerequisite: GEOL 301; MATH 122 or MATH 200; CHEM 101 or CHEM 102; and PHYS 107/108 or PHYS 119/114.

GEOL 430 Structural Geology (MODIFIED) 3 hrs. Fall
Development of rock structures and mechanics of rock deformation. Structural interpretation of geologic maps, cross-sections, and aerial photographs. Lecture 2 hours a week. Laboratory 2 hours a week. Prerequisites: GEOL 131; GEOL 301 or GEOL 335; MATH 118; or consent of instructor.

GEOL 432 Geomorphology (MODIFIED) 3 hrs.
Detailed consideration of the earth's surficial processes including transformation of fluvial, glacial, mass-wasting, eolian, and coastal landforms. Laboratory exercises involve interpretation of topographic maps, geologic maps, and air photographs. Prerequisites: GEOL 130; GEOL 301 or GEOL 335; PHYS 107/108 or PHYS 113/114; CHEM 101 or CHEM 102; and MATH 118 or MATH 200.

GEOL 435 Sedimentation and Stratigraphy (MODIFIED) 4 hrs. Fall
Processes, characteristics, and relationships among fluvial, deltalic, 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. Three lectures and one three-hour laboratory per week. Prerequisite: GEOL 131; GEOL 301 or GEOL 335.

GEOL 438 Field Studies in Geology (MODIFIED from GEOL 539) 3 hrs.
Field observations and introduction to geologic mapping. Aspects of landscape evolution, rock-forming processes, and rock deformation will be studied. Emphasis will be on how observations are combined to make geologic interpretations and how the geologic history and evolution of a region can be interpreted from field data. Prerequisite: GEOL 301 or consent of instructor.

GEOL 439 Geologic Mapping (NEW) 3 hrs.
Field observations and geologic mapping. Rock-oriented mapping projects will be completed under supervision that require observations and synthesis of rock descriptions, structural analyses, stratigraphic interpretations, and compilations of the geologic history of assigned study areas. Prerequisites: GEOL 301 or GEOL 440; GEOL 430; or consent of instructor.

GEOL 440 Petrology and Petrography (MODIFIED) 3 hrs. Winter
Classification, origin, and description of igneous, sedimentary, and metamorphic rocks. Laboratory study of rocks and thin sections. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 129; GEOL 396; CHEM 120.

GEOL 503 Environmental Consulting Practices (NEW) 2 hrs.
An introduction to the principles and practices that are peculiar to environmental consulting. Emphasis is placed on the legal, business, and practical considerations needed to conduct a consulting practice. This course is not to be counted toward the 60 credits beyond the Master's In The Ph.D. program. Prerequisite: Graduate standing in geology or earth science.

GEOL 512 Principles of Hydrogeology (MODIFIED) 3 hrs.
The study of surface and ground water with special emphasis on its occurrence, movement, and relation to the geologic environment. Prerequisite: GEOL 301 or GEOL 335; MATH 122. MATH 123 to be taken concurrently.

GEOL 520 Economic Geology (MODIFIED) 3 hrs.
Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Lecture 10 hours. Prerequisite: GEOL 301 or GEOL 335 or GEOL 440.

GEOL 525 Surface Geophysics (MODIFIED) 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: GEOL 412 or GEOL 512.

GEOL 526 Principles and Practices of Aquifer Testing (MODIFIED) 1 hr.
Introduction to the methods of aquifer testing with emphasis on step drawdown pump-tests, forty-hour pumping test with recovery, slug tests and bail tests, data processing, using computer software, water level recorders, data loggers, and water level measuring equipment. Prerequisite: GEOL 412 or GEOL 512.

GEOL 527 Principles of Well Drilling and Installation (MODIFIED) 1 hr.
An introduction to hollow-stem auger drilling and well installation, rotary drilling with mud and air, cable tool drilling, monitoring well design, sample collection and description; cuttings, split spoon, and Shelby tube, borehole geophysics, and installation and development of wells. Prerequisite: GEOL 412 or GEOL 512.

GEOL 528 Principles and Practices of Ground-Water Sampling and Monitoring (MODIFIED) 1 hr.
An introduction to state-of-the-art techniques for sampling, monitoring, and evaluating ground water systems and surface water interactions. Includes quality control and assurance procedures, ground-water sampling equipment and procedures, field hydrochemical equipment and procedures, and vadose zone sampling of water and gas. Prerequisite: GEOL 412 or GEOL 512.

GEOL 530 Plate Tectonics and Earth Structure (MODIFIED) 3 hrs. Fall
Major tectonic features and internal structure of the earth in relation to plate tectonics, critical examination of the tenants of plate tectonics. Prerequisites: GEOL 301 or GEOL 335; GEOL 430 or consent of instructor.

GEOL 536 Glacial Geology (MODIFIED) 3 hrs. Spring
A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial geology of the Great Lakes area. Prerequisites: GEOL 301 or GEOL 335.

GEOL 544 Environmental Geology (MODIFIED) 3 hrs. Fall
Geology related to human affairs and land use planning. Includes engineering properties of earth materials, waste disposal systems, slope stability, floods, erosion and sedimentation, land subsidence, volcanic hazards, earthquakes, and urban geology. Field trips required. Prerequisite: GEOL 131; GEOL 301 or GEOL 335; or consent of instructor.

GEOL 550 Introduction to Geophysics (MODIFIED) 3 hrs. Winter
Seismology, gravity, geomagnetism, electrical resistivity, and heat measurements applied to the determination of the internal structure of the earth. Two lectures and three hours of practical laboratory-introduction to geophysical instrumentation. Prerequisites: GEOL 301 or GEOL 440; GEOL 430; MATH 122; two semesters of college physics; or consent of instructor.

GEOL 561 Refection Seismology (MODIFIED) 3 hrs.
Reflection seismology and related techniques as applied to petroleum exploration and deep crustal exploration. Theoretical background, data collection, data processing and interpretation will be discussed. Prerequisites: GEOL 560; CS 306; MATH 123.

GEOL 563 Electrical Methods (MODIFIED) 3 hrs.
Resistivity sounding and profiling, induced polarization, spontaneous potential,
electromagnetic methods using natural and artificial fields. Two lectures and 3 hr. laboratory with field studies and laboratory modeling. Prerequisites: GEOL 560; CS 306; MATH 123, PHYS 440; or consent of instructor.

**HISTORY**

Refer to pages 115-119.

**GENERAL DESCRIPTION (MODIFIED)**

The Department of History offers several academic and professional programs with varying requirements. Students intending to major in history should consult the department’s undergraduate advisor regularly. 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 maximum of 9 hrs. 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 or minor. Course work in science, and in allied social sciences and humanities, is specified by curriculum. Consult the Department of History Undergraduate Handbook. History majors who complete the degree of Bachelor of Arts with a GPA of at least 3.5, in the major and overall, and who complete a Senior Thesis (HIST 499/HNRS 499) are designated by the department as having graduated with Honors in History.

**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.

**MAJORS**

**HISTORY MAJOR, COLLEGE OF ARTS AND SCIENCES CURRICULA; OTHER CURRICULA (MODIFIED)**

**MAJOR REQUIREMENTS**

1. HIST 190, 390 .......................... 6
2. HIST 496 OR 499 ........................ 3
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 1750, American history before 1877, ancient/medieval/Latin American, or courses on the pre-modern history of other civilizations.

**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, PUBLIC HISTORY CURRICULUM (PUH) (MODIFIED)**

This program is designed to prepare students for entry-level positions in fields of public history such as museum and archival administration, preservation/restoration work, interpretation, consulting, and applied research.

**MAJOR REQUIREMENTS**

1. HIST 190, 390 .......................... 6
2. Four courses chosen from HIST 404, 406, 408, 410, 412 .......................... 12
3. United States history, including HIST 315 or 318 and at least two courses at the 400/500 level .......................... 12
4. Electives in history .......................... 12
5. ANTH 210 and 250 .......................... 7
6. Approved electives in other disciplines .......................... 12
7. Internship (HIST 495) .......................... 6

Minimum total of 64 hrs. in the major. The Public History curriculum does not require a minor. History majors in the Public History curriculum also must complete a foreign language through the 101 level by course work or examination.

**HISTORY MAJOR, SECONDARY EDUCATION CURRICULUM (SED) (MODIFIED)**

The secondary teacher preparation program complies with Guidelines for the Certification of Teachers of History established by the American Historical Association.

**MAJOR REQUIREMENT**

1. HIST 190, 390, 396 .......................... 9
2. United States history including at least 6 hrs. at the 400/500 level .......................... 10
3. Non-Western history including at least 3 hrs. at the 400/500 level .......................... 6
4. European and/or General history including at least 3 hrs. at the 400/500 level .......................... 6
5. Minimum of 36 hrs. in history including at least 15 hrs. at the 400/500 level

In addition to the history major, students must complete the following:

1. A group social science (SOS) minor of at least 27 hrs. including:
   - ANTH 120 or 240 .......................... 3
   - ECON 201, 202 .......................... 6
   - GEOG 102 or 105 or 205 .......................... 3-4
   - PSCI 200 .......................... 3
   - SOC 200 .......................... 3
   - Approved electives from above disciplines, 300-level or above .......................... 6-9
2. One approved literature course in the Department of English at the 300 level or above (or ENGL 252).
3. One approved course in philosophy or religion, or in the history of political, economic, or ethnographic theory, at the 300 level or above.
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 course work numbered 420 through 596 with grades of “B” or better to be approved by the department for directed teaching.

**MINORS**

**PUBLIC HISTORY MINOR (MODIFIED)**

1. HIST 390 and 404 .......................... 6
2. Two courses from 406, 408, 410, 412 .......................... 6
3. ANTH 210 .......................... 3
4. One course from 315, 318 .......................... 3
5. Two courses in United States history including at least one at the 400/500 level .......................... 12
6. Minimum of 28 hrs. of course work in the minor

**HISTORY MINOR, COLLEGE OF EDUCATION CURRICULUM (MODIFIED)**

**MINOR REQUIREMENTS**

1. HIST 390 .......................... 3
2. At least four courses in United States history including 6 hrs. at the 400/500 level .......................... 12
3. Total of 21 hrs. in history including 9 hrs. at the 400-level

**COGNATE REQUIREMENTS**

1. One approved course in American literature at the 300 level or above .......................... 4
2. One approved course in the social sciences or humanities (other than History) at the 300 level or above dealing with American culture or institutions .......................... 3-4
3. Students whose teaching major is outside the College of Arts and Sciences must also complete HIST 496 (Secondary Methods SED) .......................... 3
4. All course work at the 300-level or above in the 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 course work numbered 420 through 596 with grades of “B” or better to be approved by the department for directed teaching.

