1991

Western Michigan University Undergraduate Catalog 1991-1993

Western Michigan University

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Western Michigan University

Undergraduate Catalog
Kalamazoo, Michigan
1991 • 1993

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 80,050, Kalamazoo County has a population of 223,411.

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 amended, 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 Western's Campus Bookstore. 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 Western Michigan University. The catalog begins with general information about the University 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.
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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.

**Class 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 and 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.

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

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

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

**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.

**Course numbering system**
The process of making certain changes within the divisions of humanities/arts, mathematics/science, social/behavioral science, and the non-western world.

**Course registration**
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.

**Course requirement**
A requirement that all students demonstrate computer competency 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 transfer**
Credit granted for examination programs or for transfer work.

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

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

**Degree student**
A student who has been admitted to a degree category and is seeking a bachelor's, master's, or doctor's degree in a planned course of study.

**Degree**
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 semester listing students who have achieved a specified grade point average (GPA) or level of achievement established by the University.

**Degree plan**
A student who has been admitted to a degree category and is seeking a bachelor's, master's, or doctor's 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.

**Drop and add**
The process of making certain changes (dropping and/or adding classes in a student's schedule) during a prescribed time period at the beginning of each semester or session.

**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 and Winter or for six credit hours during Spring or Summer. 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**
The 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.

**Good standing**
A designation that signifies that a student is eligible to continue, to return, or to transfer elsewhere. It implies good academic standing; that is, an overall GPA of 2.00 or better.
Grade point
The numerical value given to letter grades. For example, an "A" is equivalent to 4 points per semester hour, a "B" to 3.5 points, a "B" to 3 points and so on. No points are earned for an "E" grade. Also referred to as "honor points."

Grade point average (GPA)
A student's scholastic average computed by dividing total grade or honor points by total credit hours attempted.

Grant
Financial assistance awarded to a student which does not have to be repaid; usually based on need.

Guest student
A degree student from another college who is taking courses at Western Michigan University for one semester. The credits earned are usually transferred back to the student's home institution.

Hold
A barrier placed on a student's ability to register for classes as a result of an unfulfilled monetary obligation or other action by the University.

Honors
Designation indicated on the college degree and transcript to reflect outstanding scholarship.

Honors College (Lee Honors College)
An academic administrative unit of the University whose mission is to design and foster curricular and co-curricular programs for the academically talented student.

Honors courses
Special courses offered by Western's Lee Honors College designed to pose intellectual challenge and give personal attention to particularly able students.

Incomplete
A 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".

Independent study
A course of study undertaken outside the classroom by a student under the supervision of one or more faculty members.

Intellectual Skills Requirements
The requirement that all students demonstrate competency in reading, writing, and mathematics by test or course.

Interdisciplinary
Designating a combination of subject matter from two or more disciplines within a course or program.

Internship
Work in a firm or agency related to a student's major program and/or career plans. Usually involves earning college credit and may involve receiving payment.

Loan
Financial assistance to students which must be repaid. Low interest loans are available and financial need may or may not be a factor.

Lower division
Courses at the 100-200 level; freshman or sophomore standing.

Major
A concentration of related courses generally consisting of thirty to fifty semester hours of credit.

Michigan residence requirement
The requirements for identifying or establishing permanent residence in Michigan for tuition assessment purposes.

Minor
A concentration of courses generally consisting of a minimum of twenty semester hours of credit.

Non-degree student
A student who has been admitted to a non-degree category and is not currently seeking a bachelor's degree.

Part-time student
An undergraduate student who takes fewer than twelve hours during a semester or fewer than six hours during a session.

Phase I
The first part of a two-part registration sequence. Dates are announced each semester or session in the Schedule of Classes.

Phase II
The second part of a two-part registration sequence. Dates are announced each semester or session in the Schedule of Classes.

Portfolio
A collection of work (e.g., paintings, writings, etc.) which may be used to demonstrate competency in an academic area.

Prerequisite
A requirement, usually the completion of another course, which must be met before a student may register for a course.

Readmission
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.

Re-entry
An enrollment procedure followed by a student who was previously enrolled in good standing at Western Michigan University but whose attendance was interrupted for two consecutive semesters, including the summer session.

Registration
The process of enrolling in and paying tuition and fees for courses each semester or session.

Residence requirement
The requirement that a minimum of 30 semester hour of course work for the bachelor's degree be completed at Western Michigan University.

Scholarship
Financial assistance to students awarded on the basis of academic achievement. Financial need may or may not be a factor.

Self-instructional course
A credit-bearing course designed for the student unable to attend an on-campus class.

Semester
A unit of time, 15 weeks long, in the academic calendar.

Semester hour
A unit of academic credit usually meaning the pursuit of a subject for one period a week for one semester.

Senior institution
An institution of higher learning offering baccalaureate programs. Western Michigan University is a public senior institution; a minimum of sixty hours toward the bachelor's degree must be completed at a senior institution.

Session
A unit of time, 7½ weeks long, in the academic calendar.

Student employment
Part-time jobs made available to students with financial need through federally-funded programs (Work-Study) and to students without need through the Student Employment Office.

Teachable major/minor
A state-approved major/minor program for teacher certification at the secondary and/or elementary level.

Transcript
A copy of a student's permanent academic record at a particular institution.

Transfer credit
Credit earned at another accredited institution and accepted towards a Western Michigan University degree. Grades earned at another institution do not transfer and hence do not affect the WMU GPA.

Transfer credit evaluation
An official statement which indicates the number and type of transfer credits awarded.

Tuition
The amount of money which must be paid for courses based on the number of credits for which the student registers.

Unit of credit
The unit of credit is the semester hour; the number of semester hours credit given for a course generally indicates the number of periods a class meets each week.

Upper division
Classification of students with 56 or more hours of credit earned towards a bachelor's degree; courses at the 300, 400, and 500 levels.

Withdraw
An official procedure for withdrawing from a course or from the University. Deadlines for the last day to withdraw from a course without academic penalty (grade of "W") is on the transcript) is noted each semester or session in the Schedule of 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.
1991-92 Calendar

**Fall Semester, 1991**
- September 3, Tuesday
  - Orientation Day
- September 4, Wednesday
  - Classes Begin
- October 25, Friday
  - Classes Dismissed, 2 p.m., Friday only
    (Laboratories excepted)
- October 26, Saturday
  - Homecoming
- November 1, Friday
  - Last Day to Drop Classes
- November 27, Wednesday
  - Thanksgiving Recess (Noon)
- December 2, Monday
  - Classes Resume
- December 16-20
  - Final Examination Week
- December 21, Saturday
  - Semester Ends—Commencement

**Winter Semester, 1992**
- January 6, Monday
  - Classes Begin
- February 28, Friday
  - Last Day to Drop Classes
- March 2, Monday
  - Semester Recess
- March 9, Monday
  - Classes Resume
- April 17, Friday
  - Recess All Day
- April 20-24
  - Final Examination Week
- April 25, Saturday
  - Semester Ends—Commencement

**Spring Session, 1992**
- May 4, Monday
  - Classes Begin
- May 25, Monday
  - Memorial Day Recess
- May 29, Friday
  - Last Day to Drop Classes
- June 24, Wednesday
  - Session Ends
- June 27, Saturday
  - Commencement

**Summer Session, 1992**
- July 6, Monday
  - Classes Begin
- July 31, Friday
  - Last Day to Drop Classes
- August 21, Saturday
  - Session Ends

**Fall Semester, 1992**
- September 1, Tuesday
  - Orientation Day
- September 2, Wednesday
  - Classes Begin
- September 7, Monday
  - Labor Day Recess
- October 16, Friday
  - Classes Dismissed, 2 p.m., Friday only
    (Laboratories excepted)
- October 17, Saturday
  - Homecoming
- November 30, Monday
  - Classes Resume
- December 14-18
  - Final Examination Week
- December 19, Saturday
  - Semester Ends—Commencement

**Winter Semester, 1993**
- January 4, Monday
  - Classes Begin
- February 26, Friday
  - Last Day to Drop Classes
- March 1, Monday
  - Semester Recess
- March 8, Monday
  - Classes Resume
- April 9, Friday
  - Recess All Day
- April 19-23
  - Final Examination Week
- April 24, Saturday
  - Semester Ends—Commencement

1992-93 Calendar
### Spring Session, 1993

- **May 3, Monday**: Classes Begin
- **May 28, Friday**: Last Day to Drop Classes
- **May 31, Monday**: Memorial Day Recess
- **June 23, Wednesday**: Session Ends
- **June 26, Saturday**: Commencement

### Summer Session, 1993

- **July 6, Tuesday**: Classes Begin
- **July 30, Saturday**: Last Day to Drop Classes
- **August 20, Friday**: Session Ends

### 1991 Calendar

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About Western Michigan University

Mission of the University

Founded
1903

President
Deltner 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

Governing Body
Under the Michigan Constitution of 1963, Western Michigan University has constitutional status, with its own Board of Trustees appointed by the Governor.

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

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.

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.

The University provides to students a balanced educational experience, including co-curricular activities that contribute to personal growth and help to develop leadership skills; campus residence hall life, artistic events, multicultural programs, intercollegiate athletics, and intramural activities together with for-credit courses that contribute to 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. This National Council for Accreditation of Teacher Education has accredited the following programs:

- Bachelor's programs for preparation in early childhood, elementary, middle and junior high school; secondary education; health, physical education and recreation; and special education.
- Master's programs in early childhood; reading; teaching in the elementary school; and health, physical education and recreation.
- Master's and doctorate programs in counselor education; science education; and 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 Computer Science Accreditation Commission of 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.

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 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 Council on Education, American Association of State Colleges and Universities, and the Council of Graduate Schools in the United States, and is on the approved list of the American Association of University Women.

Copies of accreditation documents are available for review upon request in the Office of the Provost and Vice President for Academic Affairs.
Director of Student Life
Including Campus Programming, Greek Affairs, Leadership Development Student Activities and Organizations, Western Student Association (WSA), WIDR-FM

Dean of Students
Including Campus Recreational Activities, Handicapped Student Services, International Student Services, Off-Campus Life, Residence Hall Life, Student Life, University Judicatures

Manager of WMU Apartments

Senior Advisor to the President for International Affairs
Physical Facilities and Campus Map

EAST CAMPUS
Brink Printing Services (12)—University print shop and duplicating service.
Campus Services Building (22)—Offices for Campus Planning; Freight, Postal, and Delivery; Interior Design; Purchasing; and University Stores.
East Hall (01)—Offices for the Library Archives, Department of Art Faculty Studies, and Art Gallery.
H.O.I. Building (18)—Landscape Services.
Montague House (19)—Offices of American Association of University Professors.
North Hall (03)—Library storage.
Oakland Recital Hall (09)—Custodial Shop and duplicating service.
Physical Plant (21)—Trades maintenance shops, grounds crews and University shops, grounds crews and University facilities.
Physical Planning; Freight, Postal, and Delivery; Interior Design; Purchasing; and Archives, Department of Art Faculty Services, and Permanent Art Collection.
Wahvood Union (10)—Inactive.
West Hall (04)—Department of Geology.
Van Riper Speech and Hearing Clinic (06)—The Department of Speech Pathology and Audiology.
Watwood Union (10)—Inactive.
West Hall (04)—Department of Geology Research.

WEST CAMPUS
Bernard Center (59)—Social and recreational facilities are provided for students and are available for other educational ventures as schedules permit. The building includes a computer laboratory, Bronco Mall with fast-food eateries, cafeteria, bowling alley, game room, Western's Campus Bookstore, U.S. Postal substation, lounges, ballroom, music room, faculty lounge and dining room, and the Board of Trustees meeting room.
Brown Hall (42)—Classrooms for the Departments of Computer, English, and Languages and Linguistics.
Computer Center (29)—Academic Computer Center, Telecommunications.
Dale Hall (82)—Dean, College of Fine Arts. Departments of Music and Dance.
Dunbar Hall (68)—Classrooms for the Departments of History, Economics, Computer Science, Philosophy, Religion, and Political Science. Offices and facilities of the Division of Instructional Communications.
Ellsworth Hall (58)—Offices for Career Planning and Placement Services, Continuing Education, Evaluation Center, Information Technology, Student Services, Minority Student Services, News Services, Physician Assistant Program, Public Information, Research and Sponsored Programs, Sports Information, Student Employment Referral Services, University Publications, and Women's Center.

Everett Tower (57)—Faculty offices for Departments of Physics, Geology, and Mathematics.
L. Dale Student Services Building (77)—Offices for the Vice President for Student Affairs, Dean of Students, Campus Apartments, Counseling Center, Financial Aid, Handicapped Student Services, Judiciary, Off-Campus Life, Residence Hall Facilities, Residence Hall Life, Student Life, Western Herald, Western Student Association (WSA), WIDR-FM, and selected student organizations.
Fetzer Business Development Center (84)—A professional management-oriented conferences, seminars, workshops, and development programs.
Friedmann Hall (67)—Offices for dean of College of Arts and Sciences. Faculty offices for Departments of Computer Science, Economics, History, Philosophy, and Political Science.
Haworth College of Business (83)—Offices for the dean of the Haworth College of Business. Faculty offices and classrooms for the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, and Marketing.
Henry Hall (60)—College of Health and Human Services. Residence hall.
Hillside East (26)—Alumni Center, Aural Press, and Public Administration Program.
Hillside West (26)—Testing Services, Custerian Studies and Library, and Medieval Studies.
Kanley Memorial Chapel (31)—The campus religious center, made possible through a gift from the estate of the late William Kanley, an alumnus. Opened in 1951.
Knauss Hall (69)—Instructional facility with four lecture halls and exhibit space.
Knoellwood Building (39)—Department of Art, ceramic and sculpture studios.
Knollwood Metal Building (34)—Department of Art, agriculture and forestry.
Kohman Hall (44)—Departments of Aeronautical and Automotive Engineering, Consumer Resources and Technology, Electrical Engineering, Engineering Technology, Industrial Engineering, and Mechanical Engineering.
Lavoiser Building (38)—Department of Chemistry, Paper Science and Engineering, and Biomedical Sciences.
Lee Honors College (24)—Honors College offices and classrooms.
McCracken Hall (27)—Departments of Chemistry, Paper Science and Engineering, and Biological and Biomedical Sciences.

Miller Auditorium (40)—Cultural center for the performing arts of music, opera, drama, and dance. The auditorium has a capacity of 3,550, with seating arranged on three levels in continental style.
Moore Hall (47)—Offices and classrooms for the School of Social Work; Departments of Anthropology, Religion, and Philosophy; and the Intellectual Skills Development Program.
Oaklands (33)—Home of two former University presidents. Currently used for receptions and official gatherings.
Public Safety Building (25) and Annex (70)—Security, police, parking bureau.
Rood Hall (56)—Classrooms for the Departments of Physics, Geology, and Mathematics. Computer Science and Physical Sciences libraries. A 12-million electron volt linear accelerator.
Sangren Hall (38)—College of Education. The Departments of Art, Blind Rehabilitation, and Sociology; the Educational Resources Center; and the Reading Center and Clinic.
Selbert Administration Building (32)—University administration offices.
Shaw Theatre (41)—The University Theatre presents productions in this 600-seat theatre.
Syracuse Health Center (55)—Ambulatory care student health service building.
Sprau Tower (43)—Offices of the Departments of Communication, English, and Languages and Linguistics. Black Americana Studies Program.
Trimppe Building (35)—Classroom and office space for vocational education, Water Resource Management Research Office, and Faculty Senate.
Waldo Library (81)—The library's total collection numbers more than two million bibliographic items, including books, bound periodicals, recordings, maps, documents, and materials in microform. Also located in the building are the University Archives, the Audoviofilm Library, and Visually Handicapped Reading Services.
Wood Hall (56)—Departments of Biological Sciences, Psychology, Occupational Therapy, and Geology, and the University greenhouse.

OFF-CAMPUS
Aviation Building—Shops, laboratories, and classroom for aircraft technology and pilot training.
Aviation Test Cell—Aircraft engine testing facility.
Klettch Nature Preserve—Given in 1922 by Mrs. Caroline Hubbard Klettch, this fifty-acre tract near the campus and inside the city of Kalamazoo provides instructional space for biological sciences.
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.

Gary Physical Education Center
Physical Education Building (49)—Includes a regulation swimming pool with barrier free access, nine handball courts, gymnasmium floor 90 feet by 120 feet, wrestling room, special purpose rooms, classrooms, locker facilities, and offices for the Department of Health, Physical Education and Recreation. Read Fieldhouse and the intramural building are connected to this building.

Intramural Building (49)—Includes a multipurpose gymnasium 120 feet by 235 feet, which accommodates four basketball courts, six volleyball courts, ten badminton courts, four tennis courts, and a gymnastics area. An artificial surface area 140 feet by 160 feet is also in this building. These areas are used for intramural and recreational sports activities, physical education classes, and various intercollegiate athletic programs.

Read Fieldhouse (62)—Provides indoor facilities for intercollegiate athletic programs in basketball and track. It has a seating capacity of 7,400, a hard surface main floor area of 160 feet by 212 feet, and a 200-meter resilient indoor track.

Goldsworthy 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 Goldsworthy Valley adjacent to Goldsworthy Apartments. Three additional fields, located at the west end of Goldsworthy 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.

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

Sorensen Tennis Courts (102)—Twenty asphalt courts in the Ellsworth Hall-Goldsworthy 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
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.

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.

Waldo Stadium (15)—An intercollegiate football stadium with artificial turf and 25,000 seats. 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 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-four 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) within 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). Students still in high school should have a sixth semester transcript sent;
3. Make arrangements to take the examinations of the American College Testing (ACT) Program with results sent directly to Western Michigan University (ACT College Code 2066). (Note: Students with superior ACT scores may apply through a simplified process. Details will be sent to those who are eligible); and
4. For those who have completed a General Educational Development (GED) Test, submit official GED scores as well as a high school transcript.