5. European and/or general history including at least three hours at the 400/500 level.

**HISTORY MINOR, COLLEGE OF ARTS AND SCIENCES AND OTHER CURRICULA (UNCHANGED)**

1. HIST 390 .......................... 6
2. Minimum of 24 hrs. of course work (at least 18 hrs. in history; with adviser approval two courses in historical studies outside the department, in disciplines such as archaeology, art history, music or theatre history, period literature, etc., may be applied toward minor requirements in lieu of 100/200-level courses in history)

HIST 190 Historians in the Modern World (MODIFIED)

3 hrs.

A survey of the historical professions and the academic preparation needed to enter them. Introduction to basic research, analytical, and presentation skills in the discipline.

HIST 390 Introduction to the Study of History (MODIFIED)

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. Prerequisite: HIST 190.

HIST 421 The New Nation: American Revolution and Independence (MODIFIED)

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 (MODIFIED) 3 hrs.
Society and culture of the United States in the 19th century before the Civil War.

HIST 426 United States 1920-1940 (MODIFIED) 3 hrs.
Societal, 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 since 1960 (MODIFIED) 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 429 Topics in United States History (NEW) 3 hrs.
Continuation of HIST 428. Major domestic developments and international challenges since the Kennedy presidency.

HIST 430 Women in America to 1870 (NEW) 3 hrs.
Women's historical experiences from the early 18th 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 432 Women in America Since 1870 (NEW) 3 hrs.
Continuation of HIST 431.

HIST 434 American Indians to 1887 (NEW) 3 hrs.
Historical survey of the native peoples of North America from origins to the late 18th century. Emphasis on federal-Indian relations, settler contact, Indian removal, military confrontations and treaties, and major aspects of culture.

HIST 435 American Indians Since 1887 (NEW) 3 hrs.
American Indian history since the Dawes Land Allotment Act of 1887. Emphasis on Indian rights, education, health, stereotypes and self-concepts, communal relations, reservation and urban life, leadership, and evolution of federal policy.

HIST 436 Topics in African-American History (NEW) 3 hrs.
Major themes and topics in African-American history in North America and the Caribbean. Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 439 Topics in United States History (MODIFIED from HIST 429) 1-3 hrs.
Examination of major social, economic, intellectual and cultural themes and issues in United States history. Topics announced in Schedule of Classes. May be repeated under different topics.

HIST 495 Internship (MODIFIED) 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.

LANGUAGES AND LINGUISTICS
Refer to pages 120-126.

LING 111 Standard American English: Intermediate (DELETED)
LING 112 Standard American English: Advanced (DELETED)

POLITICAL SCIENCE
Refer to pages 137-141.

PSCI 449 Field Work in Foreign Political Systems (NEW) 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.

PSYCHOLOGY
Refer to pages 141-144.

PSYCHOLOGY MAJOR, ARTS AND SCIENCES CURRICULUM (MODIFIED)
Reduce requirements from 37 hrs. to 34 hrs. by eliminating one elective course.

PSYCHOLOGY MAJOR, SECONDARY EDUCATION OPTION (DELETED)

PSYCHOLOGY MINOR, ARTS AND SCIENCES OPTIONS (MODIFIED)
Reduce requirements from 18 hrs. to 15 hrs. by eliminating one elective course and remove PSY 150 as optional course requirement.

PSYCHOLOGY MINOR, SECONDARY EDUCATION OPTION (DELETED)

PSY 424 The Psychology of Human Sexuality (NEW) 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 with this aspect of human behavior. Topics include sex, sexuality, and reproduction. Prerequisite: PSY 100.

PSY 426 Introduction to Human Drug Use and Abuse (NEW) 3 hrs.
This is a course for non-majors and for minors in Psychology only. It cannot be applied towards the requirements for the Psychology major. This course introduces the student to the action of several classes of recreational and medical drugs and provides an overview of the factors that influence drug use. Human drug use and abuse will be the primary focus, although non-human research findings will be discussed as well. Prerequisite: PSY 100.

PSY 444 Industrial/Organizational Behavior Analysis (NEW) 3 hrs.
This course emphasizes employee performance management and analyses of work behavior that are based on the principles of behavioral psychology. Environments- and change strategies will be emphasized. Topics include the measurement of work, personnel management techniques, how compensator practices influence employee behavior, work satisfaction, personnel selection, and the ethics of personnel management. This course is for majors only. Prerequisite: PSY 360.

PSY 463 Management of Health-Related Behaviors (MODIFIED from PSY 562) 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.

PSY 474 Experimental Social Psychology (MODIFIED from PSY 574) 3 hrs.
Methodology of research with groups of animals and humans with emphasis upon design, application and ethical implications. Prerequisite: Permission of the instructor.

PSY 512 Behavioral Pharmacology (MODIFIED to PSY 613)

RELIGION

SCIENCE STUDIES
Refer to pages 147-149.

ENVIRONMENTAL STUDIES
ENVIRONMENTAL STUDIES CURRICULUM (DELETED)
ENVIRONMENTAL STUDIES, ETV MAJOR (DELETED)

ENVIRONMENTAL STUDIES MAJOR (MODIFIED)

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

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

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen an Environmental Studies major will satisfy the Baccalaureate Writing Requirement by successfully completing ENVS 320, Major Environmental Writings.

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

ADVISING
Given the interdisciplinary nature of the program, it is very important that students work with one of the program advisors on an ongoing basis. Enrollment in ENVS courses is controlled by the advisors and is inaccessible 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.

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

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

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

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

1. Successful completion of a minimum of 35 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 fulfill the College of Arts and Sciences curriculum requirements as well as all University degree requirements.

ENVIRONMENTAL STUDIES MAJOR (MODIFIED)
35-36 hrs. plus cognates

1. PROGRAM INTRODUCTION
ENVS 110 Introduction to Environmental Studies...... 3

2. CONCEPTUAL FOUNDATIONS
Prerequisites for all five courses below is ENVS 110 or approval of a program advisor. Students whose disciplinary major is in Cultural Anthropology, Biology, Chemistry, Environmental Resource Management, or Political Science may, with the approval of a program advisor, replace the appropriate course from the five listed below with either ENVS 401 or ENVS 410.

ENVS 210 Environmental Biology ..... 3
ENVS 220 Environmental Physical Science.................. 4
ENVS 230 Environmental Earth Science.......................... 3
ENVS 240 Cultures and Global Change............................. 3
ENVS 250 Political Economy of the Environment............... 3

3. SKILLS AND VISION
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 (should be taken before ENVS 360).......................... 2
ENVS 350 Environmental Problem Solving.......................... 4
ENVS 360 Values and Sustainable Society.......................... 4

4. APPLICATIONS
A minimum of four semester hours required from the 400-level courses listed below. Courses taken from this group to satisfy the level two requirements do not count toward this total. Prerequisites are ENVS 110 and all 200-level courses listed above or approval of a program advisor.

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

5. CAPSTONE
Prerequisites are ENVS 350 and ENVS 360 or approval of a program advisor.

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

6. COGNATES
In addition to the core courses listed above, each student opting to take an Environmental Studies major will be required to take a minimum of one cognate course from a list of departmental courses identified as potential cognates for specific dual-major packages. The course chosen must be approved by a program advisor.

MINORS
The Environmental Studies Program offers both a non-teaching and a teaching minor. These minors are offered for students who are unable to pursue a major but still seek some insights into the nature of environmental concerns.

THE NON-TEACHING MINOR (MODIFIED)
22-23 hrs.

Those electing a non-teaching minor in Environmental Studies must successfully complete a minimum of 22 semester hours of approved course work within the program.

1. PROGRAM INTRODUCTION
ENVS 110 Introduction to Environmental Studies ...... 3

2. CONCEPTUAL FOUNDATIONS
Prerequisite for all five courses below is ENVS 110 or approval of a program advisor. Students whose disciplinary major is in Cultural Anthropology, Biology, Chemistry, Environmental Resource Management or Political Science may, with the approval of a program advisor, replace the appropriate course from the five listed below with either ENVS 401 or ENVS 410.

ENVS 210 Environmental Biology ..... 3
ENVS 220 Environmental Physical Science.................. 4
ENVS 230 Environmental Earth Science.......................... 3
ENVS 240 Cultures and Global Change............................. 3
ENVS 250 Political Economy of the Environment............... 3

3. SKILLS AND VISION
Prerequisites are ENVS 110 and all 200-level courses listed above or approval of a program advisor.

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

THE TEACHING MINOR (MODIFIED)
22-24 hrs.

This option is available only to those enrolled in the secondary education curriculum and having a major in an approved science discipline. Those electing a teaching minor in Environmental Studies must successfully complete a minimum of 21 hours of approved course work within the program.

1. PROGRAM INTRODUCTION
ENVS 110 Introduction to Environmental Studies ...... 3

2. CONCEPTUAL FOUNDATIONS
Prerequisite for all five courses below is ENVS 110 or approval of a program advisor. Students may, with the approval of a program advisor, substitute ENVS 360 for the science course below that is in their major discipline.

ENVS 210 Environmental Biology ..... 3
ENVS 220 Environmental Physical Science.................. 4
ENVS 230 Environmental Earth Science.......................... 3
ENVS 240 Cultures and Global Change............................. 3
ENVS 250 Political Economy of the Environment............... 3

3. SKILLS AND VISION
An approved environmental/outdoor education course chosen in consultation with a program advisor.......................... 3-4

ENVS 110 Introduction to Environmental Studies (MODIFIED)
3 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 210 Environmental Biology (PENDING) 3 hrs.  
Prerequisite: ENVS 110 or approval of a program advisor.

ENVS 220 Environmental Physical Science (NEW) 4 hrs.  
Students develop a foundation of physical and chemical principles sufficient to appreciate how these principles affect environmental issues. Emphasis is on nuclear, atomic and molecular properties of matter which determine whether a substance is considered to be a significant pollutant. The concept is developed that the laws of physics and chemistry constrain our ability to fashion a sustainable modern society. Prerequisites: ENVS 110 or approval of a program advisor; MATH 111 or equivalent.