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

When to apply

Students should submit applications for fall semester during the fall preceding their enrollment (high school students may apply for freshman 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 four visit options: an early fall Saturday program called Brown and Gold Day which offers sessions on financial aid, Honors College, housing, as well as campus tours; individual departmental advisors, activities representatives, admissions information, and a Bronco football game; 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 admission 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. Student Leaders, upperclass WMU students, assist freshmen to make friends and feel comfortable on the campus as well as to prepare for a successful 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:
Grades earned in those classes will be used collegewill be accepted for credit only. 

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. Testing is available through the WMU Officeof Admissions and Orientation. For 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 opportunities. Qualifying applications 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.

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.

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 wait, to make a decision for work in progress at another institution, or to suggest a student take more work before being accepted.

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

Credit Evaluation

Students accepted for transfer to WMU will receive an evaluation of their previous college work, showing courses transferred with WMU equivalencies. Course equivalencies for Michigan's public community colleges and other transfer institutions is also available from the WMU Office of Admissions and Orientation. For details see International Students in this section. Only grades earned in those courses will be used to determine admissibility to the University; they will not be recorded on the WMU transcript. Courses with "D" grades may be transferred only if the cumulative grade point average at the transfer institution was at least a 2.0 for work transferring to WMU. "D" grades may not be used in fulfilling major or minor requirements. Credit earned as credit by examination does not normally transfer to WMU.

Western Michigan University normally accepts work taken at a college or university accredited by a regional accrediting agency (for example, North Central Association of Colleges and Schools). Work taken at a university accredited by an agency other than the regional accrediting agency may be accepted on a provisional basis, subject to validation. The validation process consists of successful, subsequent completion of 26 semester hours of course work at WMU or at another regionally accredited school with a minimum GPA of 2.0. The credit will be awarded after the validation has been completed. Transfer credit from foreign institutions will be evaluated by the Office of International Student Services and credit awarded on a course by course basis depending on the result.

Transferring credit back to WMU

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

Advising/registration

All admitted transfer students must make arrangements for an advising session with a WMU advisor as soon as they have their admission materials and credit evaluation. At this session students will learn how transferred courses that apply to the WMU major and requirements for graduation. Registration may be completed after the advising session. Admitted transfer students will receive information on these sessions from their advisors, 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 and 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 16 credit hours are required to attend a freshman orientation program. Advising and course selection are included.

INTERNATIONAL STUDENTS

To qualify for admission, international students and students whose native language is not English will be required to demonstrate proficiency in the English language. Testing is available through the WMU Office of Admissions and Orientation. For details see International Students in this section. Only grades earned in those courses will be used to determine admissibility to the University; they will not be recorded on the WMU transcript. Courses with "D" grades may be transferred only if the cumulative grade point average at the transfer institution was at least a 2.0 for work transferring to WMU. "D" grades may not be used in fulfilling major or minor requirements. Credit earned as credit by examination does not normally transfer to WMU.

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Students transferring fewer than 16 credit hours are required to attend a freshman orientation program. Advising and course selection are included.
7. Attendance at regularly scheduled skill building workshops; and
8. Meeting with the Alpha/UNV advisor throughout each semester of the freshman year.

Before the end of each semester, students' grades and progress are reviewed by an Alpha/UNV advisor. All students who have met the contract conditions will be permitted to continue in the program. Those who complete the terms of the probationary year will be eligible to continue their college work in good standing.

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 1968. Named in honor of the late Dr. King, this particular program has the distinction of being the forerunner of similar programs throughout the United States. Originally designed to encourage "marginal" minority students to pursue a 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 the WMU seven and one half week 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 undergraduate 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. 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 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 this 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 of 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 program 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 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 admissions 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 2.25 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. Students may complete regular registration, without charge;
3. Students must register their vehicles and pay for a student parking sticker or use metered parking; and
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 Student 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 semester/term 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 reactivate 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**

(Entering 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 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) are governed by 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>Period</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>$144.00</td>
</tr>
<tr>
<td>Fall and Winter</td>
<td></td>
</tr>
<tr>
<td>Spring and Summer</td>
<td>$72.00</td>
</tr>
<tr>
<td>Part-Time</td>
<td></td>
</tr>
<tr>
<td>Fall and Winter</td>
<td>$47.50</td>
</tr>
<tr>
<td></td>
<td>$23.75</td>
</tr>
</tbody>
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<td></td>
<td>$72.00</td>
</tr>
<tr>
<td></td>
<td>$23.75</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 $250 to $2,000 per course. For specific course fee information, consult the Department of Aircraft and Automotive Engineering.

**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 1990-91 is $960* for fall semester and $1,707.50 for winter semester, per student. The rate for room only in those residence halls that do not provide board is $668* 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 Manager of Residence Hall Facilities, Student Services Building. Residence hall accommodations are not automatically made as a result of admission to the University.

**STUDENT ASSESSMENT**

A student assessment of $4.00 per semester and $2.00 per session will be collected from all graduate and undergraduate students at the time of registration. This assessment is for the support of student organizations and is subject to approval by student referendum every two years.

### 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 on which 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.

<table>
<thead>
<tr>
<th>Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Undergraduate</td>
<td>$65.75</td>
</tr>
<tr>
<td>Upper Division</td>
<td>$72.50</td>
</tr>
<tr>
<td>Non-Resident Undergraduate</td>
<td>$169.00</td>
</tr>
<tr>
<td>Lower Division</td>
<td>$186.00</td>
</tr>
<tr>
<td>Non-Resident Graduate</td>
<td>$227.25</td>
</tr>
</tbody>
</table>

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

### Fee Revisions

Fees and costs pertain to the 1990-91 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 Controller.
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.

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 session. Any questions concerning residency classification should be directed to the Controller's Office, 3062 Seibert Administration Building. Telephone: 387-2066.

Full-Time Student Status

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

- Fall/Winter Semester
  - Undergraduate: 12 hours
  - Graduate: 9 hours
  - Doctoral: 6 hours

- Spring/Summer Session
  - Undergraduate: 6 hours
  - Graduate: 5 hours
  - Doctoral: 4 hours

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 the Michigan Competitive Scholarship and University scholarship programs, as well as the Pell Grant, Supplemental Educational Opportunity Grant, Michigan Educational Opportunity Grant, Supplemental Western Assistance Grant, Educational Opportunity Grant, and state College Work-Study, and long- and short-term loan programs. The information in this section describes scholarship and financial assistance programs and criteria for the 1991-92 academic year. Students and prospective students may apply for programs that are available to students at Western. On-campus opportunities include regular University employment and College Work-Study employment. Internships provide career-related experience, and may offer summer or part-time employment or may stipulate that the student attend a semester or work with a semester of school attendance. Information is available from the WMU Student Employment Referral Service and from Western Michigan University departments.

Several kinds of loans are available at Western, including the following long-term loan programs: Perkins Loan, Stafford Loan (formerly Guaranteed Student Loan), Michigan State Direct Student Loan, United Student Aid Fund, Parent Loan, Supplemental Loan for Students, and Mid-Michigan Student Loan. The Student Financial Aid Office also administers the Western Michigan University Short-term Loan Program, which provides emergency funds for WMU students enrolled at least part time.

Federal, State of Michigan, and WMU Gift, Employment, and Loan Opportunities Based on Need

Eligibility for Financial Assistance
The family's ability to contribute to the cost of education affects the amount of aid a student can receive. In determining the amount of the family's expected contribution, the following are taken into account: the parents' adjusted gross income and/or the student's income, Social Security benefits, Social Security Disability benefits, the number of family members, the number of family members in college, family debts, and family assets.

Federal Assistance Programs
Pell Grant, Supplemental Educational Opportunity Grant, Stafford Loan (formerly Guaranteed Student Loan), Perkins Loan, and College Work-Study.

Eligible applicants for federal 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 in default on student loan payments and who do not owe student grant refunds.
5. Students enrolled in a degree-granting curriculum (not under the Permission to Take Classes -PTC- designation).

For the Stafford Loan, students enrolled under the Permission to Take Classes (PTC) designation for a one-year maximum.
6. Students who are making satisfactory academic progress towards their degree. Contact the Student Financial Aid Office for more details.

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 (not under the Permission to Take Classes -PTC- designation).
5. Students who are making satisfactory academic progress towards their degree. Contact the Student Financial Aid Office for more details.

Western Michigan University Assistance Programs
Supplemental Western Assistance Grant, Educational Opportunity Program, and WMU Nontraditional Student Scholarship.

Eligible applicants for University assistance are:
1. For the Supplemental Western Assistance Grant and the Educational Opportunity Program—U.S. citizens or permanent residents.
For the Nontraditional Student Scholarship—U.S. citizens or permanent residents who are Michigan residents.

2. For the Supplemental Western Assistance Grant—students enrolled full time, carrying a minimum of twelve undergraduate credit hours a semester.

For the Educational Opportunity Program Grant—students enrolled full time, carrying twelve undergraduate or nine graduate credit hours each academic semester.

For the Nontraditional Student Scholarship—students enrolled part time for three to eleven undergraduate credit hours or two to six graduate credit hours during the fall and winter semesters; and students enrolled part time for two to five undergraduate hours or one to three graduate hours during the spring and summer sessions.

3. For the Nontraditional Student Scholarship—students who have been out of high school for at least two years; and students who have been admitted to a degree or certification program or who will gain admission status by the end of the semester awarded.

4. For the Educational Opportunity Program—minority students.

5. Students who are making satisfactory academic progress towards their degree. Contact Student Financial Aid Office for more details.

Financial Assistance Procedures

To apply for a:

- Pell Grant
- Supplemental Educational Opportunity Grant
- Stafford Loan (formerly Guaranteed Student Loan)
- Perkins Loan
- College Work-Study Program
- Michigan Educational Opportunity Grant
- Michigan Competitive Scholarship
- Michigan Adult Part-time Grant
- Michigan College Work-Study Program
- Supplemental Western Assistance Grant or Educational Opportunity Program Grant

Students must submit the Family Financial Statement to the American College Testing (ACT) service. This form is available from high school principals and counselors, from Western’s Student Financial Aid Office, or from any other higher education institution. Students who submit the Family Financial Statement to the ACT processor by March 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 by March 1. Campus-based funds include: Supplemental Educational Opportunity Grant (SEOG), Michigan Educational Opportunity Grant (MEOG), Educational Opportunity Program Grant (EOP), Supplemental Western Assistance Grant (SWAG), federal and state work-study programs, and the Perkins Loan.

Pell Grant—Students who authorize their Family Financial Statement to be forwarded to the Michigan Guaranteed Student Loan Authority and who complete the Stafford Loan questions on the Family Financial Statement need not secure a Stafford Loan application from a lender. They should, however, complete a Stafford Loan—Guaranteed Student Loan Request Form, available from the Student Financial Aid Office.

Michigan Competitive Scholarship—Students who authorize their Family Financial Statement 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 files, applicants must submit:

1. The application form for the grant, loan, employment, or scholarship program listed above.
2. The WMU Certification Form available from the Student Financial Aid Office.

Self-Supporting students also submit the Self-Supporting Student Certification form available from the Student Financial Aid Office.

Students transferring to Western also submit a Financial Aid Transcript 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.
  2. In some cases, a signed copy of the parents’ federal 1040 (all pages and schedules).
- 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.
  2. 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.

On March 1 of each year, the Student Financial Aid Office will begin awarding funds to students whose Family Financial Statement is postmarked to ACT, Iowa City, Iowa, by March 1 of the year preceding the award year. Western’s Student Financial Aid Office ordinarily will forward Pell Grant, other grants, employment, and loan programs, provided students have sufficient financial need and meet other program eligibility requirements.

Financial Assistance Programs

Pell Grant
This program entitles eligible undergraduate students to grants of $105 to $2,400 for each academic year.

The student’s Pell Grant Index (PGI), the cost of education figure, 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 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 proof of costs and letters of verification from counselors, doctors, clergy, instructors, or family members.

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 state 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 state 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 four years 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 twenty-four months. Recipients must be self-supporting, nontraditional students who are attending college on a part-time basis.

Supplemental Western Assistance Grant
This University program, designed to assist exceptionally needy undergraduate students, provides up to $1,000 for the fall and winter semesters.

Educational Opportunity Program
This Western Michigan undergraduate grant provides up to $500 for the fall and winter semesters to exceptionally needy undergraduate and graduate students. Recipients must be minority students.

College Work-Study
This federal program funds employment opportunities for needy undergraduate and graduate students.

The WMU Student Employment Referral Service places students awarded 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 fifteen hours a week while attending school and may earn up to $1,800 for the academic year.
4. The student may defer payment up to three years while serving an internship, the successful completion of which is required to begin professional practice or service. After the deferment period there is an additional six-month grace period.

**Stafford Loan (formerly Guaranteed Student Loans)**

Freshmen and sophomore undergraduate students may borrow a maximum of $2,625, and junior and senior undergraduate students may borrow a maximum of $4,000 every seven months or for each undergraduate classification up to $17,250. Graduate students may borrow a maximum of $7,500 every seven months or for each graduate classification up to $20,750 for both undergraduate and graduate loans.

Repayment begins six months after graduation or six months after half-time status ends. The interest rate for first-time borrowers in 1991 is 8 percent.

Federal legislation provides that a student borrower pay no interest while in attendance at least half time at an eligible institution and for six months thereafter. At that time an interest rate of 9 percent begins for those who are new borrowers as of January 1, 1981, or thereafter. The interest rate is 7 percent for those who have an unpaid loan balance on a loan received prior to January 1, 1981. Note that:

1. The student may defer payments up to three years for service:
   - In the Armed Forces (Army, Navy, Air Force, Marine Corps, or Coast Guard),
   - As an officer on full-time duty in the commissioned corps of the U.S. Public Health Service,
   - As a volunteer under the Peace Corps Act,
   - As a volunteer under the Domestic Volunteer Service Act of 1973, and
   - As a full-time volunteer in a tax-exempt organization performing service comparable to service performed in the Peace Corps, and temporary totally disabled or unable to secure employment because of providing care required by a spouse who is disabled.

2. The student may defer payments up to two years while serving an internship, the successful completion of which is required to begin professional practice or service. After the deferment period there is an additional six-month grace period.

3. A single deferment for a period of not more than one year is provided for students who are unable to find full-time employment.

**Michigan State Direct Student Loan**

Michigan residents who have been denied a Stafford Loan (formerly Guaranteed Student Loan) are eligible to apply for the Michigan State Direct Student Loan Program. For the purposes of this program, a Michigan resident either (1) is dependent upon the support of parents or guardians who reside in and are legal residents of Michigan at the time of application for the loan, or (2) is independent of the support of parents or guardians and has resided in Michigan for not less than twelve consecutive months immediately prior to application for the loan.

The Michigan State Direct Student Loan is, in effect, a guaranteed student loan from the State of Michigan. The application process and form are the same as for the Stafford Loan; the difference is that instead of hometown lenders, the state issues the funds.

The Michigan guarantee agency has also provided to Michigan schools a list of lenders who are participating as Lenders of Last Resort for the Stafford Loan and for the loan programs not based on need (the Parent Loan and the Supplemental Loan for Students).

Application forms/promissory notes, which include the names and lender code numbers of the Michigan Lenders of Last Resort, have also been provided to Michigan schools. Students may contact the Student Financial Aid Office for further information.

**United Student Aid Fund**

Students unable to qualify for a Perkins Loan (formerly National Direct Student Loan) and unable to obtain a Michigan Direct Student Loan or Stafford Loan (formerly Guaranteed Student Loan), or non-residents of Michigan unable to obtain a federally guaranteed loan in their own state, may apply to their local lending institution which participates in this program. The names of participating institutions can be obtained from United Student Aid Funds, Incorporated, P.O. Box 50827, Indianapolis, Indiana 46250. The same conditions apply to this loan as to the Stafford Loan.

**Refund Policy**

If the University has granted a 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 first determine whether those 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.

When withdrawing from the University, the student must begin the process at the Academic Record Office so that grades of “E” are not recorded. When withdrawing from classes, students should also keep in mind that they may have to begin loan repayment to the appropriate lending institution.

**Federal and WMU Loan and Employment Opportunities Not Based on Need**

Federal opportunities include: Parent Loan (PLUS), Supplemental Loan for Students (SLS), and the Paul Douglass Teacher Scholarship programs.

Eligible applicants for federal opportunities include:

1. U.S. citizens or permanent residents.

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

3. For the Parent Loan (PLUS) and the Supplemental Loan for Students (SLS) programs, students must also be enrolled...
4. For the Paul Douglas Teacher Scholarship, WMU opportunities include: Student Practice Services, the Academic Management Services Plan, Manufacturers Hanover Educational Finance Programs, and the WMU Short-Term Loan Program. Eligible applicants are:

1. WMU students who are enrolled for one or more undergraduate or graduate credit hours a semester or session.

2. For the University Short-Term Loan Program, WMU students who have no financial obligations outstanding to the University.

Non-Need Based Opportunities

Loans

Supplemental Loan for Students Self-supporting graduate and undergraduate students who are not eligible for a Stafford Loan (formerly Guaranteed Student Loan) or for a Michigan State Direct Student Loan may apply for a Supplemental Loan for Students. Also, dependent students whose parents are unable or unwilling to secure a Parent Loan may apply for a Supplemental Loan for Students. Because repayment arrangements vary widely from lender to lender, students should contact their lender for additional information.

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 Family Financial Statement and complete their financial aid file at Western Michigan University.

Parent Loan

Parents of dependent undergraduate and graduate students who do not qualify for a Stafford Loan (formerly Guaranteed Student Loan) or the Michigan State Direct Student Loan may apply for a Parent Loan. Students must be registered at least half time, carrying six undergraduate credit hours or four graduate credit hours a semester. Parents determine the criteria for making Parent Loans, and borrowers begin repayment sixty days after the loan is disbursed. For the 1991-92 academic year, interest rates for Parent Loans are 15.95 percent. Parent Loan application forms are available from a hometown bank, savings and loan association, or credit union.

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, Incorporated, 1115 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 15.95. There are no other charges.

For information on the Tuition Plan call 1-800-258-3840. For information on the Educational Line of Credit, call 1-800-MHT-GRAD. Or write Manufacturers Hanover, 100 Duffy Avenue, Hicksville, New York 11801.

WMU Short-Term Loan Program

The Student Financial Aid Office provides emergency short-term loans to WMU 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 $1,000, 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 at Western's Student Financial Aid Office.

A.A.U.W. Graduate Social Work Fund
A.A.U.W. Nursery Education Loan Fund
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 Loan Fund
Robert H. Barr Loan Fund
John L. Bendix Memorial Loan Fund
Albert W. Behnke
Amelia Biscomb Memorial Loan Fund
William R. and Emma Wales Brown Student Loan Fund
Ernest Burnham Rural Loan Fund
Chapman Student Loan Fund
Class of 1936 Loan Fund
College of Applied Sciences Loan Fund
Communications Arts and Sciences Loan Fund
Dorothy Dalton Loan Fund
Delta Kappa Gamma Alpha Psi Loan Fund
Delta Sigma Theta Loan Fund
Viola and Irene Dimac Loan Fund
The Gordon and Fannie Efferdink Loan Fund
Michael Finck Memorial Loan Fund
Foreign Student Aid Loan Fund
James Gardner Memorial Loan Fund
Marie Harik Loan Fund
Hasbro-Brigham Loan Fund
Hervey L. Harvey Memorial Loan Fund
Eunice E. Herald Home Economics Loan Fund
Delco M. Herman DeNate Loan Fund
Hilites Buyers Guide Loan Fund
Alfred Ho Loan Fund
John C. Hokeje Loan Fund
Honors College Loan Fund
Home Economics Memorial Loan Fund
Donna Huizenga Memorial Loan Fund
Inter-Fraternity Council Loan Fund
Frank Fatzinger Memorial Loan Fund
Fremburn W. James Loan Fund
Rev. B. Moses James Memorial Loan Fund
John Jenkins Memorial Loan Fund
Larry Gerald Jenkins Memorial Loan 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. Kauflman Loan Fund
Jerome E. J. Keane Loan Fund
Freda and Martin Kelley Loan Fund
Kwanza Education 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. Lohcher Memorial Fund
M. Densina 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
Mexican-American Loan Fund
Migrant Student Loan Fund
Frederick W. Miholich Memorial Loan Fund
Frederick W. Miholich Memorial Fund for Special Education
Muskogian County Retired Teachers Association Loan Fund
Charles S. Nichols Memorial Loan Fund
Occupational Therapy Fund
Omnibus Loan Fund
Dr. Gerald Osburn Memorial Loan Fund
Panhellenic (Grand Rapids) Loan Fund
Panhellenic (Detroit) Loan Fund
Panhellenic WMU Council Loan Fund
Truman A. Pascioe Memorial Loan 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 Vivienne C. Robinson Memorial Loan Fund
Evelyn Underwood Rogers Loan Fund
School of Public Affairs/Administration Loan Fund
Dr. Mike L. Sebaly Short Term Loan Fund
Rotary Student Loan Fund
Marian I. Siegal Memorial Loan Fund
Marion J. Sherwood Memorial Fund
Katherine Shuver Loan Fund
Sigma Phi Omega Bob Hayes Memorial Fund
Sigma Tau Gamma Memorial Loan Fund
James N. Sleep Memorial Loan Fund
Dorothy Sage Snyder Memorial Loan Fund
J. Towner Smith Loan Fund
R. Franklin Smith Memorial Loan Fund
Southwestern State Employees' Credit Union Memorial Loan Fund
Marion R. Spear Occupational Therapy Fund
George Sprao Loan Fund
Kenneth H. Squires Memorial Loan Fund
Mr. and Mrs. J. Fred Siseley Fund
State D.A.R. Scholarship Loan Fund
Helen Statler Fund
Elaine Louise Stevenson Student Loan Fund
State D.A.R. Student Loan Fund
Ron Strawser Memorial Loan Fund
Student Loan Fund
Student Service Emergency Loan Fund
Marion Tamrin Memorial French Loan Fund
TAPPI (Kalamazoo Valley Section) Loan Fund
Corie Teal Loan Fund

FINANCIAL ASSISTANCE AND SCHOLARSHIPS 21
Adrian Trimpe Distributive Education Loan Fund
C.N. Van Deventer Loan Fund
University Dames of WMU Loan Fund
Dr. Charles Van Riper Speech Pathology and Audiology Loan Fund
Waldo-Forster Fraternity 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 Weisberg 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 Wolfe Loan Fund
W. Dean Worden Loan Fund
Crystal Worner Memorial 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 $3,000 per year, not to exceed the cost of attendance. The college establishes 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 eligibility. Application forms are available in the Department of Education. In addition to submitting the application, the student must have a financial statement on file with the Michigan Higher Education Assistance Office. As an alternative, the student may submit a copy of page one of the parent's Federal Income Tax Return, Form 1040 or 1040-A, for the year preceding the award year. Self-supporting students may submit a copy of page one of their Federal Income Tax Return for the year preceding the award year.

Employment
WMU Student Employment Referral Service
The WMU 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-700, 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 obtain regular University part-time employment by directly contacting the department where they wish to work. Students are employed by University departments, offices, libraries, laboratories, residence halls, and by the Bernhard Center.

Residence Hall Advisor Positions
Students who are residence hall advisors receive free room and board on campus (single room). Contact the WMU Office of Residence Hall Life at 387-4460 for fall/winter appointments; contact residence hall directors for appointments that begin winter semester.

Residence Hall Assistant Director Positions
Assistant directors receive free room and board on campus (single room) and $500 a semester. Because assistant directors are responsible for the residence hall in the director's absence, the position usually requires experience as a residence hall advisor. Contact the WMU Office of Residence Hall Life at 387-4460 for more information.

Professional Practice Services
This service offers a variety of career-related employment opportunities. The service helps students find an existing co-op/internship program or research and design a program on their own and contact prospective employers. Internships may offer summer or part-time employment or may stipulate that the student alternate a semester of work with a semester of school attendance. Professional Practice Services offers both paid and unpaid internships. Students may request help from Professional Practice Services by visiting the WMU Student Employment Referral Office in A-100, Ellsworth Hall. Some University departments offer co-op internship programs similar to those offered through Professional Practice Services; interested students may contact their department advisors and chairpersons.

U.S. Armed Forces Programs
The United States Armed Forces offers women and men a variety of educational assistance programs:
- The Split Training Option allows eligible high school students to attend basic training the summer after their junior year and to return for an individual training the summer after high school graduation. The student may then become a member of the Reserve/National Guard. The student must have a grade point average of 3.70 as computed by the Michigan Higher Education Assistance Office. As an alternative, the student may submit a copy of page one of the parent's Federal Income Tax Return, Form 1040 or 1040-A, for the year preceding the award year. Self-supporting students may submit a copy of page one of their Federal Income Tax Return for the year preceding the award year.

WMU Scholarship Programs

Prestigious University Scholarships
Western Michigan University awards scholarships on the basis of academic achievement. Financial need is not a criterion. Prestigious University scholarships include: the Medallion Scholarship, the WMU Board of Trustees Scholarship, the WMU Scholars Scholarship, the WMU Excellence Scholarship, and the WMU Academic Scholarship for Beginning Freshmen. Other prestigious scholarships are: the WMU Award for National Merit Winners, the Higher Education Incentive Scholarship, and the WMU Academic Scholarship for Transfer Students. The WMU Academic Scholarship for Currently Enrolled Students, and the WMU Undergraduate Research and Creative Activities Award.

All scholarship recipients—with the exception of Undergraduate Research and Creative Activities Award—must be registered full-time students at Western Michigan University and must be citizens of the United States. To retain all but the Undergraduate Research and Creative Activities Award, students must complete the required credit hours each year and maintain the required grade point average.

In addition to the scholarships named above (the Medallion Competition scholarships, the awards for transfer students, the WMU Award for National Merit Winners, the Higher Education Incentive Scholarship, and the WMU Academic Scholarship for Currently Enrolled Students), students may hold the WMU Undergraduate Research and Creative Activities Award, the Elizabeth Durand Hebben Scholarship, the Clifford and Elza Chapman Senior Scholarship, the Edwin and Adelaide Steffen Scholarship, and the David and Priscilla Morris Scholarship.

WMU Scholarships for Beginning Freshmen

Medallion Scholarship Competition Program
Through the Medallion Scholarship Competition, the Scholarship Committee selects recipients of the Medallion Scholarship, the WMU Board of Trustees Scholarship, the WMU Scholars Scholarship, the WMU Excellence Scholarship, and the WMU Academic Scholarship. WMU invites high school seniors who have earned a grade point average of 3.70 as computed by the Western University to participate in the competition. High school seniors who have a grade point average of 3.5 as computed by the 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 apply for admission to WMU by January 10 of their senior year of high school. Each competition participant receives either the Medallion Scholarship, the WMU Board of Trustees Scholarship, the WMU Tuition Scholarship, or the WMU 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 scholars receive $25,000, awarded $6,250 each year of a four-year degree program at Western Michigan University. For 1981-82, Western awarded fifteen Medallion Scholarships. Some Medallions carry the name of the donor and are awarded only 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 $8,000; $2,000 is awarded each academic year.

WMU Academic Scholarship
Recipients of this $4,000 scholarship receive $1,000 for each academic year.

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

WMU awards $3,000 ($750 for the academic year) in addition to National Merit Scholarship and WMU Medallion Scholarship Competition funds awarded to the student. To be eligible, students must designate WMU as their first school choice with the National Merit Scholarship Corporation no later than April 1 of the year preceding the award year.

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 eligible for a Higher Education Incentive Scholarship of $16,000 ($4,000 a year) or a WMU Academic Scholarship of $4,000 ($1,000 a year). Application forms are available from the WMU Office of Minority Affairs.

Sponsored Scholarship for Beginning Freshmen
Edwin and Adelaide Staffen Scholarship
Funds are provided from an endowed fund which the Staffens established to recognize students who have graduated from Saginaw, 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 Transfer Students
A transfer student may receive only one of the following awards.

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 for transferable courses and must be admitted to WMU by April 1. Recipients are selected by the WMU Scholarship Committee.

WMU Community College Presidential 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 for transferable courses and must be admitted to Western by April 1.

WMU Academic Scholarship for Transfer Students
Students who transfer to WMU with a grade point average of 3.5 or above—as computed by the WMU Office of Admissions and Orientation—receive a $3,000 scholarship for the academic year. This scholarship is renewable, provided that the student meets credit hour and grade point criteria.

To be eligible, students must be admitted to Western. The University notifies recipients at the time of their admission and continues to make 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 in transferable courses is required along with a recommendation by the chapter advisor. Students must be admitted to Western by March 15.

WMU Scholarships For Currently Enrolled Students
WMU Undergraduate Research and Creative Activities Award
The University Undergraduate Research and Creative Activities Award Program, administered by the Honors College, is designed to encourage and nurture research and creative activities by outstanding students at Western Michigan University. An essential feature of the Undergraduate Research and Creative Activities Award Program is the apprentice/mentor relationship established between a student and faculty member.

A suitable project can come from any area of academic endeavor at the University. It could include, but would not be limited to, research, development, design, field study, a creative project or performance. Normally the project should require approximately 150 hours (or ten hours per week) of the student’s time and 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 $1,200 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 WMU tuition and fees for extremely needy undergraduate students. For application details, students may write the scholarship area of Student Financial Aid or make an appointment to see a Student Financial Aid counselor.

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 the 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
The trust established in 1964 by Clifford and Ella Chapman, longtime friends of Western Michigan University, provides the funds for this scholarship program. WMU students who have achieved senior classification and have a grade point average of 3.5 or above may apply for a $200 winter semester award.

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

Applicants must be United States 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, and a subsistence allowance of $100 a month (up to $1,000 per year) while school
is in session. It is not 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 baccalaureate degree, meet medical requirements, be at least seventeen years of age by October 1 of the year of enrollment as a scholarship cadet, and be under twenty-five years of age on June 30 of the calendar year in which the individual is scheduled to graduate (there are extensions to this age limit granted to veterans).

Scholarship boards begin in January of each year and are normally closed out at the end of February for two-year and three-year scholarships. Contact the Department of Military Science at 387-8116 for more specific information.

Military Science Grants—All advanced-course R.O.T.C. cadets receive $100 a month while school is in session (up to $1,000 per year).

**College of Arts and Sciences**

**Biological Sciences**

The Margaret Thomas Du Mond Scholarship Award—This award, established in honor of Mrs. Du Mond, an alumna of the department, by her husband, is available to upperclass biology and biomedical sciences majors with preference given to those who plan to become teachers. The award is granted annually to a student with a grade point average of at least 3.0, demonstrated career potential, and financial need. Contact the Biological Sciences Office in Wood Hall for information and applications.

The Frank Hinds Zoology Award—This award was established in honor of a dedicated teacher who served WMU for 35 years. The award of $200 is granted annually to a declared departmental major of sophomore or junior standing that has completed at least three courses in Biological Sciences at WMU, has a grade point average of 3.5 or better, and has an outstanding overall record. Contact the Biological Sciences Office in Wood Hall for information and applications.

Hazel Wirick Botany and Ecology Award—Sponsored by the Kalamazoo Garden Council, this award of $500 is available to upperclass biology majors who have completed a project in the areas of botany or ecology. Contact the chairman of the Department of Biological Sciences.

The Distinguished Biology Major Senior Award—The biology faculty selects one or sometimes two outstanding seniors for this award. All biology majors with a grade point average of 3.5 or above are considered; no application is required.

The Distinguished Biomedical Sciences Major Senior Award—This award is given to the student judged by the Biological Sciences faculty to be the outstanding senior biomedical sciences major, no application is required.

The Preprofessional Award in Biological Sciences—This award is given to the student deemed by the Biological Sciences faculty to be the outstanding biology or biomedical sciences student in the preprofessional curriculum. Students with a grade point average of 3.5 are considered; no application is required.

The Merrill Wiseman Award—This award, named in honor of a distinguished teacher who was on the Biological Sciences faculty for forty years, is made annually to an outstanding student in the field of microbiology, no application is required.

**Chemistry**

The William McCracken Award—Named in honor of the first head of the chemistry department, is given to a senior who, in the opinion of the chemistry staff, has shown the greatest aptitude in the field of basic chemistry.

The American Institute of Chemists Award—This award is given to a senior majoring in chemistry who has demonstrated scholastic achievement, leadership, and character.

The Merck Index Award—This award is given to an outstanding senior in chemistry who has a high cumulative GPA in chemistry courses.

The Jensen Award—This award is drawn from contributions from the Jensen family, is given to a sophomore or junior majoring in chemistry, who has a high cumulative GPA and active involvement in the activities of the department.

The CRC Press Freshman Chemistry Achievement Award—This award is given to a freshman for outstanding academic achievement in general chemistry.

**Economics**

The Wall Street Journal Award—This award is given annually to the outstanding senior in economics.

**English**

The George Sprau Award in English—This award is given to an outstanding English major in the senior class. Up to $175 may be given to second semester juniors who must use the award during the senior academic year.

The Jean and Vincent Malmstrom Scholarship Award—This $500 annual award, provided through the generosity of Jean and Vincent Malmstrom, is to stimulate an interest in the English language and its relevance to the teaching of English and the language arts. Applicants must be seniors or second semester juniors at WMU, have a minimum overall grade point average of 3.5, be English majors or minors with an English language emphasis or majors or minors in a program emphasizing linguistic study, and be planning to enter the teaching profession.

One or two awards will be made each year. Information and applications may be obtained from the English department.

**Geology**

**Environmental Studies**

The Environmental Studies Scholarship—This $300 annual award is open to environmental studies majors who have completed 15 hours of Environmental Studies courses with an ENVS and University GPA of 3.0 or higher. Applicants must exhibit high scholastic ability and strong potential for environmental service. Applications may be obtained from the environmental studies office.

**Geology**

The Frederick J. Rogers Memorial Shakespeare Award—This award is given to a senior who, in the preceding spring or summer sessions, has been enrolled in any class studying Shakespeare's work offered by the Department of English that academic year or the preceding spring or summer sessions. The award will be given for the best paper written on some aspect of Shakespeare's work and is presently valued at $250. Students or others with questions regarding the award may contact the chair of the English Department.

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One or two awards will be made each year. Information and applications may be obtained from the English department.
Languages and Linguistics

President's Award for Study Abroad—The President of WMU has established an annual award of $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 any 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.

Mathilde Steckelberg Scholarship—This endowment fund, established through the generosity of the late Mathilde Steckelberg, former head of the German department, enables the Department of Languages and Linguistics to recognize outstanding scholarship performance by students majoring in German, Spanish, and classical languages. Academic performance and potential in the particular language area will be stressed in the selection of recipients of four annual endowment awards, established through the Department of Languages and Linguistics to present an annual cash award to an outstanding student in Latin or Greek, as selected by the faculty of the classics section of the department.

Perpetual awards in philosophy, ancient history, and/or ancient philosophy may also be considered in the selection of the recipients of the award.

Hermann E. Rothfuss Award in German—An annual cash award for an outstanding student in German has been established in memory of Dr. Herrmann E. Rothfuss, 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 contribution to German understanding will be considered in the selection of the student to receive the award.

Kalamazoo German-American Club Scholarship—The Kalamazoo American Club of Kalamazoo has established an annual scholarship of $1,000 to be awarded to an outstanding student majoring in German. To be eligible for this award, a student must be of German extraction, have a 3.3 grade point average in German and a 3.0 overall grade point average, and must have completed 17 hours of German courses which count toward the major. At least two of these courses must have been taken at Western Michigan University. The faculty of the German Section of the Department of Languages and Linguistics will announce this award each winter semester and set a deadline for applications. Interested students who meet the above-listed criteria must file an application with the German Section in order to be considered for this scholarship.