ENVS 230 Environmental Earth Science (PENDING) 3 hrs.  
Description pending.)  
Prerequisite: ENVS 110 or approval of a program advisor.

ENVS 240 Cultures and Global Change (NEW) 3 hrs.  
A global cross-cultural overview of various techno-economic systems. Various types of past and present cultural and technological systems, from small-scale rural tribal communities to large-scale industrial societies, will be discussed in terms of their adaptiveness. Global threats to current societies will be reviewed in terms of the debates over global warming and the loss of biodiversity. Case studies of different approaches to development will be used to develop criteria to evaluate which will better mitigate global threats and be socially sustainable. Prerequisite: ENVS 110 or approval of a program advisor.

ENVS 250 Political Economy of the Environment (NEW) 3 hrs.  
The course reviews the political and economic assumptions underlying twentieth century political and economic systems. It analyzes the political economy of environmental policy-making and regulation in the United States. It discusses emerging alternatives that are based upon principles of sustainability and the challenges involved in institutionalizing them. Prerequisite: ENVS 110 or approval of a program advisor.

ENVS 320 Major Environmental Writings (MODIFIED) 2 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. Course satisfies the baccalaureate level writing requirement. Prerequisite: Required conceptual foundations courses or approval of a program advisor.

ENVS 350 Environmental Problem Solving (MODIFIED) 4 hrs.  
This course develops an approach to solving complex problems, together with specific skills for analyzing problem situations and making decisions. It introduces students to the structure and behavior of complex systems and to the elementary techniques for systems analysis. It also explores the elements of, and problems surrounding, risk/benefit analysis utilized in decision making. Prerequisite: Required conceptual foundations courses or approval of a program advisor.

ENVS 360 Values and Sustainable Society (MODIFIED) 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.

ENVS 401 Selected Environmental Topics (MODIFIED from ENVS 305) 3 hrs.  
An intensive, focused study of an environmental topic such as solid waste management and resource recovery, energy management, environmental law, or environmental communications. Topic to be announced in the Schedule of Classes. This course may be repeated for credit with a second topic. Prerequisite: Required conceptual foundations courses or approval of a program advisor.

ENVS 410 Appropriate Technologies and Sustainability (MODIFIED from ENVS 300) 3 hrs.  
In the light of the debates on sustainability, the course analyzes how technologies and technological systems have interacted with and influenced social changes 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.

ENVS 420 Internship (MODIFIED from ENVS 399) 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 program advisor.

ENVS 430 Environmental Projects (MODIFIED from ENVS 499) 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 a investigatory approach, and consider paths to solving the problem. Prerequisite: Consent of instructor and approval of a program advisor.

ENVS 440 Field Experience (NEW) 1-4 hrs.  
This course is a vehicle to provide academic credit for students participating in legitimate off-campus environmental field programs and foreign exchange programs. The course is repeatable for up to eight hours of academic credit. Prerequisite: Approval of a program advisor.

ENVS 450 Senior Seminar in Environmental Studies (MODIFIED from ENVS 400) 3 hrs.  
A team-taught, integrated capstone experience involving a semester-long environmental problem-solving/planning simulation. Students will be evaluated in terms of their ability to function individually and with their colleagues in a simulated professional work environment. As the capstone course, this should normally be the last course taken from the program. Prerequisites: ENVS 350 and ENVS 360, or approval of a program advisor.

INTERDISCIPLINARY COURSE (GENL)  
GENL 333 American Studies (DELETED)

SOCIOLOGY  
Refer to pages 150-154.

SECONDARY EDUCATION CURRICULUM (DELETED)

GROUP SOCIOLOGICAL (DELETED)

SOCIOPHANY/ANTHROPOLOGY MAJOR (DELETED)

SOC 261 Law Enforcement Certification—Variable Topics (NEW)  
Variable 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 MLEOTC review. Prerequisite: Permission of Criminal Justice Program advisor.
HAWORTH COLLEGE OF BUSINESS

BUSINESS ADMINISTRATION CURRICULUM
Refer to pages 155-160.

SPECIAL NOTES
MINORS (NEW)
To declare a minor in any business area, the student must meet with a College of Business advisor. The requirements for declaration of a minor are:
1. Junior status (56 completed hours)
2. A 2.5 overall grade point average
3. The student must then meet with a department advisor for specific prerequisite and course requirements of the minor

BUSINESS INFORMATION SYSTEMS (BIS)
3. COMPUTER INFORMATION SYSTEMS (CIS) (MODIFIED)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 111</td>
<td>Computer Programming I</td>
<td>3</td>
</tr>
<tr>
<td>BIS 260</td>
<td>Microcomputer Business Applications</td>
<td>3</td>
</tr>
<tr>
<td>BIS 261</td>
<td>COBOL Programming</td>
<td>3</td>
</tr>
<tr>
<td>BIS 360</td>
<td>Information Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>BIS 362</td>
<td>Advanced COBOL</td>
<td>3</td>
</tr>
<tr>
<td>BIS 462</td>
<td>Applied CIS Development Project</td>
<td>3</td>
</tr>
<tr>
<td>CS 440</td>
<td>Data Base Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 223</td>
<td>Computer Organization</td>
<td>3</td>
</tr>
<tr>
<td>BIS 264</td>
<td>Report Program Generator</td>
<td>3</td>
</tr>
<tr>
<td>BIS 386</td>
<td>Advanced Office Systems</td>
<td>3</td>
</tr>
<tr>
<td>BIS 410</td>
<td>Internship in CIS</td>
<td>3</td>
</tr>
<tr>
<td>BIS 464</td>
<td>Decision Support and Expert Systems</td>
<td>3</td>
</tr>
<tr>
<td>BIS 465</td>
<td>Trends in Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BIS 466</td>
<td>Distributed Data Processing</td>
<td>3</td>
</tr>
<tr>
<td>BIS 474</td>
<td>Information Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>BIS 555</td>
<td>Topics in Computer Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BIS 596</td>
<td>Independent Study in Computer Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BIS 598</td>
<td>Independent Readings in Computer Information Systems</td>
<td>3</td>
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BUSINESS EDUCATION MINOR (DELETED)

MANAGEMENT (MGMT)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 300</td>
<td>Fundamentals of Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 460</td>
<td>Decision Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 463</td>
<td>Production and Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 464</td>
<td>Production Management and Control</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 470</td>
<td>Production/Operations Simulation</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 480</td>
<td>Materials Management Strategy</td>
<td>3</td>
</tr>
<tr>
<td>Two electives</td>
<td>from the Management Department approved by a Departmental advisor</td>
<td>6</td>
</tr>
</tbody>
</table>

MARKETING (MKTG)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 370</td>
<td>Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 371</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
</tbody>
</table>

MKTG 374 Advertising .................................. 3
MKTG 477 Consumer Behavior .................................. 3

Select two courses (6 hours) from the following:
MKTG 377 Sales Promotion .................................. 3
MKTG 472 Media Planning .................................. 3
MKTG 473 Direct Marketing .................................. 3
MKTG 474 Advertising Copy and Layout .................. 3

Select two courses (6 hours) from the following:
ACTY 210 Principles of Accounting .................. 3
ACTY 211 Principles of Accounting .................. 3
FCL 320 Business Finance .......................... 3
MATH 216 Business Statistics .................. 3

MARKETING
Refer to pages 167-168.

MKTG 487 Marketing Ethics (MODIFIED) 3 hrs.
Critical examination of the ethical implications of responsibilities involved in the marketing discipline. Ethical and effective marketing managers have concern and respect for the welfare of those affected by their decisions. A framework is presented that will help evaluate the ethics of marketing activities. Student interests are developed through research projects. Prerequisite: MKTG 370.

COLLEGE OF EDUCATION
Refer to pages 169-176.

ELEMENTARY EDUCATION MINOR

ELEMENTARY EDUCATION MINOR REQUIREMENTS WITH SCIENCE AND MATHEMATICS TEACHING MINOR AND THIRD MINOR OF INTEGRATED LANGUAGE ARTS (DELETED)

INTEGRATED LANGUAGE ARTS MINOR (ILAM) (DELETED)

INTERN TEACHING APPLICATION (MODIFIED)
Deadline for acceptance of Internship Applications is April 1 for Winter Semester and October 1 for Fall Semester.

SECONDARY CURRICULUM

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)
Chemistry (CHM)
Earth Science (EAR)
English (ENG)
Geography (GEG) (Social Science Minor)
*Health Education (HET)
History (HIS) (Social Science Minor)
*Industrial Education:
Drafting (DRA)
General Industrial Ed. (GIA)
Graphic Arts (GRA)
Metal Working (MWK)
Power-Auto Mechanics (POW)
Woodworking (WDK)

Language Department Majors:
French (FREN)
German (GER)
Latin (LAT)
Spanish (SPA)
Mathematics (MAT)

Music Education (MUE) (includes vocal or instrumental minor)

Physical Education/Teacher-Coach (PYE)

Physics (PHY)

Political Science (POL) (Social Science Minor)

Secondary Education in Business (SEB)

Theatre Education (THN) (only as second major)

Vocational/Technical:
Drafting (DRA)

Graphic Arts (GRA)

Home Economics (HEE)

Power/Auto Mechanics (POW)

Secondry Education in Marketing (SEM)

Woodworking (WDK)

These majors give K-12 certification in that subject.

MINORS
(At least 20 semester hours)
(Choose One)

Biology (BIO)
Chemistry (CHM)
Communication (COM)
Earth Science (EAR)

English (ENG)
Mathematics (MAT)
Occupational Child Care (OCC) (with Vocational majors only)
Occupational Home Economics (OEC) (with Home Economics majors only)
Physical Education (PES)
Physical Education/Exceptional Child (PEC) (with PVE or SPED major only)
Physics (PHY)
Political Science (POL)
Science (SCI) (with Biology major only)
Social Science (SOS) (with approved major only)
Vocational/Technical: Drafting (DRA)
Graphic Arts (GRA)
Metalworking (MWK)
Secondary Education in Marketing (SEM)
Power/Auto Mechanics (POM)
Woodworking (WIK)

CONSUMER RESOURCES AND TECHNOLOGY

Refer to pages 176-183.

FAMILY STUDIES (MODIFIED from INDIVIDUAL AND FAMILY RELATIONSHIPS)

Bachelor of Science Degree
The family studies curriculum is an interdisciplinary program designed with flexibility for students who desire leadership positions in public and private programs related to children and families. This program is also intended for those desiring to pursue a Master's degree program in home economics, counseling, and other related fields.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the individual and Family Relationships major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 415 Effective Parenting.