Travel/Study Abroad Award—To encourage more foreign language students to travel to a foreign language-speaking country, two to four awards of $500 each will be granted annually by the Department of Languages and Linguistics. Recipients must have an average grade point average of 3.0 or better in a declared major or minor in the department, and must have submitted an acceptable individual project to be pursued during the travel abroad program.

Departmental section awards—The following awards are presented annually by the individual sections of the Department of Languages and Linguistics: French—the Prix d’Honneur, par l’Ambassadeur de France (given by the French Embassy to the outstanding student of French in the graduating class); the Prix de L’Alliance Française; the Frances E. Nobles Prize for Excellence in French; the Preis der Bundesrepublik; Latin—the Excellence in Latin Award; Linguistics—the Excellence in Linguistics Award; the Latvian Studies Program Award for Russian Excellence in Russian Award; Spanish—the Herb B. Jones Award for Excellence in Spanish; and several additional awards for excellence in Spanish, Translation Studies—the Jerome Prize in Translation.

Mathematics and Statistics—The Senior Awards—This award is given to the senior mathematics major who is judged by the Department of Mathematics and Statistics to have exhibited the highest proficiency and promise in mathematics and statistics. The Paul Rood Memorial Scholarship—This scholarship is awarded annually to the outstanding student major.

The Dr. John P. and Etha Everett Award—Annual prize is awarded to seniors showing outstanding promise as teachers of secondary school mathematics.

Annual awards are presented to seniors majoring in the classics section of the department.

Freshman Scholarship—A scholarship presented to entering freshmen majoring in mathematics or statistics major in recognition of an outstanding high school record and the potential for an excellent university career.

Physics—The Paul Rood Scholarships—The Rood Scholarships of $4,000 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 Charles J. Wilcox Memorial Award—This award, made possible by family and friends of a physics graduate student, is given to outstanding graduating seniors majoring in physics.

The Outstanding Physics Student Award is presented each semester to the outstanding student in each of the following introductory physics courses: Physics 107, 113, 115, 205, 207, 212. 207, 212.

Political Science—Arden J. Eltasser Memorial Award—This scholarship has been established by the League of Women Voters of the Kalamazoo area in memory of Arden J. Eltasser, who gave faithful service to this organization and contributed to the Kalamazoo community. The award, which is made annually, will normally be $400. It may also vary depending on the availability of funds. Application is open to undergraduate or graduate students in political science at Western Michigan University. Applicants must have a minimum grade point average of 3.0 overall and in political science, community service, and must have second semester junior standing by the end of fall term in which the award is granted. Contact the chair of the political science department for information and applications.

D. C. Shilling Junior and Senior Awards—These 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 Paul Rood Scholarship—The Paul Rood Scholarship was established by Mrs. Zoa D. Shilling because of her interest in helping 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 Denerfield 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. The fund is sponsored by the Kalamazoo Community Foundation.

Travel/Study Abroad Award—To encourage foreign language students to travel, the department awards up to ten assistantships to advanced students who wish to become more involved in department activities and projects. The department's activities and projects are diverse across departments, and the students are engaged in a variety of roles.

Departmental assistantships—The department awards up to ten assistantships to advanced students each year, including the Department of Languages and Linguistics, the Department of Philosophy, the Department of Physics, and the Department of Political Science. The assistantships are awarded based on academic excellence, leadership ability, and other factors, with additional awards for outstanding academic achievement and professional responsibility in psychology.

Sociology—The 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 $300 are available for outstanding sociology and criminal justice students each year.

Undergraduate assistantships—The department awards up to ten assistantships to undergraduate students each year in sociology and criminal justice studies, with the requirement that the recipients be 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 curriculum 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 enrolled in the Haworth College of Business. Apply directly to the Haworth College of Business.

Accountancy—Two scholarships for their junior and senior years are given to accounting majors for their junior and senior years 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. The recipient is a graduating 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 primary 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.

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

BOO Section of Gamma Tau 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. Scholastic achievement is the primary consideration in selection of recipients. Contact the Department of Accountancy, Haworth College of Business.

Maner, Costenius and Ellis Scholarship—This is an award based on high academic achievement made to a student from Clinton, Ingham, or Eaton Counties. It is intended for seniors in accounting. Contact the Department of Accountancy, Haworth College of Business.

Zonta Scholarship—Apply directly to the Zonta Chapter of DPMA. Applications are available in October. Contact the Department of Business Information Systems, Haworth College of Business.

Accountancy—Two scholarships for their junior and senior years are given to accounting majors for their junior and senior years at Western Michigan University. Contact the Department of Accountancy, Haworth College of Business.

Marketing

Dow Marketing Scholarship—Two or more scholarships of $500 each are awarded during the winter semester for the following school year to declared marketing majors who have completed fifty-two semester hours, who are carrying a minimum of twelve semester hours, and whose cumulative grade point averages are at least 2.5. Also considered are work experience, participation in University and community activities, and faculty recommendations. Awards are available in amounts of $250 a person during registration for the fall semester and again during registration for the winter semester, provided the minimum grade point average of 2.5 and a course load of twelve semester hours are maintained. Application forms can be obtained from the Department of Marketing.

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

Each award includes a plaque and a $250 stipend.

The Dean Arnold E. Schneider Management Achievement Award—This is given annually on the basis of scholastic achievement. The recipient is a graduating student who has majored in accounting. The student's grades in accounting and overall are the factors considered in making the selection.

The Redwood and Ross Management Achievement Award—This award, established by Kalamazoo based Redwood and Ross chlorifiers, is given each fall and winter semester to management students for exceptional scholarship, leadership and service. Each award includes a $250 stipend and a plaque.

The Department of Management Achievement Award—Several awards, established by the faculty of the Department of Management, are given during the academic year 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, through contributions to student clubs may also be considered. Students must be nominated by Department of Management faculty members to be eligible to receive this award. A stipend and a plaque is awarded to each recipient.

The Distinguished Service Award for the Department of Management—This award, funded by an alumnus of the department, is given annually on the basis of scholastic achievement or minor for distinguished service to the Department of Management. The award includes a stipend and a plaque.

Ernst and Young Award—This award is given annually on the basis of scholastic achievement. The recipient is a graduating 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 primary 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.

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

BOO Section of Gamma Tau 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. Scholastic achievement is the primary consideration in selection of recipients. Contact the Department of Accountancy, Haworth College of Business.

Maner, Costenius and Ellis Scholarship—This is an award based on high academic achievement made to a student from Clinton, Ingham, or Eaton Counties. It is intended for seniors in accounting. Contact the Department of Accountancy, Haworth College of Business.

Zonta Scholarship—Apply directly to the Zonta Chapter of DPMA. Applications are available in October. Contact the Department of Business Information Systems, Haworth College of Business.

Management

The Jeff Robideau Award for Mentorous 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 and a plaque.

The Dr. Kevin J. Haas BPA Award for Excellence and Commitment to the Study and Practice of Management—This award, established by an alumnus of the management program, 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.

Each award includes a plaque and a $250 stipend.

The Dean Arnold E. Schneider Management Achievement Award—This award, established by the founding dean of the Haworth College of Business, is given each fall and winter semester to management students for exceptional scholarship, leadership and service. Each award includes a $250 stipend and a plaque.

The Redwood and Ross Management Achievement Award—This award, established by Kalamazoo based Redwood and Ross chlorifiers, is given each fall and winter semester to management students for exceptional scholarship, leadership and service. Each award includes a $250 stipend and a plaque.

The Department of Management Achievement Award—Several awards, established by the faculty of the Department of Management, are given during the academic year 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, through contributions to student clubs may also be considered. Students must be nominated by Department of Management faculty members to be eligible to receive this award. A stipend and a plaque is awarded to each recipient.

The Distinguished Service Award for the Department of Management—This award, funded by an alumnus of the department, is given annually on the basis of scholastic achievement or minor for distinguished service to the Department of Management. The award includes a stipend and a plaque.

Marketing

Dow Marketing Scholarship—Two or more scholarships of $500 each are awarded during the winter semester for the following school year to declared marketing majors who have completed fifty-two semester hours, who are carrying a minimum of twelve semester hours, and whose cumulative grade point averages are at least 2.5. Also considered are work experience, participation in University and community activities, and faculty recommendations. Awards are available in amounts of $250 a person during registration for the fall semester and again during registration for the winter semester, provided the minimum grade point average of 2.5 and a course load of twelve semester hours are maintained. Application forms can be obtained from the Department of Marketing.

Southwestern Michigan Association of Purchasing Management Scholarship—One scholarship of $500 is awarded during the winter semester for the following school year to declared industrial or general marketing majors of at least junior class standing (fifty-six hours) but less than ninety-six hours. Applicants must carry a minimum of twelve semester hours and have a grade point average greater than 2.5. In addition students must have a demonstrated interest in purchasing. Also considered are work experience, participation in University and community activities, and faculty recommendations. Awards are available upon certification of fall semester registration, provided the minimum grade point average of 2.5, a course load of twelve semester hours and a minimum GPA of 2.5. Application forms can be obtained from the Department of Marketing. Final selection will be made by the board of directors.
directors of the Southwestern Michigan Association of Purchasing Management.

Four Advertising scholarships are awarded each year to a declared advertising major who has completed fifty to ninety-five credit hours, and whose cumulative grade point average is between 2.5 and 3.0. Consideration is also given to an applicant's interest in advertising/marketing, work experience, participation in University and community activities, and faculty recommendations. Application forms can be obtained from the Department of Marketing.

1. The William R. Biggs/Gilmore Associates, Inc. Advertising Scholarship—This scholarship provides $250 and a paid advertising internship opportunity with the Biggs/Gilmore agency.


3. Marketing/Advertising Round Table (MART) Scholarship—The Marketing/Advertising Round Table (American Advertising Federation) sponsors this $500 award.

4. Zane Cannon Memorial Scholarship—This scholarship of at least $200 will be awarded annually in honor of the late Professor Zane Cannon. Robert B. Trader Marketing Scholarship—One scholarship of at least $200 per year.

Criteria: Majors in Advertising, General 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.

Food Marketing Scholarships—Each year Western offers a number of scholarships to qualified students majoring in food marketing. Amounts are variable. Applications may be obtained from the Department of Marketing. Awards are announced each spring.

Scholarship of the NFBA Foundation Inc.—This scholarship grant is offered to an undergraduate in the food marketing major 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. Apply directly to the Department of Marketing.

Julie Lofton and Georgeia Lofton Burge Scholarship—This award is granted each year to a student, preferably from the Cleveland, Ohio, area, with a major in food marketing. Awarded to one student majoring in food marketing. Awardees must have a minimum grade point average of 3.0 and be full-time WMU students.

Applications are accepted each September and the scholarship awardees are announced in late October. This award is renewable. S.C. Johnson Scholarship—This award is offered to a student majoring in the highest G.P.A. in the department. The award is $2,500 for one year and is non-renewable.

This award is made available by the Johnson Wax Company.

William O. Haynes Scholarship—This award is based on scholarship and need, is for $1,000, and is renewable.

Jules Englehard Memorial Scholarship—This award is based on scholarship and need, is for $1,000, and is not renewable.

Mr. and Mrs. C. J. Christoff Scholarship—This award is offered to a female student each year, is for $1,000, and is not renewable. Preference will be given to a student from the Lowell, Michigan area.

College of Engineering and Applied Sciences

The College of Education awards several scholarships annually to students who might not be recognized through other programs. These awards, ranging in value from $500 to $1,500, are divided equally between fall and winter semesters. A minimum grade point average of 3.0 is required for all awards. Following is a list of the scholarships available and the amount of each.

College of Education Undergraduate Scholarship—1 available, $500 each.

Jane Blackburn Scholarship—1 available, $500.

Lofton Burge Educational Scholarship—4 available, $1,000 each.

Lofton and Georgiann Burge Scholarship for Undergraduates in Elementary Education—4 available, $1,000 each.

Jane Trulaon and Irene (Smith) Davies Education Scholarship—1 available, $500.

Homer Carter Scholarship—1 available, $500.

Dorothy H. and Cora Hurd Charles Scholarship—2 available, $500 each.

Robert and Irene (Smith) Davies Education Scholarship—1 available, $500.

Zora Ellsworth Memorial Scholarship—1 available, $1,000.

Fund for the Advancement of Minorities in Education (FAME) Scholarship—5 available, full tuition.

Chrysalis Grady Home Economics Scholarship—1 available, $1,000.

Lucille J. Haines Education Scholarship—4 available, $500 each.

Marion I. Hall Scholarship—1 available, $500.

Florence and Vernon Martin Scholarship—3 available, $1,000 each.

Merze Tate Undergraduate Scholarship—4 available, $500 each.

Further information regarding these scholarships is available in the dean's office, College of Education, 2306 Sangren Hall, or by telephoning 387-2966.

Home Economics

Chrysalis I. Grady Scholarships—An endowed fund in the estate of Chrysalis I. Grady has made possible an annual scholarship to students majoring in curriculum within home economics. Additional awards are available from home economics area in the Department of Consumer Resources and Technology. Amount is variable.

College of Engineering and Applied Sciences

The College of Engineering and Applied Sciences offers a number of scholarships to outstanding students enrolled in four-year curricula within the college. Funds for these programs 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 $1,500 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.

Engineering Technology

American Foundrymen's Society Scholarship—The Central Michigan and Detroit chapters of the society offer several scholarships each year to students in the foundry-related curricula. Preference is given to AFS student chapter members. Apply to the Department of Engineering Technology.

American Society of Metals-Saginaw Chapter Scholarship—This is awarded to students from the Saginaw, Bay City, Flint, and Midland, Michigan, areas who have junior standing or less and are majoring in metallurgy. The scholarship amount is $500 for one year. Apply to the Department of Engineering Technology.

Clausing-Dasilva, Inc. Special Products Group Scholarship—This scholarship is offered to stimulate interest in technology or industrial education. The scholarship is open to all graduating seniors from Michigan high schools who have had at least one course in industrial arts and who plan to enter an industrial education or technology curriculum. The award is $1,000 for the first year and is renewable for an additional three years, for a total of $4,000. Apply to the Department of Engineering Technology.

Robert B. Day Memorial Award—Each spring, the department presents an award to an outstanding student involved in the fabrication, cast metals, or metallurgy program, who has demonstrated purpose and commitment to one of these areas. These awards are given in honor and recognition of the late Dr. Day, who actively supported the metallurgical programs during his tenure as a professor at WMU.

Herbert Ellinger Scholarship—This $400 award is designed for students majoring in the automotive technology and management curriculum. Applications are accepted each year. Awards may be made annually based on the student's achievement and the recommendation of the scholarship committee. Apply to the Department of Engineering Technology.

Foundry Educational Foundation Scholarship—The Foundry Educational Foundation offers a number of scholarships to any technical student having a direct interest in the cast metals industry. A student must have FEF registration completed by November for each year to qualify. Apply to the Department of Engineering Technology.
28 FINANCIAL ASSISTANCE AND SCHOLARSHIPS

Duke Harrah Memorial Scholarship—Four awards of at least $250 each are made each year to students in aviation curricula who have demonstrated academic excellence and leadership in departmental activities.

H. H. Harris Foundation Scholarship—The foundation has made funds available to students in technical programs with an interest in the cast metals industry. Awards range from $300 to $1,000. Apply to the Department of Engineering Technology.

Lloyd Hutt Memorial Scholarship—This 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. Apply to the Department of Engineering Technology.

Iron and Steel Society-Detroit Section Scholarship—One scholarship of $1,000, one-year scholarship is open to second semester freshmen and above who are seeking a career in the ferrous metals or related fields. Apply to the Department of Engineering Technology.

Kalamazoo Antique Auto Restorers Club Scholarship—Each year, a $500 scholarship is made available to a student majoring in either Automotive Engineering or Automotive Technology and Management. To qualify, the student must be a U.S. citizen, junior or senior, with preference to Kalamazoo and adjoining counties, and maintain good academic standing. Apply to the Department of Engineering Technology.

Kalamazoo Builders Exchange Scholarship—This scholarship is open to full-time juniors and seniors who have demonstrated an interest in the construction industry. Preference will be given to individuals living within the greater Southwest Michigan area. The award is $1,000, divided equally between fall and winter semesters, and may be renewed at the discretion of the selection committee.

David Laine Memorial Scholarship—These awards are made each year by the American Die Casting Institute. Selections are made from those students completing the Foundry Educational Foundation registration. Awards are usually $1,000 each. Apply to the Department of Engineering Technology.

Herman Under Award—Each spring, the department presents a $200 award to the student who, in the judgment of the aviation maintenance faculty, most demonstrates those qualities usually associated with outstanding performance in the field of aircraft maintenance. To qualify for consideration, students must be enrolled full-time in the Airframe and Powerplant program and have completed both of the required servicing classes.

National Association of Home Builders/ Home Building Association of Kalamazoo Award—This award is presented to selected students who have a junior or senior class standing and are majoring in the Construction Science and Management curriculum. At least a $400 award is made annually to those individuals selected. Apply to the Department of Engineering Technology.

Neil Scholzheim Memorial Award—Each spring, the department presents a $300 award to an outstanding student who demonstrates scholarship in addition to the study of a technologist. Open to students in Engineering Technology and Industrial Education who have served as lab assistants for at least one semester, are full-time students during the semester, and have a 3.0 grade point average over the last 40 semester hours of course work.

Society of Die Casting Engineers Scholarship—Applications are available at the Southwestern Michigan Chapter 39 meetings. The awards vary in amount up to $300 each. Apply to the Department of Engineering Technology.

Society of Manufacturing Engineers Scholarship—A preference is given to members of the student chapter of SME. Requirements include a high grade point average, involvement in activities, and demonstrated need. Two awards of $300 each are given during fall semester and two during winter semester for a total of $1,200 each year. The selection committee includes members of Kalamazoo Chapter 116 of SME. Applicants must be carrying twelve semester hours to qualify. Apply to the Department of Engineering Technology.

Society of Plastics Engineers Scholarship—The Society of Plastics Engineers offers one grant each year, in the amount of $1,000, to a WMU student enrolled in the College of Engineering and Applied Sciences and pursuing course work in plastics. Apply to the Department of Engineering Technology.

West Michigan Business Aircraft Association Scholarship—A scholarship is provided to a student who plans to become a professional pilot. The candidate must have completed the junior year, and who represents high standards of academic performance, initiative, and commitment to professionalism in aviation. A committee selected by the West Michigan Business Aircraft Association chooses the recipient for this $1,000 award. Apply to the Department of Engineering Technology.

Mechanical Engineering

The Durametallic Corporation—Offers several scholarships each year to students in the mechanical engineering curriculum. Awards are based on merit.

Paper and Printing Science and Engineering

Paper Science and Engineering Merit Scholarships—These scholarships are available for American and Canadian citizens majoring in paper science and paper engineering. The award is $500, to be used to cover tuition costs within the paper programs.

Beginning students interested in physical science, engineering and/or environmental engineering may write the department directly to request additional scholarship and curriculum information and to obtain scholarship applications. College 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-by-semester 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 of the Department of Paper and Printing Science and Engineering.

The scholarship program is supported through the Paper Technology Foundation, incorporated, which includes 70 corporate members. Details are available in the Paper Technology Foundation office.

Paper Technology Foundation Scholarship Funds

Albany International Corp. Scholarship
David and Doris Bossen Scholarship
Burgess Cellulose Foundation Scholarship
Mae Munter Callighan Scholarship
Olin W. Callighan Scholarship
Carlton H. Cameron Scholarship
Cargill Incorporated Scholarship

Champion International Packaging Scholarship
Champion Papers Scholarship
Class of 1990 Scholarship
Bert Cooper Scholarship
Corn Products Scholarship
Doe-Teugh Scholarship
Theodore W. and George C. Dunn Memorial Scholarship
E. J. DuPont de Nemours and Company, Inc. Scholarship
Federal Paper Board Company, Inc. Scholarship
John M. Fisher/Tsai Lun Scholarship
James A. Foxglove Memorial Scholarship
Foxglove/Caider Foundation Scholarship
General Endowment
Gilman-Hafer Scholarship
Philip H. Glafelelter Scholarship
Grain Processing Corporation Scholarship
Gerald A. Hale Scholarship
Hammermill Paper Company Scholarship
Albert S. Harman Scholarship
Hercules Inc. Scholarship
J. M. Huber Scholarship
Raymond L. James/Beloit Corp. Scholarship
John F. King Family Scholarship
Perry H. Koplik Scholarship
Louis Lerner-Texo Scholarship
K. A. Uno Lowgren Scholarship
E. M. Marlow Scholarship
John and Diane Maryanski Scholarship
Mead Corporation Foundation Scholarship
Michigan Carton Company Scholarship
Packaging Corporation of America Scholarship
Paper Technology Alumni Association Scholarship
Roger C. Peterson Memorial Scholarship
Peterson Family Environmental Scholarship
Recknagel Scholarship
Sandoz Foundation, Incorporated, Scholarship
William and Martha Siekman Scholarship
Simpson Paper Company Scholarship
St. Regis Paper Company Scholarship
Union Camp Corporation Scholarship

Other paper science and engineering scholarships include:

CMM Education Foundation Competitive Research Award
Robert Caine Outstanding Student Award
Robert A. Welporn Paper Science and Business Scholarship (alternate years)
Undergraduate Research and Creative Activities Award for $1,200 or $900
The Copy Desk Award—One $250 awarded on the basis of departmental service. It is not renewable.

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

TAPPI Engineering Division Scholarships—One $2,500 scholarship to a junior and one $2,500 scholarship to a senior.

TAPPI Polymers, Coating, and Laminations Division—One $1,000 scholarship.

TAPPI Corrugated Containers Division—Two $1,000 scholarships.

TAPPI Paper and Board Division—One $1,000 scholarship.

TAPPI Nonwovens Division—Two $1,000 scholarships.

TAPPI Environmental Division—Two $1,000 scholarships.

PIMA Divisions—All have scholarships available. Details are available in the paper programs office in McCracken Hall.

Printing Management/Marketing Scholarships available only to WMU printing management/marketing students:
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 demonstration 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 full-time undergraduate students, obtain at least one letter of recommendation from a faculty member, demonstrate achievement in the given arts discipline or show promise as a new student. In addition, scholarships, including the Hearmon/Sommerfeld Music Theatre Scholarship, are available to full-time students in the Music Theatre Performer Curriculum. These scholarships are based on talent and are renewable upon application to students maintaining a 3.0 GPA or above average. Funds for these programs are made available through donations by alumni and friends of the University.

Art

WMU Department of Art Scholarship for Freshmen—The Department of Art annually offers a $500 scholarship to an entering 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 from the Art Advising Office, 1406 Sangren Hall, Western Michigan University, Kalamazoo, MI 49008 or call (616) 387-2440.

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.

Mary Coutant Memorial Prize—The family of Mary Coutant established this annual prize to recognize an outstanding student within the Department of Art. All sophomore art majors, enrolled 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.

Walter Enz Memorial Award—The family of Walter F. Enz established this annual grant to honor the outstanding student in the art department. The award is given to a student selected each year by a committee of art faculty, including Professor Donald E. King, and one member of the Enz family.

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

Angie Gayman Carmer Art Scholarship—The Department of Art annually offers several $1,400 scholarships to outstanding art students. Applicants must be full-time undergraduate students, with a minimum GPA in the ars of 3.5 for undergraduates or 3.6 for graduate students and be in financial need. A completed application and one-page typed, single spaced, statement of the student's creative and educational intentions, and a portfolio of work is due in the Art 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.

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

WMU Department of Art Foundation Awards—The Department of Art annually offers several scholarships to full-time art majors who are or have been enrolled in a foundation course (Art 101, 102, or 103) in the current academic year. Application and information for these awards can be obtained in the Art Advising Office. Awards are announced at the annual winter awards ceremony.

ArtStar Awards—The Department of Art offers yearly grants-in-aid to junior and senior art majors. Based on faculty recommendations, grants are awarded from the annual winter awards ceremony. Recipients are selected on the recommendation of the Art Teaching faculty and must be a currently enrolled, full-time 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.

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 dance participation at Western Michigan University. Scholarship opportunities are granted to dance majors who have exhibited exceptional choreographic ability and musicality for proposed collaborative projects with musicians. Recipients of these awards are selected on the recommendation of the Dance Teaching faculty and must be currently enrolled, full-time, junior or senior art teaching majors, with a minimum overall GPA of 3.5. This scholarship is awarded biennially in February and is effective for the upcoming fall semester.

Funds for these programs are made available through donations by alumni and friends of the University.
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 artistry 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 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 talent 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 (the maximum number of awards awarded to any one student is four). These awards are available to all majors in Western Michigan University’s School of Music. Funds are contributed by family and friends.

Music Scholarships are made available through donations to the Kalamazoo Symphony Orchestra in cooperation with the School of Music at WMU. These awards are available to violin, viola, cello, and bass students who are full-time music majors.

The Gene Whitfield 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 Whitfield, a prominent and respected Kalamazoo jazz artist.

The Gene Whitfield Scholarship recognizes a music student who demonstrates outstanding achievement 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 1956.

Sigma Alpha Iota and Phi Mu Alpha Sinfonia are professional music fraternities based on financial need and academic achievement. Funds come from an endowment established by Nancy Ellis who was a WMU music student. Funds have been contributed by family and friends.

The Russell Bateman Voice 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 1973.

Questions may be directed to: 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 outstanding scholarship (applicants must have an overall grade point average of 3.0), talent, and contribution to the University theatre program.

The Beulah and Harold McKee Theatre Award—This annual award is given to a freshman entering the theatre program who demonstrates outstanding achievement and potential in the theatre arts. Requirements include a 3.0 high school grade point average and active participation in school and/or community theatre.

The University Theatre Guild 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 professional attitude. A 3.0 grade point average and a minimum course load of twelve semester hours at the time of application and during the year 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.

College of Health and Human Services
College of Health and Human Services Scholarship Program—College awards in varying amounts are made on a departmental rotational basis 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. Awards are given during winter semester. Apply directly to the school, department, or program office in the major field of study.

Jeffrey and Barbara Vortman Scholarship Award—This scholarship is awarded annually in the amount of $5,000 to an undergraduate or graduate student with a demonstrated commitment to pursuing a career in the health and human services fields. Selection of the successful recipient is determined by the College Scholarship Committee, which also considers academic excellence, financial need, and record of community service.

Hazel and Theodore Berg 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 available to students who demonstrate financial need and academic merit.
merit, are determined by a special scholarship committee comprised of representatives of both the School and the University.

Gerontology
The Leonard and Frances Gerhart Scholarship—This scholarship, established to honor former Dean of Academic Services Leonard Gerhart, recognizes undergraduates of high academic achievement who are pursuing a minor in the gerontology program. Apply to the School of Community Health Services, Gerontology Program.

Occupational Therapy
All awards are made in April/May. Application forms are available in the department in late February.

Kalamaazoo AMBUCS (American Business Clubs)—A varying number of scholarships are awarded each year. Awards are based upon need and leadership potential. Portage AMBUCS (American Business Clubs)—Scholarships are awarded annually. Awards are based upon need and leadership potential.

Michigan Occupational Therapy Association—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.

Southwestern Occupational Therapy Association—This award recognizes worthy 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.

The Marion R. Spear Award—This award was established in honor of the founder of the Kalamaazoo School of Occupational Therapy and first director of the occupational therapy curriculum at WMU. It is awarded annually to a senior or graduate student who demonstrates promise of being a superior occupational therapist.

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 to honor the first director of the Physician Assistant Program. Cash 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 scholarship committee of 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.” Winners are selected by a panel of judges. There are usually two finalist awards of up to $200 each. Apply to the School of Social Work.

The Bob Barstow 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 and one senior status undergraduate social work student. Selection criteria include academic merit and interest in the area of child welfare. Potential recipients are identified by the School of Social Work personnel.

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 practicum 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.

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

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.

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

Nankai University Exchange Scholarship—This scholarship enables one WMU student to study Chinese language at Nankai University in Tianjin, People’s Republic of China, for an academic year beginning in August. Tuition and housing are included.

University of Paderborn Exchange Scholarships—These scholarships enable two or more WMU students to study at the University of Paderborn in the city of Paderborn, 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.

John Josten’s Award—The President of WMU has established an annual award of $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 is 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 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 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 state of Michigan funding, a limited number of partial scholarships, worth a maximum of $7,500 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 overseas programs such as the Oxford Seminar and field courses.
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 the 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 Curricula for Teachers. Some students may be excused from the requirement of declaring a regular major and/or minor field if they satisfy the requirements of their curriculum as set forth in the catalog, or that curriculum as modified by substitutions approved through normal channels.
3. Each student must complete 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 2.0 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 usage 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.
9. Persons thirty years of age or older at the time of graduation are not bound by the requirements of this policy. Veterans of military service (minimum of one year continuous active duty) shall, upon request, be granted two hours of general physical education credit. All other students who wish to participate in physical activity may receive counseling for courses suited to his/her limitation through the Medical Records Review Panel.
10. A maximum of eight hours of general physical education may be counted toward graduation.

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.
11. A maximum of fifteen semester hours of credit in correspondence (self-instructional) courses may be applied to degree requirements. Individual colleges and departments may have additional residency requirements.
12. Students transferring from a two-year community 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).
13. A student may graduate under the WMU catalog in effect at the time of the initial registration at WMU or any succeeding catalog, except that no student may graduate under the requirements of a catalog which is more than ten years old. (For exception see "Special Policy..." under "Graduate Requirements for a Bachelor of Science in Engineering" in the College of Engineering and Applied Sciences.)
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. New students entering WMU under the 1983-84 and subsequent catalogs will participate in the program.

The first phase of the program occurs upon entry to the University, typically at Orientation, when student competencies are assessed via ACT scores and/or local 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
REL 107

In addition to the writing requirement above, each student must also demonstrate upper-level 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 meet this requirement after attaining junior standing. Existing guidelines regarding repeating a course will apply. Credit for course work only from four-year institutions will fulfill this requirement. Implementation begins for students entering under the 1988 Undergraduate Catalog Supplement except for students gaining a second baccalaureate degree.

READING

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

**QUANTIFICATION**
On the basis of scores on a test of computational skills, certain students are required to pass MATH 109. Students who wish to proceed to other mathematics courses must earn a C or better in MATH 109. ENGL 100, BIS 100, ED 104, and MATH 109 carry academic credit and grades earned are included in calculating the student's grade point average. The credits for these courses, however, constitute an additional graduation requirement beyond the total number of credit hours required for a student's curriculum. Students who are placed into any of these courses must pass the course(s) before registering for their thirty-third credit hour at Western. 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 courses.

Students may resume regular course enrollment only after all entry-level competencies are demonstrated. A college-level writing course must be completed before a student registers for the sixty-second credit hour at Western and before the baccalaureate-level course is attempted.

### Intellectual Skills 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 MTEL (Michigan Test of English Language Proficiency) or the TOEFL (Test of English as a Foreign Language). Scores of 75-84 on the MTEL or 500-549 on the TOEFL warrant placement into Linguistics 111. 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 transfer a mathematics course at the level of MATH 110 or higher are considered to have entry-level computation skills and need not take the computational skills assessment test upon entry. Further coursework in mathematics is not required at this time to fulfill Intellectual Skills Development Program requirements. All other transfer students will place into or be exempted from MATH 109 according to assessment results.

#### READING
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 supplemental or subsequent catalogs will also meet the baccalaureate-level writing requirement as designated by their major department or program.

#### Computer Usage Requirement
Every undergraduate must demonstrate minimal competency in computer usage through one of the following options:
1. Satisfactory performance on a proficiency test;
2. Satisfactory completion of an approved computer usage course; or
3. Meeting proficiency standards set by the college of the student's major.

Entering students should contact their college advising office 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 Liberal Education Assessment as soon as possible, courses eligible with 88 total hours and in the Majors Assessment during their last term on campus. Schedules of test administration and reservations for the Liberal Education Assessment are available from the Office of University Assessment, while departments coordinate the administration of Majors Assessment.

### General Education Requirements
Western Michigan University requires a minimum of thirty-five semester hours of General Education coursework 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.

### The Distribution Program
This program includes courses offered for General Education by departments throughout the University. These courses offer a variety of approaches to the study of 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 italic 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 coursework 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 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
- COM 170
- DANC 148
- ENGL 107, 110, 111, 112, 150, 210, 223, 252, 282, 307, 311, 312, 315
- GHUM 105, 315, 316.
- HIST 145, 300, 301, 302
- LANG 252, 375, 450
- PLEN 105, 101
- GER 100, 101
- GREK 100, 101
- JPNS 100, 101
- LAT 100, 312
- RUS 100, 101, 310
- SPAN 100, 101
- LING 100, 101, 105
- MEDV 145
- MUS 148, 150, 151, 350, 450
- PHIL 200, 201, 220, 301, 303, 307, 310, 311, 312, 314, 324, 332, 333, 334, 336
- REL 100, 200, 305, 306, 313
- THEA 100, 148
- WMS 400

#### Area II

**Social and Behavioral Sciences**

- ANTH 100, 110, 210, 240
- BAS 200, 300, 301
- ECON 100, 201, 202
- GSSC 121, 123, 301, 325, 356, 425
- GEOG 102, 244, 311, 380, 383
- HIST 100, 101, 102, 103, 110, 204, 210, 211, 306, 308, 314, 315, 366
- MGMT 404
- PSCI 100, 200, 250, 300, 340, 344, 350
- PSY 100, 150
- REL 308, 332, 333
- SOC 100, 171, 190, 200
- WMS 200, 410

#### Area III

**Natural Sciences and Mathematics**

- ANTH 290
- BIOL 250
- CHEM 101, 102, 103, 107
- GEOG 100, 105, 204, 306, 350
- GEOL 100, 130, 300
- GSCI 130, 131, 132, 133, 134, 423, 432, 434
- MATH 116, 122, 190, 200, 366
- PHYS 102, 104, 107, 113, 205, 207

#### Area IV

**Non-Western World**

- ANTH 120, 220, 332
- ENGL 313, 314
- GENL 304, 305
- GEOG 381, 382, 386, 389
- HIST 370, 376, 385, 388
- MUS 352
- PSCI 332, 342, 343
- REL 302, 303, 307, 308
- SOC 335, 336

#### Area V

**Optional Electives**

A-S 300
BIS 142
CRT 160
CS 105
ENGL 105, 305
ENV 110
GEOL 332
GENL 195
IE 102
MLSC 150
PEFR 100
SWRK 100
SPPA 200
THEA 105

**General Education Requirement for Transfer Students**

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

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-doctrinal)
   - Theatre (introduction or history)
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 with their 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 "group" major totaling a minimum of thirty hours and "group" minors totaling a minimum of twenty hours are permitted.

4. Under certain conditions General Education courses may be counted toward major and minor requirements. (See departmental requirements.)

5. The following courses are not to be counted as satisfying major and minor requirements:
   a. Required professional courses in education.
   b. Required courses in general physical education.
   c. A combination of foreign language courses, or of English or American Literature courses, with a foreign language, is not permissible.
   d. Mathematics courses may not be counted towards a science (physics, geography, chemistry, or biology) major or minor sequence, but may be required to satisfy curricula requirements.
   e. Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor.
   f. Only approved majors and minors listed in the catalog can be placed on a student record.

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 FRESHMEN STUDENTS

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

Students who have been admitted for winter, spring, or summer, must make individual appointments for advising prior to registering. Appointment should be with curriculum advisors.