REQUIREMENTS
Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

REQUIRED CRT COURSES—30 hours
CRT 100 Career Seminar ..................................... 1
CRT 202 Field Experience .................................... 2
CRT 209 Consumer Education ............................. 3
CRT 210 Human Sexuality ................................ 3
CRT 214 Human Growth and Development .............. 3
CRT 215 Adolescent Development ......................... 3
CRT 266 Food and Society .................................. 3
CRT 318 Intimate Relationships ........................... 3
CRT 410 Teaching Sex Education ........................... 3
CRT 413 Marriage and Family in Maturity ................. 3
CRT 415 Effective Parenting ................................ 3

REQUIRED RELATED COURSES—15 hours
SOC 122 Death, Dying, and Bereavement ................. 3
SOC 190* Men and Women in Contemporary Society .... 3
SOC 314 Ethnic Relations .................................. 3
CS 105* Introduction to Computers ....................... OR
CRT 225 Computer Applications ............................ 3

RELATED ELECTIVES—Choose 21 hours
BAS 300* Black Experience .................................. 3
COM 170* Interpersonal Communication .................. 3
CRT 425 Internship ......................................... 6
CRT 575 Admin of Child Development Centers .......... 3
PEPR 100* Health for Better Living ....................... 4
PSY 100* General Psychology .............................. 3
PSY 250* Abnormal Psychology ........................... 3
SOC 210 Modern Social Problems ......................... 3
SOC 262 Criminology ....................................... 3
SOC 512 Child Abuse ....................................... 3
SOC 564 Juvenile Delinquency .............................. 3
SWRK 100* Introduction to Social Services ............... 3

GENERAL EDUCATION—40 hours total
* above apply toward this requirement

PHYSICAL EDUCATION REQUIREMENT—2 hours

ELECTIVES—17 hours

MINOR
FAMILY LIFE EDUCATION (TEACHING) (MODIFIED)
REQUIRED COURSES—24 hours
CRT 209 Consumer Education ............................. 3
CRT 210 Introduction to Human Sexuality ................. 3
CRT 215 Adolescent Development ........................ 3
CRT 266 Food and Society .................................. 3
CRT 318 Intimate Relationships ........................... 3
CRT 410 Teaching Sex Education in the School .......... 3
CRT 415 Effective Parenting ................................ 3
CRT 124 Clothing Construction ............................. 3
CRT 524 Socio-Psychological Aspects of Clothing ....... 3

CRT 202 Field Experience (MODIFIED) 1-3 hrs.
On-the-job experience under supervision of department with cooperating organizations. Written materials and performance appraisal required. This course is graded on a credit/no credit basis. Department majors only.

CRT 225 Computer Applications (MODIFIED) 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.

CRT 260 Interiors CADD Applications (NEW) 3 hrs.
Introduction to computer-aided design and drafting for interior design majors. Prerequisites: CRT 150, CRT 225.

CRT 429 Internship (MODIFIED) 6 hrs.
Off-campus, supervised experience. Specific sections per area of interest. Prerequisites: Department junior or senior. This course is graded on a credit/no credit basis.

CAREER AND TECHNICAL EDUCATION COURSES (CTE)

CTE 342 Curriculum Development in Career and Technical Education (MODIFIED from VE 342) 3 hrs.
Principles of analyzing, selecting, and arranging curriculum for instructional purposes in career and technical education.

CTE 344 Teaching Methods for Career and Technical Education (MODIFIED from VE 344) 3 hrs.
Analysis of the teaching-learning process in career and technical education. Included are the teacher's roles, lesson planning, teaching methods, evaluation techniques, and classroom management.

CTE 512 Principles of Career and Technical Education (MODIFIED from VE 512) 3 hrs.
Explanation, identification, investigation of the history, philosophy, principles, programs, and services in career and technical education.

CTE 513 Technical Education Methods (MODIFIED from VE 513) 3 hrs.
Analysis and methods of organizing instruction in career and technical education. Advanced teaching plans and methodologies.

CTE 514 Workshop in Career and Technical Education (MODIFIED from VE 514) 1-3 hrs.
Investigation, research, and development of a particular topic or area of interest for career and technical education. Students may enroll for more than one topic, but in each topic only once, to a maximum of three credit hours.

CTE 542 Advanced Curriculum Development (MODIFIED from VE 542) 2 hrs.
Social, political, and economic factors which influence curriculum change, curriculum innovations, trends, implementation, and evaluation.

CTE 543 Work-site Based Education Programs (MODIFIED from VE 543) 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.

EDUCATION AND PROFESSIONAL DEVELOPMENT

ED 503 Educational Technology Academy (NEW) 1-3 hrs.
An organized group of workshops designed to permit students to update knowledge and skills in current educational technology and apply this learning for use in educational programs for students in pre-kindergarten through college programs. Such applications include methods of using computer, video and audiovisual technologies in literacy development, content area programs, instructional
management, and the arts, as well as others appropriate to preservice and inservice professionals. Participation in the courses presumes subject matter knowledge on the part of the students. Normally scheduled in one-credit-hour blocks, the ETA offerings bring students with specific needs, instructors with unique expertise and facilities with appropriate resources together for intensive and highly-focused learning experiences. The workshops are offered on weekends during the regular year, and on a weekend basis during the summer.

**ED 509 Parent Education for Teachers of Young Children (MODIFIED to ED 614)**
**ED 517 Reading in the Content Areas (MODIFIED to ED 617)**
**ED 521 Piaget and Young Children (MODIFIED to ED 616)**
**ED 548 Instructional Technology I (MODIFIED) 3 hrs.**
This course provides for the development of knowledge and skills required to make use of information and communication technologies as instructional tools. Use of instructional technology will be considered within a context of relevant research and theory pertaining to human learning. Various technologies used to produce, present, and distribute instruction, such as computers, camcorders, CD ROM, CDI (compact-disc interactive), video editing equipment, scanning and digitizing equipment, satellite and cable, etc. will be examined. Corresponding software used for production and presentation will also be examined, and skills in using such software acquired. Particular emphasis will be placed on interactive technologies. Students will have hands-on experiences pertaining to the evaluation, selection, and implementation of media in teaching and learning settings.

**ED 549 Instructional Technology II (MODIFIED) 3 hrs.**
This course is intended to extend basic skills and understandings acquired in Instructional Technology I or in other comparable experiences. Emphasis will be placed on the production of instructional media. Students will be expected to produce one proto-typical application of interactive media which could be used in an instructional setting. The course will also examine the use of instructional technology with the roles, rules, procedures, and customs of the organization. Students will also examine emerging technologies which are expected to have impact on how teaching and learning occur in our society.

**HEALTH, PHYSICAL EDUCATION, AND RECREATION**
Refer to pages 167-195.

**MAJORS**

**PHYSICAL EDUCATION MAJOR (MODIFIED) 45 credit hours**

**Bachelor of Science Degree**

The major in physical education allows the student to choose one of two professional preparation options:
1. Teacher-Coach Emphasis
2. Teacher-Exercise Science Emphasis

Successful completion of the Teacher-Coach emphasis leads to K-12 certification for the teaching of physical education. Students must complete the education sequence required by the Department of Education and Professional Development in addition to the directed teaching experience. HPER major and minor students must serve as a teaching assistant for one semester in a general physical education course prior to student teaching. In addition, students must complete a minimum of 230 clock hours of observation and participation in both elementary and secondary public schools as well as an extensive lab experience with exceptional children.
B IOS 211 Human Anatomy .......................... 4
*Applicable to total General Education requirement.

Hours Required for this minor ........................................... 23

Required Professional Courses: Academic: 13

PEPR 150 Foundation of Physical Education and Exercise Science ......................... 3

PEPR 244 Early Elementary Movement and Activities .......................................... 2

PEPR 236 Officiating Series .................................................. 1

PEPR 106 Recreational Dance ............................................. 1

Individual Sports (4 courses) ............................................. 4

Team Sports (2 courses) ..................................................... 2

Lifetime Sports/Activities (1 course) .................................... 1

Required Teaching Assistant ............................................. N/C

SECONDARY PHYSICAL EDUCATION MINOR (MODIFIED)

22 credit hours

*Applicable to total General Education requirement.

Cognates .................................................. 12

B IOS 107 Animal Biology ................................................. 2

B IOS 112 Introduction to Biomedical Sciences ................................................. 3/4*

B IOS 211 Human Anatomy ......................... 4

B IOS 240 Human Physiology ............................ 4

Required Professional Courses: 13

PEPR 150 Foundations of Physical Education and Exercise Science ......................... 3

PEPR 295 Biomech. Analysis of Activity ........................................... 2

PEPR 390 Physiol. of Motor Activity ......................... 2

PEPR 392 Measurement and Evaluation in Physical Education ............................. 2

PEPR 444 Administration and Development of Instructional Systems ......................... 2

PEPR 445 Physical Education: Teaching Skills and Strategies ............................. 2

Activity Required: ................................. 9

PEPR 236 Officiating Series ......................... 1

PEPR 106 Recreational Dance ............................................. 1

Individual Sports (4 courses) ............................................. 4

Team Sports (2 courses) ..................................................... 2

Lifetime Sports/Activities (1 course) .................................... 1

Required Teaching Assistant ............................................. N/C

SPECIAL PHYSICAL EDUCATION MINOR (MODIFIED)

21 credit hours

Designed to prepare special education and physical education majors in the areas of recreation, physical education, swimming, health, and dance for the exceptional child.

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 A, and complete the Elementary Physical Education minor.

Required Cognates ............................................. 7/8

B IOS 107 Biological Science ......................... 4

B IOS 112 Introduction to Biomedical Sciences ................................................. 3/4*

B IOS 211 Human Anatomy ......................... 4

*Applicable to total General Education requirement.

Special Physical Education Courses: 9

PEPR 320 Physical Education for the Exceptional Child ........................................ 3

PEPR 328 Swimmers for the Exceptional Child ............................................... 2

PEPR 444 Administration and Development of Instructional Systems ......................... 2

PEPR 448 Physical Education: Teaching Skills and Strategies ............................. 2

A. Background Courses in Physical Education ......................................................... 9

PEPR 129 Relaxation ..................................................... 1

PEPR 310 Track and Field ............................................... 1

PEPR 325 Physiological Needs and Practices ......................................................... 3

PEPR 420 Testing and Developmental Programs ......................................................... 3

PEPR 400 Professional Field Experience/Internship ........................................... 4

B. Background Courses in Special Education ......................................................... 9

SPED 530 Education of Exceptional Children ......................................................... 3

SPED 536 Curriculum and Instruction in Special Education: Secondary .......................... 3

SPED 588 Introduction to Classroom Management ......................................................... 3

COACHING MINOR (MODIFIED) (Non-Teaching)

24 credit hours

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.