ACADEMIC ADVISING FOR TRANSFER STUDENTS

Newly admitted transfer students will be invited 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
2305 Sangren Hall, 387-3674

College of Engineering and Applied Sciences
2036 Kohman Hall, 387-4033

College of Fine Arts
2146 Talbert Center, 387-5840

College of Health and Human Services,
B-124 Henry Hall, 387-2660

General University Studies Curriculum
B-103 Ellsworth Hall, 387-4167

Lee Honors College,
Main Office, Lee Honors College Building,
387-3230

University Curriculum
203 Moore Hall, 387-4410
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 are cautioned that the tuition fee 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 course through the first three days of classes of a semester or session. The final date for adding 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.

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 class officially after the first Friday past midpoint of the semester because of genuine hardship (i.e., 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.

Examinations
1. All students enrolled in a course in which a final examination is given must take the examination.
2. Student requests for an examination at any other time than that scheduled will not be honored.

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.

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.

Scholarship Waiver
Undergraduate students interested in taking advantage of a Scholarship Waiver must report to the Financial Aid Office, 1060 Seibert Administration Building to pick up the authorization form.

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

Academic Regulations

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

APPROVAL PROCESS
The faculty member must accept and approve the student and the project, and then submit the agreed-upon proposal on the appropriate University form to the department chairperson for approval. If the chairperson approves, information copies of the form must be submitted to the dean and the Registrar. The Registrar will not accept registrations without this information and authorization.
The granting of approval by the department chairperson may involve considerations, such as faculty workload, which go beyond the merits of the project.

FACULTY RESPONSIBILITY

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

A student is on his/her own in Independent Study in that it involves no class meetings or formal lectures, but the faculty member is the responsible custodian of the project, obliged to provide guidance, assistance, criticism, suggestion, and evaluation.

Interinstitutional Study

Western Michigan University students may take classes at Davenport College, Kalamazoo College, Kalamazoo Valley Community College, and Nazareth College through a cooperative program. Information and enrollment forms may be obtained from the Director of Records, Room 3210, Seibert Administration Building.

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 Significance</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Outstanding, Exceptional, Extraordinary</td>
<td>4.0</td>
</tr>
<tr>
<td>BA: Very Good, High Pass</td>
<td>3.5</td>
</tr>
<tr>
<td>CB: Satisfactory, Acceptable, Adequate</td>
<td>3.0</td>
</tr>
<tr>
<td>DC: Poor</td>
<td>2.5</td>
</tr>
<tr>
<td>E: Failing</td>
<td>2.0</td>
</tr>
<tr>
<td>X: Failure (Unofficial Withdrawal)</td>
<td>1.5</td>
</tr>
<tr>
<td>W: Official Withdrawal</td>
<td>1.0</td>
</tr>
<tr>
<td>I: Incomplete</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Credit/No Credit System

The regulations of a system supplementing the A.B.C.D. and 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 "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 a major or specified in his/her curriculum as defined in the University Undergraduate Catalog.

Repeated Courses

Any course in which a student may have been enrolled more than once is considered a repeated course. A grade must be presented for each course.

Only the most recent grade for a repeated course is used in calculating a student's grade point average beginning Fall 1989.

Grades earned in courses taken on a Credit/No Credit basis may be used to determine the student's overall grade point average (GPA) of the individual student.

Grade Changes

A student who believes that an error has been made in the assignment of a grade must initiate contact with the faculty member involved within ninety days of the end of the semester for which the grade was assigned. Failure to act within the ninety day period will disqualify the student from further consideration of the matter.

Honor Points

The number of honor points earned in a course is the number of semester hour credits given by the course, multiplied by the 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 = 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 3/16 or 2.0 for the semester.

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.
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. Receipts 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.
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 (in the case of Physics) on any APP exam will receive college credit in the appropriate subject. Students should have College Grade Reports of their test scores sent to the Office of Admissions and Orientation at Western Michigan University (college code 1902).

After APP College Grade Reports of examination scores are received and evaluated, the Office of Admissions and Orientation will notify students of the specific decisions regarding any credit award. After students' enrollment at Western, the Office of the Registrar will post course credit to students' transcripts. For more information on APP score requirements and equivalent credit awarded at Western, write to the Office of Admissions and Orientation.

College Level Examination Program (CLEP)
This program gives individuals the chance to earn college credit by examination in a variety of academic areas. There are two types of tests offered—General Examinations and Subject Examinations. Western Michigan University's credit award policies for each type are noted below. Official score reports of CLEP testing should be sent to Western (college code 1902) by the Educational Testing Service (ETS).

General Examinations
1. The general CLEP examination is available only to nontraditional students at WMU.
2. A nontraditional student is defined as a person who has spent a minimum of four years in non-school occupations since attending an educational institution. A full-time enrollment (minimum of twelve semester hours) basis.
3. Nontraditional students may take the general CLEP examinations only before completing fifteen hours after entering or re-entering WMU.
4. The following eligibility rules apply to nontraditional students who wish to take the general CLEP examinations:
   - Students who have already received credit for a college writing class cannot receive credit by passing the English examination.
   - Students who have already received credit in a college mathematics course cannot receive credit by passing the mathematics examination.
   - Students who have received college credit for two courses in any of three areas, the humanities, social sciences, or natural sciences (excluding mathematics courses), from the Distribution Program of General Education, or comparable transferred courses, cannot receive credit for the respective examinations.

5. The following guidelines shall apply in the earning of CLEP credit:
   - If a student passes the humanities examination with a score of 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 sciences-histories-examination with a score of 550 or above, six 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, four hours of credit will be awarded in Area V (optional electives) 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, and three will apply to Area V.

Subject Examinations
CLEP Subject Examinations test specific knowledge areas; and, unlike the General Examinations, any Western student may take them and receive credit with appropriate scores. The University awards credit to students based on 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 that department through comprehensive examinations. All comprehensive examinations should be administered by authorized personnel determined by the department. Each department shall determine those courses for which the comprehensive examination procedure applies.

All credit by examination is subject to the following requirements:
1. All credit will be posted as credit only, without grade or honor points. Students who do not achieve a sufficient score for credit will have no entry made.
2. Credit by comprehensive examination in courses numbered 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.
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. Each student is personally liable for all obligations incurred by use of this card. Protect it.

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.

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.
SERVICES FOR STUDENTS

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. Telephone: 387-4442

WRITING LAB
The Writing Lab offers individual tutoring to show undergraduates how to revise, then edit papers for class. Supplementary exercises as appropriate are available to help students become confident, effective writers.

SUPPLEMENTAL INSTRUCTION
Supplemental Instruction (SI) offers assistance in selected introductory courses. Qualified students conduct review sessions that focus on course content as well as effective strategies for learning the course material.

SPECIAL SERVICES
The Special Services Program (SSP) is a federally funded TRIO project that seeks to assist physically handicapped, learning disabled, low-income and first-generation college students in ways that contribute to graduation from the university. It provides academic support and offers guidance toward achieving a balance among academic, social, financial and career concerns.

STUDY SKILLS WORKSHOP
The Study Skills Workshop helps students learn how to maximize their time, modify inefficient study habits and improve test-taking skills. Participants examine and develop particular strategies for time management, note-taking and test-taking.

CRITICAL READING WORKSHOP
The Critical Reading Workshop emphasizes strategies for reading and studying textbooks and building word meanings using context clues. Students learn how to improve reading rate and use software to increase their knowledge of prefixes, suffixes and roots.

MATH WORKSHOP
The Math Workshop reviews basic concepts covered on the Mathematical Skills test. Students identify weak areas and then receive guided instruction and practice to develop competency.

Adult Learning Services
The Office of Adult Learning Services provides pre-admissions counseling and 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 distributes the schedule of evening classes. The office is specifically responsible for the academic advising of General University Studies-Health Studies students and for the maintenance of their records. It also offers counseling to nontraditional students seeking to attend Western for the first time on a re-entry basis. Telephone 387-4167 for further information.

Career Education
All students are urged to make use of the career education facilities of the University for assistance in deciding upon a major and minor, planning for realistic entry-level jobs, and visualizing a career path for the future. Career counseling and advising are available in the offices of Testing and Evaluation Services, the University Counseling Center, Career Planning and Placement, the Women's Center, and curriculum and departmental advisors. Two courses directly related to career education are offered. They are: A-S 100, Career Exploration and Development, and COM 373, Communication Skills and Career Planning. The Office of Career Planning and Placement offers seminars and workshops to assist students in their transition from college to the world of work.
A suggested schedule of career education activities follows:

FRESHMEN AND SOPHOMORES
This is the time for assessment and exploration.
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, provides you with practical experience and helps you become more self-confident.
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.
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 a career which interests you.
4. Start getting familiar with the office of Career Planning and Placement. Talk to the placement counselors, find out how they can help you negotiate 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, D-4 West Hillside 387-3905

University Counseling Center, 2510 Faunce Student Services Building 387-1850

Career Planning and Placement Services
B Wing Ellsworth Hall 387-2745

Student Employment Referral Service, A Wing Ellsworth Hall 387-2725

Women's Center, A-328 Ellsworth Hall 387-2990

College Advising Offices

Departmental Advising Offices

Career Planning and Placement Services

Assistance in total job search planning is offered free of charge by the Career Planning and Placement Services to students and alumni 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 current literature on both career search correspondence such as resumes and letters of application, interviewing videotapes, career workshops and seminars, annual career fairs and referral to other campus departments providing career planning services.

The office is staffed with professionally licensed counselors and 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 careers early. 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 at some time will 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 conflicts, and to 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 for students in the Student Planned Curriculum.

Career development programs to provide students with the resources, skills, and experiences necessary for reasonable 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 selection of printed materials with an emphasis on self-understanding, career exploration and preparation, occupational information, and job trends. Included is a section of college and university catalogs, educational guides, and computer-aided guidance and information pertinent to career awareness.

Training and Internship Programs for graduate students and interns from the Department of Counselor Education and Counseling Psychology, School of Social Work, and Department of Psychology are available. Included in the training experience are demonstrations, case studies, and supervision.

The Counseling Center is thoroughly committed to the protection of 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 on Confidentiality may be obtained at the center's reception desk.

Appointments may be made 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.

Housing

Western Michigan University students may live on or off campus. Two alternatives exist on-campus, Residence Halls and WMU Apartments, both deliver tremendous value to their residents. The success rate in meeting the diverse needs of their residents is very high and improvements are constantly being made. For these reasons, students should carefully consider the benefits of on-campus housing when choosing where to live. The listed rental fees are complete. They include all utilities, cable TV, and in most cases, many 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 be submitted prior to admission to the University. The application date is no longer a guarantee of an 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 all majors in various fields, including business, education, engineering, social sciences, and humanities.

Most halls offer a variety of services and opportunities for students to live in a community with similar interests and values. Students are encouraged to live with other students who share common values and interests. This is especially important for students who are interested in health and wellness, extended quiet hours, or international culture.

Depending on the hall, residents may be single or have a roommate. On-campus housing is available for the semester or session they expect to be enrolled.

Many students choose to live off campus because of the variety of housing options available. Most students find Davis and Zimmerman of special interest. Students must be at least twenty-one years of age to live off campus.

Housing Options

There are a variety of options available to students who wish to live off campus. These options include apartment living, cooperative living, studio, rooming house, and off-campus apartments. Off-campus apartments may be located in the city or in the suburbs. Students may choose to live in a single, couple, or family home or in an apartment complex.

The University offers a wide range of housing options, including traditional dormitories, suites, and apartments. Students have the option to choose between two- or three-bedroom apartments, with a variety of layouts and amenities available. The University also provides a number of special housing options, such asdisabled student housing, military housing, and religious housing.

Students interested in living off campus should contact the Housing Office to discuss their housing needs and preferences. The Housing Office can provide information on available housing options and assist students in making the decision that is best for them. Students should also consider other factors, such as location, proximity to campus, and cost, when choosing a housing option.

The University also provides a number of support services for students who live off campus, including a housing related services coordinator, a housing director, and a housing assistant director. These staff members are available to assist students with any questions or concerns they may have about their housing arrangements.
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. Western’s Dining Service is especially unique because the University Assistant Residents 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 Sunday. 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 residence 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 acquainted with the total 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 inexpensive 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. 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 enjoy care with a nearby family. School buses come through the complex to take children to and from the area public schools.

For further information contact the WMU Apartment Office, Faunce Student Services Building, Western Michigan University, Kalamazoo, MI 49008-5079. Telephone: 800-545-6006 or 616-387-2175 or fax 616-387-6898.

OFF-CAMPUS HOUSING

Approximately 75 percent of Western’s students live on 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 roommates are maintained and printed for distribution. Listings of students 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 toward off-campus living as an opportunity to pursue individual lifestyles, their experiences are often plagued by strained roommate relations and rental 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 tenant/landlord 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 organizations for their members. Two 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 interchange. Over the years, thousands of students from other nations have entered the University to pursue their educational objectives. Conversely, many U.S. students have sought to broaden their educational background by undertaking a period of study and/or travel in a foreign country. This educational interchange has given the University an international atmosphere that has fostered both formal and informal cross-cultural contacts and the development of positive interpersonal relationships between students as well as in the community. The Office of International Student Services was established to assist international students involved with this interchange.

OFFICE OF INTERNATIONAL STUDENT SERVICES

The Office of International Services handles the special needs of international students by processing applications for admission, conducting an orientation program for new foreign students, assisting with housing arrangements, coordinating community programs involving international students, providing immigration advising, serving as a liaison between students and the community, offering personal and social counseling. While at the University, international students are encouraged to participate in academic and social activities as their interests and time allow.

International students interested in seeking admission to Western 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, financially, and linguistically 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) is issued by the University, a prospective student must present a TOEFL “total score” of at least 550 or MELAB “adjusted score” of at least 85.

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 applied 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 Institute 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 classroom instruction per week. Resident aliens and F-2 students may attend CELCIS part-time. Classes at various levels include: Speaking and Listening Comprehension

Academic Reading and Vocabulary Building

Academic Writing

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 1968. Named in honor of the late Dr. King, this particular program has the distinction of being the forerunner of similar programs in colleges and universities throughout the United States.

Initially, the program was designed to encourage “marginal” minority students to pursue a post-secondary education through a grant from the Kellogg Foundation, the program was able to provide scholarships as well as remedial help to its participants. “Project 73,” the original name of the program, began in the fall of 1968 with sixty WMU freshmen coming from high
schools throughout Southwestern Michigan. It now is a year-round program, beginning in the summer of the student's freshman year. The primary purpose of the MLK Program is:

1. To encourage students who would not otherwise pursue a higher education to do so.
2. To provide supportive services—such as academic, vocational, counseling, tutoring, and testing—to meet each individual student's needs.
3. To support students throughout their career at Western Michigan University.

Application is made through the Office of Admissions and Orientation. The standard WMU application is used. Students interested in the program should note this on the application or include a letter to that effect. There is a $15.00 fee for application to Western. (The fee can be waived per request by a high school counselor, caseworker, or minister—someone who is familiar with student's family circumstances.) After the application is received and processed, it is referred to the MLK Program office. The program then contacts the student. Before a student is admitted, he/she must:

1. Have returned a signed contract.
2. Have completed and mailed all financial aid forms (Fell Grant, etc.) if applying for a grant/loan prior to an on-campus interview.
3. Complete a personal on-campus orientation with a MLK staff person.

Participants begin their freshman year during the WMU 7½-week summer session. Each student is assigned a counselor. This peer counselor is a graduate or upperclass student who functions as friend, student evaluator, 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 student.

The transition from high school to the University community is often a difficult one. By beginning during the summer, the student is allowed time to make some adjustments before the hectic pace of the fall semester begins. During the summer session, students considered full-time at WMU must take a minimum of six credit hours. Freshmen are advised to take no more than eight hours maximum. A minimum of twelve hours is required during the fall and winter semesters.

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. Students who are 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 on 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 a variety of services from other areas to which they have been referred. Provides feedback to these areas on students perceptions.
4. Serves as 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 effect a resolution.
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 3610 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 communication are just some of the other on-going programs 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 respond to the beliefs of others is an important part of the educational process. The University endorses no specific denominations on or near campus. Specific information regarding the religious groups 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 or near campus. Although there is a nominal charge of $15.00 per week, the program is not a for-profit operation and the fees cover only the cost of maintaining the facility. Children 2½ to 5 years old and toilet trained may be enrolled full or part-time (2 to 1½ hours each day). The program and environment are designed to maximize student learning and provide opportunities for positive social interaction.

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, Nazareth 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 physicians, physician assistants, nurses, laboratory personnel, and pharmacists work as a team to assist you with your health care needs.

HEALTH HISTORY QUESTIONNAIRE

Upon admission to the University, each student is asked to complete a Health History Questionnaire that is filed at the Sindecuse Health Center for reference when medical care is sought or required. This questionnaire is sent to each student by the Admissions Office, along with notification of acceptance into an academic program. Completing this questionnaire and returning it to the Sindecuse Health Center is an important part of your admissions process. All health information and records within the

SERVICES FOR STUDENTS

religious programs, and materials and resources for religious activities. Campus ministers are not employees of Western Michigan University, but serve as a resource for students as representatives of their various churches.

The Office of Religious Activities, which is a part of University Student Affairs, serves as a clearinghouse for campus religious programs and is responsible for the 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 regular weekday and 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 on or near campus is available in the Office of Religious Activities. Telephone: 387-2501.
Health Center remain strictly confidential. Student signature is required for release of information to anyone.

**MEDICAL SERVICES**
The Health Center provides evaluation and treatment for a variety of illnesses and injuries, as well as preventive health checkups. Medical specialties include family practice, internal medicine, gynecology, dermatology, and orthopedics. In addition, Health Center physicians and physician assistants can refer you to other medical specialists in the Kalamazoo area whenever this is necessary.

**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, or you may bill your student account. 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, interpreted by a cardiologist, are also available.

**X-RAY SERVICES**
The radiology department performs all general diagnostic x-rays to determine bone or tissue injury. All x-rays are developed for immediate evaluation by Sindecuse Health Center clinicians and are further interpreted by a radiologist.