Required Cognates ............................................. 3

B IOS 112 Introduction to Biomedical Sciences ................................................. 3

B IOS 211 Human Anatomy ................................................. 4

B IOS 240 Human Physiology ................................................. 4

Required Courses: 13

PEPR 235 Theory of Coaching ................................................. 2

PEPR 235 Biomech. Analysis of Activity ........................................... 2

PEPR 335 Advanced Theory of Coaching ......................................................... 2

PEPR 380 Foundations of Sports Injuries (Prequal—First Aid 181) ......................... 2

PEPP 390 Physiology of Motor Act ................................................. 2

PEPR 400 Field Experience (Prequal, Coaching and Adv. Tech Course) ....................... 2

PEGN 400 Varsity Athletic Series ................................................. 1

Professional Electives: ................................................. 11

PEPR 337 Advanced Techniques and Coaching Series—Prerequisites: Must have had first level course(s) or permission of

TEAM

Basketball ................................................. 2

Baseball or Softball ................................................. 2

Volleyball ................................................. 2

Football ................................................. 2

Soccer ................................................. 2

Ice Hockey ................................................. 2

INDIVIDUAL

Gymnastics ................................................. 2

Tennis ................................................. 2

Track and Field ................................................. 2

PEPR 236 Officiating—Select two of the following officiating courses to complete the 11 hours of Professional Electives: 2

Basketball ................................................. 1

Gymnastics ................................................. 1

Baseball ................................................. 1

Volleyball ................................................. 1

Softball ................................................. 1

Football ................................................. 1

PEPR 105-310 professional activity courses: 3

PEPR 101 Basic Exercise Concepts (DELETED)

PEPR 150 Foundations of Physical Education and Exercise Science (MODIFIED)

3 hrs.

An introduction to the university, the profession, and an attempt to assist the students in making a realistic appraisal of his/her own aptitudes and capacities relevant to the profession via actual testing of personal competencies.

PEPR 205 Weight Training (MODIFIED) ........................................... 1

PEPR 242 Aerobic Exercise Instruction (NEW) ........................................... 1

PEPR 244 Early Elementary Movement and Activities (NEW) ................................. 2 hrs.

Designed to provide information concerning the motor development of children and experiences that apply that information in the planning of appropriate exercise and physical experiences, i.e., basic skills, creative movement, rhythms, and games/relays. Prerequisite: PEPR 150.

PEPR 322 Physical Activity for Special Populations (NEW) ................................. 2 hrs.

Motor appropriate movements and games used to integrate special populations with non-disabled individuals in exercise-related activities are explored.

PEPR 335 Advanced Theory of Coaching (NEW) ........................................... 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 interpersonl 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: PEPR 235.
This course deals with the analysis of the heart; identify and describe a normal EKG, the purpose of this course is to examine the community analysis and organization, education. Topics include: needs assessment, graded exercise test. Prerequisite: PEPR 390.

AVIATION TECHNOLOGY AND OPERATIONS (MODIFIED to remove Professional Pilot Option—Option B)
AVIATION FLIGHT SCIENCE (NEW)
Bachelor of Science Degree

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Aviation Flight Science curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing BIS 340 Principles of Business Communication.

REQUIREMENTS
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:
1. A "C" average or better must be earned in required courses with an AVS prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

AVIATION FLIGHT SCIENCE—127 hours
Enrollment in flight courses may be subject to a waiting list. Candidates for flight courses must complete an application at the aviation building to be considered for enrollment in these courses. Registration is administered by the School of Aviation Sciences.

Fall Semester—16 hours
AVS 120 Introduction to Aviation 2
COM 170 Interpersonal Communications 3
IE 102 Technical Communication 3
PHYS 107 Elementary Physics 4
PHYS 108 Elementary Physics Lab 1
PSY 100 General Psychology 3

Winter Semester—18 hours
AVS 121 Aerodynamics and Performance 2
BIS 102 Introduction to Information Processing 3
CHEM 103 General Chemistry I 4
GEOG 200 Calculus with Applications 4
PEGN Physical Education 1

Fall Semester—14 hours
AVS 122 Aviation Systems 3
GEOG 225 Introduction to Meteorology and Climatology 4
MATH 216 Business Statistics 3
PEGN Physical Education 1
Approved History Elective 3

Winter Semester—14 hours
AVS 205 Aviation Safety 2
AVS 212 Aviation Meteorology 2
BIS 260 Microcomputer Business Applications 3
ECON 201 Principles of Microeconomics 3
GEOG 100 World Ecological Problems and Man 4

Fall Semester—18 hours
BIS 340 Principles of Business Communications 3
MGMT 300 Fundamentals of Management 3
MGMT 410 Multinational Management 3
MGMT 455 Organizational Behavior 3
AREA IV Non-Western World 3
AREA I Humanities/Fine Arts 3

Winter Semester—15 hours
AVS 206 Flight Physiology 2
AVS 207 Crew Resources Management 2
AVS 307 Advanced Aircraft Systems 3
AVS 319 Aviation Legislation 3
AVS 321 Professional Flight I 5

Fall Semester—16 hours
AVS 306 Advanced Aerodynamics and Performance 3
AVS 320 Global Navigation and International Flight 3
AVS 323 Professional Flight II 5
AVS 327 Airline Operations and Administration 3
AVS 411 Airline Flight Operations 2

Winter Semester—16 hours
AVS 325 Professional Flight III 5
AVS 412 Flight Operations Analysis 2
BIS 350 Management Information Systems 3
AVS OR MGMT Approved Elective* 3
AVS OR MGMT Approved Elective* 3
* Must be upper division courses.

AVS 120 Introduction to Aviation (MODIFIED from AVS 110) 2 hrs.
Development of aviation, fundamentals of flight, federal regulations, and basic navigation.

AVS 121 Aerodynamics and Performance (NEW) 2 hrs.
Theory of flight, aircraft structure and control, propulsion, performance, and weight and balance. Prerequisites: PHYS 107/108, or taking concurrently.

AVS 122 Aircraft Systems (NEW) 3 hrs.
Flight, navigation, and electrical systems. Maintenance and airworthiness requirements.

AVS 206 Flight Physiology (NEW) 2 hrs.
effects of high altitude flight on the human body, flying and health, first aid and survival. Attention will also be given to information processing and perception in flight. Prerequisite: AVS 205.

AVS 207 Crew Resources Management (NEW) 2 hrs.
Social and task requirements of effective group performance. Topics include communications, leadership, roles, decision making, resources and team building. Prerequisites: AVS 129, COM 170, and PSY 100.

AVS 212 Aviation Meteorology (NEW) 2 hrs.
Application of meteorology principles to flight operations. Topics include aviation forecasts, weather maps, NOTAMs, international weather patterns and information formats, weather radar, TCAS, and the role and responsibilities of ATC in weather observation and reporting. Prerequisite: GEOG 225.

AVS 306 Advanced Aerodynamics and Performance (NEW) 3 hrs.
Advanced aerodynamics and flight principles related to airplane operations and performance. Design concepts for high performance, supersonic and special use airplanes are studied to enable pilots to understand and predict airplane performance and limitations in a wide range of flight applications with special regard for speed and configuration. Prerequisite: AVS 121.
AVS 307 Advanced Aircraft Systems (NEW) 3 hrs.
A study of the design and operation of aircraft reciprocating powerplants, propellers, and turbine engines. Included are the pneumatic, fuel, ignition, lubrications, pressurization, and emergency aircraft systems. Prerequisite: AVS 122.

AVS 319 Aviation Legislation (NEW) 3 hrs.
Legal principles governing the aviation industry. Historical precedents, regulatory statutes, standards, contracts, liability and insurance, current developments and court decisions.

AVS 320 Global Navigation and International Flight Planning (MODIFIED from AVS 300) 3 hrs.
Advanced navigation systems and equipment including RNAV, pictorial displays, flight directors, airborne radar, INS, IRS, OMEGA, GLONASS, SATCOM, and GPS. Principles of worldwide navigation including time zones, spherical distance and course, and electronic calculations for decision making. Long range planning including air transport performance.
Prerequisites: AVS 121, AVS 122, and BIS 260.

AVS 321 Professional Flight I (MODIFIED from AVS 301) 5 hrs.
Initial flight, ground, and simulator instruction in aeronautical skills and knowledge necessary for private and commercial application. Includes introduction to high performance aircraft and instrument flight.
Prerequisite: Second class medical certificate.

AVS 323 Professional Flight II (MODIFIED from AVS 303) 5 hrs.
Continuing flight, ground, and simulator instruction in aeronautical skills, knowledge, complex aircraft and experience pursuant to commercial/instrument pilot certification. Particular emphasis upon use of air traffic facilities and airways in visual as well as instrument environments.
Prerequisites: AVS 321, AVS 320, or taking concurrently.

AVS 325 Professional Flight III (MODIFIED from AVS 305) 5 hrs.
Prerequisite: AVS 323.

AVS 327 Airline Operations and Administration (MODIFIED from AVS 317) 3 hrs.
Economic characteristics of the airline industry and air carrier ownership and organization. Revenues, costs, and productivity. Route structure and scheduling. International competition and regulation.
Prerequisite: AVS 120.

AVS 409 Multi-Engine Flight Instructor (NEW) 3 hrs.
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 325, AVS 406.

AVS 411 Airline Flight Operations (NEW) 2 hrs.

AVS 412 Flight Operations Analysis (MODIFIED from AVS 405) 2 hrs.
Utilization of aircraft performance, systems, and resources (both human and inanimate) to enhance flight operations and human performance. Prerequisite: AVS 411 or taking concurrently.

**ELECTRICAL ENGINEERING**

Refer to pages 208-210.

EE 499 Studies in Electrical Engineering (DELETED)

EE 520 Solid-state Devices (3-0)

EE 530 Power System Analysis I (3-0)

**ENGINEERING TECHNOLOGY**

Refer to pages 211-217.

APPLIED MATERIAL SCIENCE (MODIFIED)
The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level courses: CHEM 103, CS 105, EE 100, IE 102, PHYS 115, MATH 123 or 200.

AUTOMOTIVE ENGINEERING TECHNOLOGY (MODIFIED)
The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level courses: CHEM 103, CS 105, EE 100, IE 102, PHYS 115, MATH 123 or 200.

CONSTRUCTION SCIENCE MANAGEMENT (MODIFIED)
Bachelor of Science Degree
The construction science and management curriculum prepares students for entry positions in construction planning, management, or development. Technical, business, and human relations knowledge and skills are developed in classroom settings and on residential and commercial construction job sites.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Construction Science and Management curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 483 Project Design and Control and ET 485 Senior Project.

REQUIREMENTS
Candidates for the Bachelor of Science degree must complete the following program of 129 semester credit hours as well as University requirements stated elsewhere in this bulletin.

1. A "C" average or better must be earned in required courses with an EE, ET, or IE prefix.

2. No more than two grades of "D" or "D+" in courses presented for graduation may be counted for graduation.

3. Complete the following program of 129 semester hours:

   a. Eight semesters:
   b. Four semesters:
   c. Two semesters:

4. Coursed listed in darker italic print must be completed with at least a "C" prior to enrollment in upper level Engineering Technology courses.

5. The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level courses:

   a. CHEM 103, CS 105, EE 102, PHYS 115, MATH 123 or 200.

First Semester—17 hours

ET 131 Introduction to Building Practices ........................................... 3
ET 149 Introduction to Architectural Drawing ...................................... 3

Second Semester—17 hours

IE 102 Technical Communication ..................................................... 3
COM 104 Public Speaking ................................................................... 3

Third Semester—16 hours

PHYS 113 General Physics I ............................................................... 4
PHYS 114 General Physics I Lab ........................................................ 1

Fourth Semester—16 hours

PHYS 115 General Physics II ............................................................. 4
PHYS 116 General Physics II Lab ....................................................... 1

Fifth Semester—15 hours

ET 233 Building Codes ...................................................................... 3

Sixth Semester—17 hours

ET 236 Construction Measurements and Layout .................................. 3

Seventh Semester—15 hours

ET 335 Soil Mechanics and Foundations ............................................ 3

Eighth Semester—16 hours

ET 384 Fluid Mechanics and Hydraulics ............................................. 2
ET 385 Theory of Structural Design .................................................. 3
MGMT 300 Fundamentals of Management ......................................... 3
FCL 380 Legal Environment ............................................................ 3

**AREA I** Humanities/Fine Arts

**AREA II** Social/Behavioral Science

**AREA III** Natural Sciences

**AREA IV** Non-Western World

**AREA V** Languages/International Studies

**AREA VI** Mathematical Sciences

**AREA VII** Social Science

**AREA VIII** Physical Sciences

**AREA IX** Performing Arts

**AREA X** Health Education

**AREA XI** Physical Education

**AREA XII** Visual Arts
ENGINEERING GRAPHICS AND DESIGN TECHNOLOGY (MODIFIED from ENGINEERING GRAPHICS)
The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level courses: CHEM 103, CS 105, EE 102, PHYS 115, MATH 123 or 200.

INDUSTRIAL DESIGN (MODIFIED)
The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level courses: CHEM 103, CS 105, EE 102, PHYS 115, MATH 123 or 200.

MANUFACTURING ENGINEERING TECHNOLOGY (MODIFIED)
The following courses must be completed with a grade of "C" or better prior to enrollment in 300/400-level courses: CHEM 103, CS 105, EE 102, PHYS 115, MATH 123 or 200.

Replace MATH 118 and MATH 200 with MATH 122 and MATH 123.

ENGINEERING GRAPHICS (DELETED)
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ETCH 384 Fluid Mechanics and Hydraulics (2-0) (NEW)
2 hrs.
Fluid properties; fluid statics, laminar and turbulent flow, flow in pipes. Prerequisites: ET 281, PHYS 113/114.

ETCH 385 Theory of Structural Design (3-0) (NEW)
3 hrs.

ETCH 399 Filed Experience (DELETED)

ETCH 437 Advanced Estimating and Bidding (4-0) (MODIFIED)
4 hrs.
An analysis and determination of construction operations including applicable indirect and overhead costs and the preparation of bid proposals for construction costs. Costs for equipment, labor materials, subcontractors, and general conditions will be discussed. Preparation of complete bid packages using plans and specifications will be performed. Prerequisite: ET 433.

ETCH 439 Scheduling and Project Management (4-0) (MODIFIED)
4 hrs.
The planning and control of construction projects. Construction scheduling techniques such as critical path methods (CPM) and program evaluation and review (PERT) as well as computerized graphic techniques will be practiced. Management principles as applied to the construction contractor will be emphasized. Prerequisites: ET 433, MATH 216, MGMT 300.

ETCH 485 Senior Project (1-6) (MODIFIED)
3 hrs.
Open-ended team projects involving systems design, analysis, or application. Results in a tangible system, written report, and presentation. Prerequisites: Grade of "C" or better in ET 483 and approved project.

ETCH 532 Wood Science and Engineering (2-2) (NEW)
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.

ETCH 559 Physical and Mechanical Properties of Polymers (3-0) (NEW)
3 hrs.

ETCH 566 Ceramics: Structure and Properties (2-2) (NEW)
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.

AERONAUTICAL ENGINEERING DEGREE PROGRAM (MODIFIED)
Candidates for the Bachelor of Science in Engineering (Aeronautical Engineering) degree must satisfy the following, PORTFORM: 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 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 and/or IV as part of the University General Education requirements. If the University General Education requirements have not otherwise been satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A "C" average or better must be earned in courses presented for graduation with an A, A-, B+, or B. 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 136 semester credit hours. The schedule below is an example of one leading to graduation in eight semester, beginning in the fall. Pre-engineering requirements are in darker print.
First Semester—16 hours

MATH 122 Calculus I ..................... 4
CHEM 102 OR 101 General Chemistry .. 4
CS 106 BASIC for Engineers .......... 1
AREA I General Education* .......... 3
IE 102 Technical Communication .... 3
PEGN Physical Education ............. 1

Second Semester—18 hours

MATH 123 Calculus II .................... 4
PHYS 205 Mechanics and Heat .......... 4
PHYS 206 Physics I Lab ................ 1
ET 142 Engineering Graphics .......... 3
ME 120 Material Science I ............ 3
AREA II General Education* .......... 3

Third Semester—19 hours

MATH 272 Vector/Mult. Calculus ...... 4
PHYS 207 Electricity and Light ....... 4
PHYS 208 Physics II Lab ............... 1
ME 232 Thermodynamics I ............ 3
EE 210 Circuit Analysis ................ 4
ME 256 Statics ................................ 4

Fourth Semester—17 hours

MATH 374 Introduction to Linear Algebra 4
AAE 281 Aircraft Systems and Propulsion 3
ME 362 Theory of Engineering Experimentation 3
PHYS 309 and 310 Introduction to Modern Physics 3
OR
PHYS 342 Electronics ................... 3
OR
CHEM 120 General Chemistry II ........ 4

Fifth Semester—16 hours

ME 350 Material Science II .......... 3
ME 257 Mechanics of Materials ....... 3
ME 358 Mechanism Analysis ........... 3
ME 356 Fluid Mechanics ................ 3
AREA I General Education* .......... 3
PEGN Physical Education ............. 1

Sixth Semester—16 hours

ME 365 Machine Design I ............... 3
ME 360 Control Systems ................. 3
ME 335 Mechanical and Aeronautical Engineering Laboratory ................. 3
ME 431 Heat Transfer .................... 3
AAE 361 Flight Vehicle Aerodynamics 3

Seventh Semester—18 hours

ME 479 MAE Project Planning ......... 1
AAE 463 Aircraft Structural Design .... 3
AAE 466 Aero Propulsion ................ 4
AAE 450 Flight Vehicle Performance .... 3
AREA II General Education* .......... 3
AAE 460 Aircraft Stability and Control ... 3

Eighth Semester—16 hours

AAE 469 Aircraft Design ................ 3
ME 480 Mechanical and Aeronautical Engineering Project ................. 3
AAE 472 Compress. Aerodynamics .... 3
AREA IV General Education* .......... 4
Approved Design Elective .......... 0

AAE 459 Flight Test Engineering and Design ......................... 3

*A least two of these courses must be at the 300-400 level.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Aeronautical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following:

AAE 361 Flight Vehicle Aerodynamics and Performance ................ 3
AAE 363 Internal Combustion Engines I 3
AAE 480 Aircraft and Automotive Engineering Design Project ....... 3

AUTOMOTIVE AND AERONAUTICAL ENGINEERING COURSE (AAE)

AAE 261 Aircraft Systems and Propulsion (2-2) (MODIFIED) 3 hrs.
AAE 459 Flight Test Engineering and Design (1-6) (NEW) 3 hrs.
AAE 463 Aircraft Structural Design (4-0) (MODIFIED) 4 hrs.

AAE 466 Aircraft Structural Design (4-0) (MODIFIED) 4 hrs.

ME 360 Control Systems (3-0) (MODIFIED) 3 hrs.

ME 385 Machine Design I (2-1) (MODIFIED) 3 hrs.

ME 431 Heat Transfer (3-0) (MODIFIED) 3 hrs.

ME 480 Aircraft and Automotive Engineering Design Project ....... 3

MECHANICAL ENGINEERING COURSES (ME)

ME 335 Mechanical and Aeronautical Engineering Laboratory (2-3) (MODIFIED) 3 hrs.


ME 385 Machine Design I (2-1) (MODIFIED) 3 hrs.


ME 385 Machine Design I (2-1) (MODIFIED) 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.
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 and recommendations. Reviews are held only in the winter semester for admission into the fall semester. Students must have completed or be enrolled in 15 hours of the basic required courses and 3 hours of art history.

Student's portfolios are reviewed for understanding of perspective, composition, and color acquired in drawing courses, two-dimensional design courses, and courses dealing with color theory. Additional abilities demonstrated with work in beginning courses in life drawing, painting, photography, printmaking, jewelry and metalsmithing, ceramics, and sculpture will also be evaluated. Academic abilities reflected in the grade point average and an ability to articulate the fundamentals acquired at the basic level of study are also considered as part of the interview process.