**ALLERGY INJECTIONS**
If you receive allergy injections, you provide the Health Center with your antigen and an injection schedule from your allergist. All injections can be administered at the Health Center while you’re attending school.

**IMMUNIZATIONS**
Several serious diseases, including measles, mumps, German measles, tetanus, and diphtheria, 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.

**TUBERCULOSIS TESTING**
Routine tuberculosis testing, required for some classes and jobs, is also available.

**SPORTS MEDICINE CLINIC**
The Sports Medicine Clinic provides comprehensive diagnosis and treatment of injuries as well as any physical therapy services you may need. The clinic is staffed by orthopedic surgeons, a physical therapist, two certified athletic trainers, and a podiatrist consultant. All Sports Medicine Clinic services are covered by your Student Health Fee, with the exception of orthopedic evaluations and orthopedic appliances.

**URGENT CARE**
The Health Center’s urgent care clinic is designed for sudden injuries or for problems that need immediate attention. No appointment is necessary.

**APPOINTMENT INFORMATION**
You are encouraged to choose a physician or physician assistant with whom you feel comfortable and to request this clinician by appointment whenever you need health care. Appointments can be scheduled from 8:00 a.m. to 4:30 p.m. Monday through Friday by calling 387-3289.

If you have an appointment, you’ll go directly to the designated office or clinic without waiting. You should arrive ten minutes early for your appointment and plan on your visit lasting at least an hour. If you have prescription drug coverage through outside insurance, you’ll need to take the first identification card and information with you.

If you cannot keep your appointment, let the Sindecuse Health Center know so that your time may be used to help another student.

**SINDECUSE HEALTH CENTER HOURS**
Appointments: 8:00 a.m. to 4:30 p.m. Monday through Friday.
Urgent Care Clinic: 8 a.m. to 5 p.m. Monday through Friday and 9 a.m. to 11:30 a.m. Saturday (Closed Saturdays during summer session).

**PARKING**
While visiting the Sindecuse Health Center, parking is available in student Lot No. 40, close to the front entrance. You may park in one of the designated Health Center parking spaces and get a one-hour permit when you check in. If the Center’s spaces are full, you may park in any student space. Parking tickets received during Health Center visits may be voided at the Public Safety Annex when presented with your Health Center receipt.

**STUDENT HEALTH FEE BENEFIT PLAN**
All Western Michigan University students enrolled for seven or more credit hours a semester (four or more per session) are assessed a Student Health Fee which entitles them to use all Health Center services including those offered in the Sports Medicine Clinic. All the above services are rendered at no charge, with the exception of a clinician visit, pharmaceuticals; dermatology, orthopedic and psychiatric consultations, and major physical therapy appliances, all of which are charged at minimal fees. Part-time students may elect to pay the same fee and be eligible for the same service as defined above.

Students attending area colleges may also "buy-in" to the Student Health Fee plan as may spouses of currently enrolled students, non-enrolled students with current admission status and their spouses, and recently graduated students (one semester or two sessions immediately following graduation). All fee schedules are available at the Sindecuse Health Center.

The Student Health Fee benefit plan applies only to services rendered at the Health Center and will complement your hospital and medical insurance. Many students have health insurance that protects them from the costs of hospitalization. As a "member" of the Health Center’s prepaid fee program, you can face the majority of costs you face outside the hospital which are not covered by many insurance programs. Any student who has paid the fee is eligible for all Health Center services. Eligibility applies from the first day of the applicable semester for which the fee has been paid, to the first day of the next semester or session.

**UNCOVERED COSTS**
Visits to medical specialists outside the Sindecuse Health Center, or to hospital emergency rooms or immediate care centers, and transportation to and from the Health Center 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 that are not covered by the Student Health Fee or your insurance may be paid in cash, by check, or by MasterCard or Visa credit cards. However, we request that all fees under $1 be paid in cash. You may also charge your health care costs against your student account, but this must be paid in full prior to registering for the following semester or session. 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 medical and accident insurance that covers medical, surgical, and hospitalization expenses not covered by the Student Health Fee. Some insurance companies will offer coverage for expenses only when you’re hospitalized. Other companies pay for diagnostic procedures performed by specialists outside the Sindecuse Health Center, as well as hospitalization. It’s important to verify the services included in any insurance policy you purchase. If you are covered by your parent’s insurance, you should know the name and address of their company and all policy numbers as they appear on the insurance identification card. Be sure to carry this information with you at all times.

If you are not presently covered by a major medical insurance program, consider the student plan for hospitalization insurance 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 for the semester/session they are enrolled unless coverage is provided by their sponsor. Students requiring insurance will be enrolled in the University-sponsored policy with premiums assessed on their student account. Should students have questions regarding the premium, they must see the Insurance Coordinator at the Sindecuse Health Center the first two weeks of the semester/session. No changes will be made after that time.

Brochures detailing insurance coverage are available at the Health Center. The Insurance Coordinator is available to assist students between 8:00 a.m. and 11:00 a.m. Monday thru Friday, or can be reached at 387-3266.

**STUDENT HEALTH ADVISORY COMMITTEE**
The Student Health Advisory Committee gives you the chance to actively help plan ways 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. Seven undergraduate and two graduate students (selected by committee interview), and five faculty and staff members serve on the committee.
transmitted infections. This program covers sexual health concerns for men and women, prevention of common sexually transmitted infections, and effective methods of contraceptive protection.

- **CPR-Know it, Use it, Save a Life** — Statistically, each of us will be involved in a medical emergency twice in our lives, either as a victim or as a concerned bystander. Become certified in a skill that can save a life. Certification provided through the American Heart Association.

- **Cholesterol Level Monitoring** — It is currently believed that twenty-five percent of all Americans age 20-74 have high serum cholesterol levels that place them at risk for coronary heart disease. Because heart disease begins to develop as early as age ten, all students should know their cholesterol level, especially if high cholesterol is present in a family member. Free cholesterol screening is scheduled by appointment.

- **Take Care of Your Back** — Four out of five Americans seek medical treatment for back care at some time in their lives, yet over eighty percent of all back pain results from lack of exercise, stress and tension. This six week exercise program is designed to help you take care of your back. The program emphasis is placed on a specific battery of progressive strength and flexibility exercises for the prevention or reduction of back pain. Relaxation techniques are also included.

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 physical well being, level of self-esteem, and ultimately your sense of personal satisfaction.

**Speech, Language, and Hearing Services**

The Van Riper Language, Speech, and Audiology 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. For WMU students and staff, the usual fee for supplies also 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 250 student organizations/agencies.

- **Healthy Sexual Choices** — Young adults in a University setting are statistically at high risk for unintended pregnancy and sexually transmitted infections.

Student Life, located in the Faunce Student Services Building.

Research shows that students who participate in extra and co-curricular activities have valuable work-related skills and that employers tend to hire those students who have benefitted from the total university experience.

By assisting with the development of life skills and offering the opportunities to participate in campus and community activities, the Office of Student Life helps students make those vital "connections" in society.

Student organizations/agencies are divided into the following interest areas:

- **Business**
- **Greek (social/service)**
- **Honorary**
- **International**
- **Minority**
- **Professional**
- **Religious**
- **Special Interest**
- **Sports**
- **Student Agencies**
- **Support Groups**
- **Student Government (Western Student Association)**

**Student Directory**

The WMU Faculty/Staff/Student Telephone Directory is published annually by the University. It is distributed during early November, without charge, to all students in residence halls, family housing units, and available at the Information Center in the Seibert Administration Building.

Individual listings in the WMU Student Directory contain the following information:

1. Name
2. Curriculum, class
3. Local address and telephone number
4. Home address

Students wishing to exclude any or all of the above information from the WMU Student Directory must fill out a Directory Exclusion Form in Room 3210, Seibert Administration Building, during the first three days of classes fall semester. During winter, spring, and summer terms, students may restrict this information to academic use by filling out the Directory Exclusion Form during the first three days of classes.

**Student Employment Referral Services (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 Ellsworth Hall. Telephone: 387-2725.
Student Volunteer Services

Providing community service opportunities outside the traditional classroom setting—opportunities to make a difference in our local community and on our own campus—is the purpose of Student Volunteer Services (SVS). Individual and community empowerment is the measure of success for students involved in these volunteer endeavors.

Through SVS, students have access to volunteer opportunities in over 150 community and campus organizations. The SVS staff is available to help you decide where your interests and skills can be matched with community needs. Volunteer placements and one-day projects are available in a variety of areas including youth, health care, minority issues, senior citizens, criminal justice/law, education/literacy, hunger/homelessness, environment, and many others. These opportunities typically require a two to four hour weekly time commitment.

SVS organizes the annual Volunteer Opportunities Fair; community service events and workshops are offered throughout the academic year. From the Lee Honors College; telephone 387-3230.

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. Testing and Evaluation Services is located at West Hillside Apartments. Telephone: 387-3905.

University Ombudsman

The University Ombudsman is an intervention agent and impartial person who helps students, faculty and staff resolve academic and non-academic concerns. The Ombudsman: listens to you and discusses your question or concern; provides you with information that answers your question or helps you locate someone who can assist you; explains the University's policies and procedures and how they may affect you; follows up with you and others at the University to make sure your concern is resolved; and recommends changes in the institution that will make it more responsive to every member of the community. The basic principles of the University Ombudsman are independence, impartiality, 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. Of the number of 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 is maintained 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 Director of Records in order to receive the appropriate counseling before being certified again to the Veterans Administration. Students may be requested to change curricula, to take specific courses, or to take other remedial action before recertification. 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 Center

The Women's Center was established in 1976 to promote equity for women at all levels of the University. While the center works with administrators, faculty, and staff on a variety of issues and programs, it also provides a range of services of particular interest to undergraduate women and men.

Each semester the center sponsors several informational programs, educational presentations, and skill-building workshops. Topics offered address include assertiveness training, time management, career choices, leadership skills, healthy relationships, and clarifying and achieving goals.

The Sexual Assault Education Program offers workshops for students on acquaintance/date rape awareness and prevention; free information on sexual assault; referral for sexual assault victims; and a large collection of materials for research.

The Non-Traditional Women Students Network, an informal group of older female undergraduate students, meets weekly at the center for mutual support, information-sharing, problem solving, and socializing.

The center sponsors visiting scholars and academic seminars and conferences.

The center maintains a library of books, journals, reports, and other documents on the past and current roles and status of American women, both at the University and in the community in such areas as health care, counseling, sexual and domestic assault services, support groups, legal assistance, and women's organizations.

The center actively supports women's organizations at the University and in the community.

The center seeks input from students about its programs and services. This is done informally, on an individual basis, and more formally, through the Women's Center Student Advisory Committee.

The Women's Center is located on the third floor of Emler Hall with administrative offices in A-331 Ellis Hall. For further information, students are invited to visit the center or call 387-5920.
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.

ATHLETIC BOARD
The University is a member of the Mid-American Conference. Other members of the conference are 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.

CAMPUS PLANNING COUNCIL
The University Planning Council is responsible for initiating, reviewing, developing and recommending institutional policy.

STUDENT SERVICES COUNCIL
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.

ADMISSIONS, FINANCIAL AID AND STUDENT SERVICES COUNCIL
The Admissions, Financial Aid, and Student Services Council is responsible for initiating, reviewing, developing and recommending policies pertaining to the academic and student services at Western Michigan University.

BUDGET AND FINANCE COUNCIL
The Budget and Finance Council functions to: (1) review the budgetary process; (2) review and make recommendations concerning the funding of new academic programs, both on and off campus; and (3) conduct special studies as requested by the Executive Board of the Faculty Senate.

CAMPUS PLANNING COUNCIL
The Campus Planning Council serves as an advisory body to the administration and Faculty Senate on matters related to the acquisition, design, renovation, maintenance, and general use of all classroom buildings, faculty office structures, residential units, recreational facilities, and lands owned by the University. In this capacity, the council:

RECREATION AND SPECIAL EVENTS
Recreation and special events can greatly enhance the quality of your university life.

THE CAMPUS RECREATION PROGRAM
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, weight rooms, swimming pools.

Equipment for the various activities may be checked out from the equipment room. 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 throughout the day.

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 Office of Student Life or Campus Recreational Activities.

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.

OUTDOOR RECREATION
Various recreational opportunities in outdoor settings are offered throughout the year. Activities like canoe trips, hiking trips, camping and bicycle trips are available among the experiences available to the university community. Additionally, cross country ski equipment is available on a daily or weekend rental basis.

SPECIAL EVENTS
Campus Recreation normally conducts one or two special events each semester. 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.

All Campus Recreational Activities are coordinated from 101 Gary Center. For additional information about any of the programs be sure to contact the Campus Recreation Office.

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 Services; Budget and Finance; Campus Planning; Graduate Studies; Research Policies; and Undergraduate Studies. For names of members and further information, contact the Faculty Senate office. The Faculty Senate President for 1991-92 is Ellen Page-Robin and the Senate Vice President is Larry J. ten Harmsel.

ADMISSIONS, FINANCIAL AID AND STUDENT SERVICES COUNCIL
The Admissions, Financial Aid, and Student Services Council is responsible for initiating, reviewing, developing and recommending policies pertaining to the academic and student services at Western Michigan University.
(1) develops and recommends policies to provide a framework within which campus agencies may act in making administrative decisions; (2) develops procedures for the evaluation of policies and administrative actions; (3) processes information brought before the council from the administration, faculty, and students which will guide the council in making informed recommendations in its areas of concern; and (4) reviews all major planning proposals of the University which call for decisions affecting building sites, space, allocation, long-range campus growth and development, or which impair, limit, or have any major impact on the esthetic, physical, or socio-ecological environment of the campus, community, or region.

GRADUATE STUDIES COUNCIL
The Graduate Studies Council reviews, develops, and recommends policy regarding graduate education at Western Michigan University. Policy recommendations include, but are not limited to, the admission of applicants to The Graduate College and to graduate degree programs, development of graduate curricula and approval of graduate programs, selection of graduate faculty, award of degrees, and graduate student personnel practices. Reviews include, but are not limited to, existing programs, proposed new programs, significant program changes, the academic standards of graduate level programs, and reports related to graduate programs that are submitted to accrediting bodies on behalf of academic units. The work of the council is accomplished through standing and ad hoc committees which act on behalf of the council, within the framework of its policies and subject to its review.

RESEARCH POLICIES COUNCIL
The Research Policies Council is responsible for 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, apparent duplication between existing programs or courses, and needs for additional or specialized instruction. Also included in the role of the USC is its discretionary review of recommendations from the Undergraduate Curriculum Committee.

Institutional Advancement
The Office of Institutional Advancement seeks to coordinate programs related to the University's alumni and to fund-raising efforts on behalf of WMU.

MCKEE ALUMNI CENTER/ALUMNI ASSOCIATION
The staff of the McKee Alumni Center is responsible for maintaining and enhancing the lifelong relationship that exists between the University and its graduates. This mission is carried out by the WMU Alumni Association.

The association annually sponsors the Homecoming and several class and special constituent reunions. Alumni volunteers throughout the country, with support from the McKee Alumni Center staff, organize regional chapters of the association which provide WMU alumni living and working within a particular geographic area an opportunity to expand their professional and personal networks, while at the same time maintaining a tie to their alma mater.

The association also encourages and facilitates the formation of constituent alumni groups, which bring alumni from the same college, school, department or other special interest together.

Each year the WMU Alumni Association recognizes outstanding members of the University's faculty through its Teaching Excellence Awards. Alumni who have reached a high level with their respective professions are: the association through its Distinguished Alumni Awards. The association proudly sponsors a Medallion Scholarship and annually presents a Legacy Award to the child or grandchild of an association member who is entering Western.

The association maintains a link with the current students and the Student Alumni Association. Student associates plan a variety of programs during the school year to increase the interaction between students, alumni and the McKee Alumni Center staff.

All of the association's programs and activities are funded by the dues income paid annually by proud, loyal, and enthusiastic graduates of Western Michigan University.

DEVELOPMENT
The University seeks to raise private support for academic programs, building projects, loans and scholarships, and a variety of needs. These efforts are coordinated through the Office of Institutional Advancement. The four major areas of fund-raising are: the Annual Fund, which through its direct mail, phonathon programs, and personal solicitation, seeks to enlist annual unrestricted support for University services; the Planned Giving Services, which provides consultation on estate and tax planning, including wills, bequests, charitable trusts, gifts of insurance and real estate, and other property; the Corporate/Foundation Relations, which seeks support from business, industry, and private foundations; and the major gifts program which encourages alumni and friends to consider and make significant gifts to the University.

The contributions received through these efforts help to ensure financial support for students, and provide the resources essential to the continued quality of education at the University.

WESTERN MICHIGAN UNIVERSITY FOUNDATION
The WMU Foundation is a non-profit, tax-exempt corporation that was formed for the exclusive benefit of the University. The foundation exists to develop and distribute private gifts to the University for the purpose of improving or creating services and programs that would not otherwise thrive. The foundation was created by the University Trustees as a corporate, but University-related, organization. It has a corporate body and a board of directors comprised of forty-two prominent alumni and friends of the University.

The foundation board, national in scope, attracts, invests, and distributes private donations solely for the benefit of Western Michigan University. All contributions to the WMU Foundation, whether designated for a particular program, college, or department or for unrestricted use, are tax deductible.

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 bibliographic items, 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 reconfiguration of 145,000 square feet of existing space was completed in 1991. The new addition incorporates the former Business and Institute for Cisterian Studies Libraries and provides room for the ever-expanding collection as well as 1,900 student stations.

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

A microform collection of more than 900,000 contains such titles as the Human Relations Area File, the American Periodical Series, Early American Newspapers of the 18th and 19th centuries, the U.S. National Archives, Early English Books Project, and ERIC documents (documents in educational research published by the Educational Resources Information Center).

Some special collections are maintained by the library, and holdings have been specially strengthened in some subject areas to support University research:

1. The Ann Kercher Memorial Collection is an extensive collection of materials on Africa south of the Sahara. Started more than twenty years ago, the collection has grown rapidly to become a noteworthy addition to library resources.