The requirements of the B.F.A. curriculum of the Department of Art and the College of Fine Arts must be satisfied. Eighty-five hours in art satisfy the major and minor requirements of this curriculum and are distributed as follows:

1. **Basic courses**
   - ART 221 History of Art (3 hours)
   - ART 220 History of Art (3 hours)
   - ART 101 Foundation Drawing (3 hours)
   - ART 240 Painting I (3 hours)
   - ART 241 Intaglio Relief (3 hours)
   - ART 242 Watercolor Painting (3 hours)
   - ART 243 Lithography (3 hours)
   - ART 245 Graphic Design (3 hours)
   - ART 248 Photography (3 hours)
   - ART 230 Ceramics (3 hours)
   - ART 238 Jewelry and Metalsmithing (3 hours)

2. **3D courses**
   - ART 220 History of Art (3 hours)
   - ART 221 History of Art (3 hours)
   - ART 230 Ceramics (3 hours)
   - ART 240 Painting I (3 hours)
   - ART 241 Intaglio Relief (3 hours)
   - ART 242 Watercolor Painting (3 hours)
   - ART 243 Lithography (3 hours)
   - ART 245 Graphic Design (3 hours)
   - ART 238 Jewelry and Metalsmithing (3 hours)

3. **ART HISTORY REQUIREMENT** (12 hours)
   - ART 101 Foundation Drawing (3 hours)
   - ART 240 Painting I (3 hours)
   - ART 241 Intaglio Relief (3 hours)
   - ART 242 Watercolor Painting (3 hours)
   - ART 243 Lithography (3 hours)
   - ART 245 Graphic Design (3 hours)

4. **ART ELECTIVES** (31 hours)
   - Electives and required art courses must be determined in consultation with a faculty advisor within the studio area of emphasis.

5. **GRADUATION PRESENTATION** (3 hours)
   - Select one from:
     - ART 490 Graduation Presentation and Seminar — Painting/Photography (3 hours)
     - ART 491 Graduation Presentation and Seminar — Ceramics (3 hours)
     - ART 492 Graduation Presentation and Seminar — Graphic Design (3 hours)
     - ART 493 Graduation Presentation and Seminar — Printmaking (3 hours)
     - ART 494 Graduation Presentation and Seminar — Sculpture (3 hours)

6. **ART HISTORY REQUIREMENT (MODIFIED)** (3 hours)
   - ART 221 History of Art (3 hours)

7. **ART ELECTIVES (SECONDARY)** (3 hours)
   - Electives must be determined in consultation with an art advisor.

8. **ART 221 History of Art (MODIFIED)** (3 hours)
   - An historical survey of art from the Renaissance through the contemporary period.

9. **ART 245 Graphic Design Non-BFA in Graphic Design (MODIFIED)** (3 hours)
   - 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 or ATE majors and minors only.

10. **ART 250 Color for Graphic Design (NEW)** (3 hours, Fall)
    - Studies in color theory emphasizing issues and problem solving related to graphic design. This includes investigations in additive and subtractive color theories as applied to reflective and transmitted media as well as
color systems used in graphic reproduction. Prerequisites: 15 hours basic courses and ART 220; acceptance into BFA in graphic design by portfolio review.

ART 251 Typography I (NEW) 3 hrs. Winter
Studies in the design of letterforms and typographic structure. Emphasis is on developing an understanding of typographic form through drawing and compositional exercises and discussion of perceptual, historical, and technological influences. Computer technology will be investigated. Prerequisites: ART 250, ART 260.

ART 260 Graphic Design I: Visual Aesthetics (NEW) 3 hrs. Fall
Theoretical visual studies in graphic design involving point, line and shape, dealing with formal values and composition. Emphasis on problem solving, skill development, perceptual acuity and an understanding of visual aesthetics. Prerequisites: 15 hours basic courses and ART 220; acceptance into BFA in graphic design by portfolio review.

ART 261 Graphic Design II: Graphic Form (NEW) 3 hrs. Winter
A continuation of Graphic Design I. Studies in space, form and composition involving an integration and application of formal values and problem solving. Visual systems of pictorial and symbolic form are explored through organic and geometric drawing exercises. Computer technology will be investigated. Prerequisites: ART 250, ART 260.

ART 345 Graphic Design-Non BFA in Graphic Design (MODIFIED) 3 hrs.
The study and practice of graphic design for two-dimensional media. Emphasis is placed on the conceptual development of geometric, figurative, and decorative imagery for posters, covers, promotional, magazine and newspaper advertising. Includes thematic development, graphic planning, comprehensive and finished art production. Prerequisite: ART 245.

ART 350 Typography II (NEW) 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. Prerequisites: ART 261, ART 251.

ART 351 Typography III (NEW) 3 hrs. Winter
Dealing with systems, sequence and series as complex typographic problems. Application of theoretical, pragmatic and technical issues to problems common in publication and institutional communication. Computer technology will be investigated. Prerequisites: ART 350, ART 360.

ART 360 Graphic Design III: Visual Systems (NEW) 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 (NEW) 3 hrs. Winter
Continuation of Graphic Design III as a transitional phase from the theoretical to the applied design problem. The evolution of design process is explored and developed. Involves the visual study of grids and systems and their applications. Computer technology will be investigated. Prerequisites: ART 350, ART 360.

ART 371 Special Topics (NEW) 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 425 BFA Seminar in Art (DELETED)
ART 445 Graphic Design (DELETED)

ART 460 Graphic Design V: Advanced Problems (NEW) 3 hrs. Fall
Applied design problems of an advanced complex nature emphasizing design methodology and research. Initial involvement of 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 560 Intern I. Prerequisites: ART 251, ART 361.

ART 461 Graphic Design VI: Senior Projects (NEW) 3 hrs. Winter
Individual Senior Thesis projects. Involves topic research and design solutions to complex problems as a culmination of studies in graphic design. Emphasis will be on research, design process, methodology and innovation. Computer technology will be utilized. Prerequisite: ART 460.

ART 490 Graduation Presentation and Seminar—Painting/Watercolor (MODIFIED) 3 hrs.
Investigation and evaluation of contemporary topics and trends in painting/watercolor. 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/watercolor to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.

ART 491 Graduation Presentation and Seminar—Sculpture (MODIFIED) 3 hrs.
Investigation and evaluation of contemporary topics and trends in sculpture. Students will be exposed to how sculptors express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in sculpture to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.

ART 492 Graduation Presentation and Seminar—Graphic Design (MODIFIED) 3 hrs.
Investigation and evaluation of contemporary topics and trends in graphic design. Students will be exposed to how graphic designers express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in graphic design to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.

ART 493 Graduation Presentation and Seminar—Photography (MODIFIED) 3 hrs.
Investigation and evaluation of contemporary topics and trends in photography. Students will be exposed to how photographers express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in photography to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.

ART 494 Graduation Presentation and Seminar—Printmaking (MODIFIED) 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 495 Graduation Presentation and Seminar—Jewelry/Metalsmithing (MODIFIED) 3 hrs.
Investigation and evaluation of contemporary topics and trends in jewelry/metalsmithing. Students will be exposed to how jewelers express their ideas through visiting artist programs, exhibitions, workshops and seminars encouraging students to select and develop their own research topic. Preparation and presentation of graduating exhibition in jewelry/metalsmithing to include slide documentation and oral examination or written thesis. Evaluation by a departmental reviewing committee. Prerequisites: Senior standing and BFA candidacy.

ART 496 Graduation Presentation and Seminar—Ceramics (MODIFIED) 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.
An introduction to the field of Dance Science given to application of information to injury prevention, with special attention to anatomical analysis, conditioning principles and Kinesiology (MODIFIED) observation, and laboratory experiences are provided in various learning environments. Lecture, school children as they can be applied in this course. This course covers the principles, materials, and techniques of teaching creative expression. Students will be able to read and perform rhythmic patterns using a variety of percussion instruments. Additionally, students will be introduced to formal concepts in music such as phrase, period, cadence and development. Prerequisite: DANC 185. Students electing this major are strongly urged to choose a second major to enhance their prospects for employment. Although Theatre Education is a bona fide major, Michigan Secondary Certification does not apply to this program. All teachers seeking certification must meet the requirements of the University, College of Education, and the State Board of Education.

DANCE

DANC 185 Music Fundamentals for Dancers (MODIFIED from MUS 185) 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 and compound meters and progresses through complex syncopations and polyrhythmic exercises. Students will be able to read and perform rhythmic patterns using a variety of percussion instruments. Additionally, students will be introduced to formal concepts in music such as phrase, period, cadence and abstract formal designs. Prerequisite: Dance majors and minors only.

DANC 285 Musical Style and Form for Dancers (MODIFIED from MUS 285) 2 hrs.
The course surveys composers and musical style from the Renaissance through the twentieth century. There will be an emphasis on the chief stylistic characteristics of the major composers of each period, and discussion of the particular compositions in relation to their suitability for choral or orchestral treatment. Score-reading is an important aspect of the course. Prerequisite: DANC 185.

DANC 290 Dance in the Elementary School (MODIFIED) 3 hrs.
This course covers the principles, materials, and techniques of teaching creative movement and dance activities to elementary school children as they can be applied in various learning environments. Lecture, observation, and laboratory experiences are provided.

DANC 295 Introduction to Dance Science and Kinesiology (MODIFIED) 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.

MUSIC

Refer to pages 240-250.

THEATRE

Refer to pages 251-253.

THEATRE EDUCATION MAJOR (Second Major Only) (MODIFIED)

Bachelor of Arts 39 credit hours
This program is designed for students planning to teach and direct theatre programs in elementary or secondary schools.

REQUIRED COURSES

THEA 120 Stagecraft I .................................. 3
THEA 141 Improvisation ................................ 3
THEA 142 Acting I ....................................... 3
THEA 170 Script Analysis ................................ 3
THEA 232 Scenic Design ................................ 3
THEA 290 Theatre Practicum ............................. 3
THEA 331 Costume Design .............................. 3
THEA 332 Lighting and Sound Design ................. 3
THEA 351 Directing I ...................................... 3
THEA 360 Children’s Theatre Tour ......................... 3
THEA 471 Methods of Teaching Theatre in High School 3
THEA 564 Creative Drama .................................. 4

A grade of “C” or better is required in all courses.

Students electing this major are strongly urged to choose a second major to enhance their prospects for employment. Although Theatre Education is a bona fide major, Michigan Secondary Certification does not apply to this program. All teachers seeking certification must meet the requirements of the University, College of Education, and the State Board of Education.

THEA 272 Musical Theatre History and Script Analysis I (MODIFIED) 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 341 Acting II (MODIFIED) 3 hrs.
This course integrates theories and practices of Improvisation, Acting I, and Voice and Movement I and II in the process of role study and development. Prerequisite: THEA 242.

THEA 372 Musical Theatre History and Script Analysis II (MODIFIED) 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. Prerequisite: THEA 272.

THEA 400 Special Topics in Theatre (MODIFIED) 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 dread and perform rhythmic patterns using a variety of percussion instruments. Additionally, students write production. Prerequisites: Variable.

THEA 564 Creative Drama for Children (MODIFIED from COM 564) 4 hrs.
Study of the principles, materials and techniques of using informal drama as a classroom activity in elementary grades. Emphasizes theoretical and practical application through the planning and teaching of drama experiences. $15 fee. Prerequisites: EED admission; ART, DANC, MUS, or THEA 148; ART 200; ED 230; DANC 290; MUS 140; consent of instructor.
can apply some of the knowledge and information acquired in the gerontology learning experience during which the student independently the study of inter-disciplinary areas of interest. This course is arranged on an individual basis to provide students an opportunity to pursue relevant to the certificate programs in the

COMMUNITY HEALTH SERVICES

Refer to pages 255-258.

HEALTH AND HUMAN SERVICES COURSES (HHS)

HHS 561 Information Systems for Health Care Professionals: Medical Informatics (MODIFIED) 3 hrs.
This course is intended to assist the healthcare professional become a more effective care provider and manager through training in the appropriate uses of Medical Informatics. Some of the topics that will be covered include: finding medical information; bibliographic and full-text databases, “expert systems”, national networks; acquiring and using office practice systems; patient teaching and decision making; evaluating the usability of new technologies; and telemedicine.

COMMUNITY HEALTH SERVICES COURSES (CHS)

CHS 530 Seminar in Community Health Services (NEW) 1-4 hrs.
This course focuses on emerging issues relevant to the certificate programs in the School of Community Health Services.
CHS 598 Readings in Community Health Services (NEW) 1-4 hrs.
This course is arranged on an individual basis to provide students an opportunity to pursue independently the study of inter-disciplinary areas of interest.

GERONTOLOGY COURSES (GRN)
GRN 490 Field Education in Gerontology (NEW) 1-4 hrs.
This course is designed to give the student a learning experience during which the student can apply some of the knowledge and information acquired in the gerontology academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in gerontology. The course is renewable by permission only.
Prerequisite: Consent of instructor.
GRN 521 Women and Aging (NEW) 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 (NEW) 3 hrs.
A survey of the views of and attitudes toward the aging process and older people held by the world’s major religions. Particular attention will be paid to the relation of religious views and social policy in the U.S.
GRN 530 Special Topics in Gerontology (NEW) 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 (NEW) 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 (NEW) 3 hrs.
Survey of mental health and mental health treatment problems of older adults. Topics include the courses of major mental illness in old age, depression and dementia.
Consideration will be given to etiologies, current therapies and treatments as well as barriers to treatment in this population.
GRN 545 Alcohol, Drugs, and Aging (NEW) 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 (NEW) 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 (NEW) 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 adviser. Prerequisite: Consent of instructor and program advisor.

HOLISTIC CARE COURSES (HOL)

HOL 100 Choices in Living (MODIFIED from HHS 100) 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 specialty program in Holistic Health Care. Prerequisite: Senior or graduate status.
HOL 532 Holistic Approaches to Relationships (NEW) 3 hrs.
The purpose of this course is to provide an understanding of current and special interests in holistic health. Relevant 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 533 Holism and Community (NEW) 3 hrs.
A course designed to help students better understand the dynamics of community and the potential for holistic growth and 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 534 Holistic Health and Spirituality (NEW) 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, philosophy 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 practitio-
ners and educators. The format for the course will include lecture, discussion, experiential activities and audio/video presentations.

HOL 586 Holistic Approaches to Stress (NEW) 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, life-style, health and illness will be explored. In addition, the reasons for management of professional and organizational "burn-out" will be presented.

HOL 588 Counseling Skills for Health Professionals (NEW) 3 hrs.
This course is an introduction to basic counseling theory and practice for students and professionals working in the health and human services fields such as: nursing, occupational therapy, social work, counseling and other allied health professions. Course participants will receive information on and training in both the concept and process of counseling along with training in the various stages of counseling.

HOL 570 Field Education in Holistic Health (NEW) 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 586 Readings in Holistic Health (NEW) 1-4 hrs.
This course provides individualized, independent study and reading under guidance of a faculty member. Initiative for planning and supervision of investigation and areas of research are expected to be contributed by the appropriate faculty member comes from the student, with consultation from the advisor. Prerequisite: Consent of instructor.

SPECIALTY PROGRAM IN ALCOHOL AND DRUG ABUSE COURSES (ADA)

ADA 225 Legal and Illegal Drugs (MODIFIED from EAP 225) 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 Employee Assistance Programs majors.

ADA 326 Substance Abuse Diagnosis and Treatment Planning (MODIFIED from EAP 326) 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 Employee Assistance Programs majors.

ADA 328 Substance Abuse Treatment Processes (MODIFIED from EAP 328) 3 hrs.
This course focuses on the continuum of care for substance abusers. Modalities of prevention, casefinding, detoxification, inpatient treatment, residential treatment, therapeutic communities, day care, intensive outpatient treatment, outpatient treatment, and aftercare are presented both in theory and practice areas. Open only to Employee Assistance Programs majors.

ADA 520 Family and Addiction (NEW) 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 (NEW) 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 (NEW) 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 foundational knowledge for applied practice. The specific topics are announced with each semester offering.

ADA 535 Drug Testing (NEW) 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 (NEW) 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 (NEW) 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 (NEW) 1-6 hrs.
This course reviews custodial, milieu, and function aspects of group home treatment. Theories and practices are presented with emphasis on long-term treatment outcomes.

ADA 545 Alcohol, Drugs and Aging (NEW) 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 HAP 545.

ADA 560 Clinical Practice in Selected Substance Abuse Services Areas (NEW) 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 (NEW) 3 hrs.
This course provides the student with knowledge on the multiple relationships of substance abuse and violence. Specific focus are the relationships of substance abuse and domestic violence, child abuse, and other assaultive behaviors.

ADA 567 Legal Offenders and Substance Abuse (NEW) 3 hrs.
This course provides the student with knowledge on the theories associating substance abuse with criminal and civil offenses. Specific focus is the treatment strategies and techniques related to the offending population and long-term outcomes of decreased recidivism.

ADA 570 Field Education: Substance Abuse (NEW) 1-6 hrs.
A clinical, prevention, research, or administrative field experience meeting practice and follow-up. The field experience involves direct supervision by faculty and clinical supervisors. Graded on a credit/no credit basis.

ADA 580 Substance Abuse Prevention (NEW) 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 (NEW) 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 (NEW) 3 hrs.
This course provides the student with knowledge of self-help groups and formal relapse prevention strategies. Application of relapse prevention strategies are integrated into multiple aspects of the continuum of care.

ADA 598 Readings in Substance Abuse Services (NEW) 1-4 hrs.
Individualized, independent study and reading under guidance of a faculty member. Initiative for planning topic for investigation and seeking the faculty member comes from the student with consultation of the advisor.

SUPPLEMENT TO 1993-95 UNDERGRADUATE CATALOG — 31
OCCUPATIONAL THERAPY
Refer to pages 258-261.

OCCUPATIONAL THERAPY PROGRAM (MODIFIED)

ADMISSION REQUIREMENTS
The Occupational Therapy Department has established a maximum enrollment number for each admission period. Consequently, this department has established an admission selection procedure.

Minimum criteria for admission consideration to the professional program includes:
1. Admission to the Western Michigan University Pre-Occupational Therapy Curriculum.
2. Junior status (at least 56 semester hours at the time of enrollment).
3. Completion of all Intellectual Skills Requirements.
4. Satisfactory completion of all prerequisite course work:
   - General or Introductory Psychology . 3 hrs.
   - Behavior Sciences (Psychology, Sociology, or Anthropology) .............. 6 hrs.
   - Basic Course in Biological Science .. 3 hrs.
   - Normal Growth and Development....Covering the Life Span .................. 3 hrs.
   - English Composition ...................... 3 hrs.
   - Human Anatomy with Lab ............. 3-4 hrs.
   - Human Physiology with Lab ............ 3-4 hrs.
   - Abnormal Psychology ..................... 3 hrs.
   - Completion of all above courses with a "C" or better. Grade point average is a factor in admission. The grade point average used for admission is based only on the above required prerequisites.
5. Documentation of a minimum of 40 hours of service contact with people who have handicapping conditions. Extra credit towards admission will be granted for experience (paid or volunteer) beyond the 40 hour minimum, as well as for time spent in different settings serving a diversity of persons with handicapping conditions.
6. Documentation of a minimum of 3 hours of contact with one or more occupational therapists. Extra credit towards admission will be granted for experience (paid or volunteer) beyond the 3 hour minimum, with occupational therapists working in a variety of treatment settings.
7. Completion of department application form.
8. Submission of a resume along with the application form.

Specific criteria for selection are based upon:
1. The professional appearance of the completed application form.
2. Grade point average based upon the required prerequisite courses.
3. Knowledge of and interest in occupational therapy as demonstrated by the answers to various questions found on the application form.
4. Personal experiences associated with the health field (volunteer or paid).
5. General work experience in non-health related situations.
6. Valid documentation for all experiences.
7. Resume.
8. Space available in the program.
9. Other related but non-numerated factors.

The equal consideration date for fall semester admission is May 1, and September 1 for winter admission. Applications from diversity candidates are welcomed and encouraged.

SPEECH PATHOLOGY AND AUDIOLOGY
Refer to pages 267-268.

INTEGRATED ARTS MINOR (ILAM) (DELETED)

SPPA 205 Speech Anatomy and Physiology (MODIFIED) 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. Prerequisite: Consent of instructor or SPPA 203; SPPA 204; PHYS 107/108; MATH 110 or MATH 116. Majors must take concurrently with SPPA 206.

SPPA 206 Hearing Science (MODIFIED) 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. Prerequisite: SPPA 203; SPPA 204; PHYS 107 and PHYS 108; MATH 110 or MATH 116; or by consent of instructor. Majors must take concurrently with SPPA 205.