2. Library holdings on Southern Asia are another area of special strength. Together with the Kercher African collection, they help support the University's commitment to area studies.

3. Another area of collection strength is the history, religion, philosophy, and culture of the medieval period—holdings which help support the programs of the University's Medieval Institute. The collection also includes rare books, maps, manuscripts, and incunabula, most of which are on an indefinite loan to Western from the Abbey of Gethsemani. Over 900 of the some 9,000 volumes in this collection are rare items of interest to medieval scholars from all over the world.

4. The Randall Frazier Memorial Collection, honoring a notable Physicist, has a wealth of material on the history and culture of Black America.

5. The Regional History Collection is a unique group of local and regional materials on the counties of Southwest Michigan. In addition to books, this collection contains manuscripts of early residents of this area.

6. The C.C. Adams Ecological Collection consists of the personal collection of...
books and papers of the pioneer American-economist, Charles C. Adams. 7. The Map Library, a unit of Public Services, is the second largest academic library map collection in the State of Michigan and the third largest of all map libraries in the state. The present collection of about 185,000 items includes almost all U.S. Geographical Survey maps which are cataloged and readily available for use. In addition to the maps, the Map Library also possesses more than 1,000 atlases.

The Music and Dance Library is located in the Dorothy U. Dalton Center. In addition to more than 30,000 books and scores, and extensive holdings in music periodicals, this branch is located on the third floor of Rood Hall.

The Education Library in Sangren Hall has some 490,000 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 regional online catalog containing the holdings of member West Michigan libraries. KELLY can also be searched by author, title, subject and keyword access to the University Libraries' collections. KELLY is a regional online catalog containing the holdings of member West Michigan libraries. KELLY can also be searched by author, title, subject and keyword. DataQuest, a powerful retrieval service, contains online indexes to journal articles and report literature in select subject disciplines. Terminals located in Waldo Library and its branches give the user access to the databases. Users can personally search online for material in a subject area and compile and print the references to use in writing papers or completing reports or other projects.

Indexes on CD-ROM terminals provide additional research access to periodical articles in general interest periodicals, in science and technology journals, in business journals, and in education documents and journals. A spread of CD-ROM indexes provides access to the NEWSBANK collection of articles from newspapers all over the country on a variety of topics.

General and specialized reference service is provided at the main Reference and Information Desk, at the Science Reference Desk, in the Documents Department and in the Maps Department in Waldo Library. Reference librarians can be searched by index, abstracts, dictionaries, handbooks, bibliographies, etc., are maintained in each of the University Libraries, and reference librarians offer personal presence in finding the books, information, and other resources needed for class or research related problems.

An online automated retrieval system (OARS), operated by the library, accesses databases in nearly every subject. The 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 retrieval charge 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 Resource Sharing Center in Waldo Library.

Students enrolled in off-campus classes are always welcome at the libraries on campus. They are also provided services through the library at the Continuing Education Center in Muskegon (Fruitport), through the Lake Michigan College Library in Benton Harbor, through the Lansing Community College Library in Lansing, through an arrangement with the Grand Rapids Public Library in Grand Rapids, at the Kellogg Community College Library in Battle Creek and by special on-site arrangements for classes taught elsewhere.

Media Services
1450 Dunbar Hall, 387-5000

Media Services is a department within the Division of Academic Services. Its mission is to enhance the teaching process by assisting University faculty and staff in the integration of media into coursework and to offer other media support services. Services provided include:

- Media consultation
- Video production and distribution
- National teleconferencing
- Interactive video
- Videotape and film purchasing and cataloging
- Photography (prints and slides)
- Audio production and duplication
- Graphical design and production
- Computer-generated color print, slide and transparency production
- Computer animation
- Campus cable programming (EduCABLE)

While primarily serving faculty through media support for course instruction, the service also provides support for broader educational and public service needs, as well as selected interaction with the community-at-large through such activity as production of broadcast and cable television programming.

VIDEO
The video production area offers a full range of video services to the University community. Services include: production planning, script writing, producing, directing, camera and audio operations, lighting, and editing. Consultation on media production and/or utilization with faculty, staff and students is also provided.

Professional quality instructional, informational and promotional video-based programs originate from modern television studios, as well as remote locations. The studios include: two in Dunbar Hall (one 50'X70"—the largest in west Michigan—and another 25'X25"), one in Sangren Hall, and one in Kohrman Hall. The latter studio, equipped with state-of-the-art remote controlled cameras, is used to originate distance education courses, such as satellite-deiivered courses. Programs can be taped and edited in a wide-range of formats—from 1/2" VHS to 1" broadcast-quality videotape. Completed programs are used to enhance classroom instruction via videotape loan or by viewing over a closed-circuit network of six channels and eight auditorium feeds, reaching 350 classrooms and other academic areas. Programs are cablecast over EduCABLE to student residents and also through community access channels throughout southwest Michigan. Tapes are also played on local commercial and public broadcasting stations. Media Services is engaged in the marketing and distribution of program materials as well.

A team of media professionals—producers, directors, engineers, audio operators, graphic designers, photographers and various other skilled professionals—support the facilities. Students are trained to operate camera and audio equipment, as well as produce and direct selected projects.

Numerous national awards have been received including two prestigious Ohio State Awards for instructional television achievement, the CINE Golden Eagle Award, and the National Cable Television Association ACE (Award for Cable Excellence).

GRAPHICS
The graphic designers provide artistic support to the University community through consultation, design, layout and illustration for the production of print, slide, and animation materials. Brochures, flyers, colorful graphs and charts, posters, displays, full-color overhead transparencies and hardcopies, computer generated art, and video animation are some of the services delivered. In addition, laminations and drymounting services are available. The graphics area also produces support material for other production activities within the department such as set design and construction for video productions or graphics (computer generated and hand drawn) for slide shows and still or animated inserts for video programs.

AUDIO
The audio production area provides a wide variety of audio services to the University. These include studio narration recording with complete audio monitoring facilities; location recording; crystal locked sync recording; and mixing of voice, music and/or sound effects. A library of copyright cleared production music and sound effects is available for addition to any audio project. Recordings are made on any of five reel-to-reel recorders or two audio cassette recorders. Additional equipment includes compact disc players, turntables, and a full array of special effects equipment. Post production capabilities encompass editing, corrective re-recording and audio sweetening of existing materials. High speed audio cassette duplication is available—complete with boxes and labels.

EduCABLE
1470 Dunbar Hall, 387-4997

A full service cable system delivers more than forty channels of television programming to all on-campus residential households. This CATV system features entertainment, enrichment, education, instruction, and campus information. Twenty-five radio and audio services are also transmitted. Academic services is responsible for cable programming in concert with the campus Telecommunications Department, which maintains the physical and electronic components.

PHOTOGRAPHY
Photographic services are provided for faculty, staff, and students with emphasis on materials for classroom use. Both original photography and copying can be done, but duplication of copyrighted materials is done only with permission from the copyright holder. This area also undertakes the production of slide/tape programs and color
or black and white still photography for publicity, promotion, and publication.

MEDIA UTILIZATION
Media utilization provides information on University media facilities and resources. The complete range of facilities includes the Auditorium, the Theatre, the Jazz Lab Band, the Ensemble, the Treble Choir, College Music, Pep Band, Music 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.

In addition to School of Music performances, productions are presented by Miller Auditorium and the Student Entertainment Committee.

Police
Located at the corner of West Michigan Ave. and Western Ave., the Department of Public Safety is open 24 hours a day, providing a full range of police services through the use of a uniformed patrol division, a detective division, a crime prevention bureau. The Department of Public Safety is responsible for investigating all crimes and accidents occurring on University property and is committed to providing an environment conducive to the education of the students at Western Michigan University. Towards that goal, the department's various divisions and bureaus have coordinated their efforts to create and maintain a feeling of security and safety within the University community.

Information can be obtained by visiting the 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 session, and Wednesday during the summer session. The Western Herald is made available to students partially through support from the general fund of Western Michigan University. All positions on the paper are filled by students with the exception of the general manager/advisor. Western News is the official publication for administration, faculty, and staff members. It is published each Thursday by the Office of Public Information, which also produces the Westerner in association with the Office of Institutional Advancement. The Westerner is published four times each year for alumni and other friends of the University.

Reading Horizons, a quarterly journal devoted to the study of reading problems, is published by the Department of Education and Professional Development and the College of Education.

The Department of English publishes a number of journals: Comparative Drama, a scholarly journal, circulated nationwide, edited by members of the English Department; Trial Balloon, a faculty-edited literary journal containing work produced in creative writing courses; and Calliope, for high school writers.

Other academic areas that publish scholarly works include Tate Center for Research and Information Processing, Ossianic Studies, Department of Mathematics and Statistics, Evaluation Center, Medieval Institute Publications, and New Issues Press.

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 300 non-commercial radio stations.

WMUK(FM) 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 Western Michigan University students concerned with their use, misuse, or abuse of alcohol and other mood-altering substances. Under the auspices of the University Counseling Center, the program offers information, assessment, training, counseling and supportive therapy, referral and follow-up services to individuals and groups. Also offered are support groups to those students seriously interested in exploring their relationship with mood altering drugs (alcohol, marijuana, stimulants, narcotics, depressants and barbiturates) as well as groups for adult children of alcoholics.

University Substance Abuse Services is licensed by the state of Michigan and is directed by a state certified substance abuse therapist and professor of counseling. It is open Monday and Thursday from 8 a.m. to 5 p.m. All 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 387-3257.

Theatre

All students in good academic standing, regardless of major or minor, 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, arts 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."

Vehicle Registration

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, motorcycle, and/or moped 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, by telephoning 387-4609 during normal University business hours.

50 UNIVERSITY SERVICES
STUDENT RIGHTS AND RESPONSIBILITIES

Student Academic Ethics: A Guide to Academic Honesty

Every situation concerning scholastic conduct cannot be included in this context. Therefore it is important that students maintain close communication with faculty members in order to clarify expectations and standards. At the beginning of each course, it is critical for faculty to clearly state their policies regarding academic honesty.

WHAT IS ACADEMIC DISHONESTY?
Academic dishonesty is intentional cheating, fabrication, or plagiarism. It is also knowingly helping or attempting to help others be dishonest. Academic dishonesty lowers scholastic quality and defrauds those who will eventually depend upon our knowledge and integrity.

Cheating
Definition: Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
Clarification:
1. Students completing any examination should assume that external aids (for example, books, notes, calculators, conversation with others) are prohibited unless specifically allowed by the instructor.
2. Students may not have others conduct research or prepare work for them without advance authorization from the instructor. This includes, but is not limited to, the services of commercial term paper companies.
3. Major portions of the same academic work may not be submitted more than once for credit or honors, without authorization.

Fabrication
Definition: Intentionally falsifying or inventing any information or citation in any academic exercise.
Clarification:
1. "Invented" information may not be used in any laboratory experiment or academic exercise. It would be improper, for example, to analyze one sample in an experiment and then "invent" data based on that single experiment for several more required analyses.
2. One should acknowledge the actual source from which cited information was obtained. For example, a student should not take a quotation from a book review and then indicate that the quotation was obtained from the book itself.
3. Students must not change and resubmit previous academic work without prior permission from the instructor.

Plagiarism
Definition: Intentionally or knowingly representing the words or ideas of another person as one's own in any academic exercise.
Clarification:
1. Direct Quotation—Every direct quotation must be identified by quotation marks or appropriate indentation, and must be cited 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,..." 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 among students in the course must be acknowledged.
Examples of common knowledge include 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.
One footnote or endnote is usually enough to acknowledge indebtedness when a number of connected sentences are drawn from one source. Direct quotations are used, however, quotation marks must be inserted and acknowledgement made. Similarly, when a passage is paraphrased, acknowledgement is required.

Student Academic Rights: Policies and Procedures

A. INTRODUCTION
The University endorses, as a guideline for policy, the following section from the Joint Statement on Rights and Freedoms of Students.

Protection Against Improper Academic Evaluation Students should have protection, through orderly procedures, against prejudiced or capricious academic evaluation. At the same time, they are responsible for maintaining the standards of academic performance established for each course in which they are enrolled.

Protection of Freedom of Expression
Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.

B. POLICIES AND PROCEDURES
1. Students should be fully informed by the faculty about course requirements, evaluation procedures, and the academic criteria to be used in each
Policies and Procedures Regarding Student Rights and Responsibilities

2. Procedures for Reviewing Student Graduation Requirements

• Students have the right to have all their examinations and other written graded material made available to them with the written consent of the grade they are appealing. Faculty should retain all such material not returned to the student for at least one full semester after the course was taught. Faculty are not required to return such material to the student, but must provide reasonable access to it.

• Whenever a student believes he/she has a grievance regarding a grade, he/she should first arrange a meeting with the instructor, who may be able to explain the reasons for the grade or recommend a change, if warranted.

• Every department shall provide systematic procedures for students to express their views on matters of program and curriculum.

• University policy and implementation of such policy should not be determined without the need of computer problems.

• Special care should be taken to assure that no individual is treated unfairly because of computer problems.

• The University Ombudsman will have the authority to investigate complaints, and recommend or negotiate fair solutions on behalf of the student.

Conduct and Discipline

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 Services Council composed of faculty, administrators, and students. The procedures, 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 or enforces 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 University Judicials 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 Family Educational 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 to, any other individual, postsecondary educational personnel, which are the sole possession of the maker and are not accessible or revealed to any individual except a temporary substitute, records of the law enforcement unit; student health records; employment records; or alumni records.

Health records, however, may be reviewed by physicians of the students' choosing. Students may not inspect or review their education records contained in the following, as outlined by the Act: financial information submitted by their parents; confidential letters and recommendations associated with admissions, financial aid, 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 such cases, 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 those letters were collected under established conditions 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 made in
writing to the Registrar 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 will adjudicate 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.

Decisions 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 stating the reasons for 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 place with the educational
records 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 experience 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 makes a 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
sexual relations. It applies as well to repeated or
uninvited sex-related events, unwelcome touching, sexually explicit
comments and/or graphics. All persons
should be sensitive to situations that may
affect or cause the recipient discomfort or
humiliation by displaying a condescending
sex-based attitude towards the person.

Sexual harassment is illegal under both state
and federal law. In some cases, it may also be
subject to the provisions of the criminal
sexual conduct act. Conduct will be
defined as sexual harassment when any or
all of the following conditions exist:
1. The sex-related situations are unwanted
   by the recipient.
2. If the recipient has been verbally or
   physically threatened, sexual advances have
   been made.
3. The harassment continues and is
   unwanted by the recipient.

*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 any person, not as an
individual, but as a member of a category
based on sex. Whether expressed in overt or
subtle form such as sex-related jokes or
materials, sexism in the classroom or
workplace is unacceptable at the University
and its elimination shall be the responsibility of the entire University
community. Depending upon the seriousness of the misconduct, informal corrective action may be
adequate.

COMPLAINT PROCEDURE

Sexual harassment and sexism constitute
acts of misconduct. Therefore, whenever
such acts are reported and confirmed,
prompt, disciplinary action will be taken, up
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, (1275 Selbert Administration
Building; 387-3620) and students should report it to the Vice President for Student
Affairs (2201 Faunce Student Services
Building; 387-2132). The Associate Vice
President for Human Resources and the Division of Student
Affairs shall jointly establish appropriate procedures to
implement this policy. They will also
investigate thoroughly any complaints of
alleged sexual harassment or sexism, and
then report the results of such investigations
to the President of the University.

RECOGNIZING SEXUAL HARASSMENT AND SEXISM

Sexism and sexual harassment can take the
form of:
- Derogatory jokes or comments based on
  sex.
- The 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;
  and
- 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 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 from someone of the
opposite, or even the same sex. But most
women are harassed by men.

Any woman can be the target of
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 HARASSER

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

• Say no. Make it loud and clear. A
  harasser does not expect confrontation.
• Keep records of all incidents and
  confrontations.
• 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 racial equality
and nondiscrimination. On its campus,
students, faculty, and staff of diverse
races and ethnic backgrounds live and work
closely together day by day in offices,
classrooms, and residence halls. This racial
and ethnic mix brings richness and diversity
to the cultural, intellectual, and personal
dimensions of campus life. The University
benefits from this diversity and seeks to
ehance it.

All members of the University are expected
to contribute to an atmosphere of racial and
ethnic harmony on campus, displaying
tolerance for cultural and ethnic
courtesy and civility in discourse with
students, faculty, and staff of diverse
backgrounds and origins. This environment
is a world where all students may express
themselves freely without fear of
harassment, discrimination, or
discrimination based on race, color,
religion, national origin, sex, sexual
orientation, age, handicap, height, weight,
or marital status. The University
doesn't need to be reminded of the institutional
position in this regard. The very few
who need the admonishment must realize that the
University will take the strongest possible
action, including dismissal, against those
who through racist acts bring discord to this
environment.
about anti-discrimination laws, including Title IX and Section 504 of the Rehabilitation Act of 1973, or who have complaints or prohibited discrimination, may file their inquiries and complaints with the Affirmative Action Officer, 2018 Seibert Administration Building (387-5858).

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 with the Affirmative Action Department on an official University Grievance Form and be signed by the student(s) involved. The grievance must be timely, state all facts relevant to the protested events, indicate when the incident(s) occurred, and specify the discriminatory acts and policies, rules, or regulations involved. The Affirmative Action Department will serve as an intermediary for written grievances and is to receive copies of all grievance correspondence. Any student(s) filing a written grievance may choose to have a representative present at any step in the Grievance Procedure provided the Affirmative Action Department is given at least twenty-four (24) hours notice prior to the concerned meeting.

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 receiving the departmental representative’s written answer. The student must file the appeal with the Affirmative Action Department, using an official University appeal form. The Affirmative Action Department will, in turn, notify the departmental representative and the appropriate Vice President of the student’s appeal. The appropriate Vice President or his/her designated representative will then arrange a meeting with the grievant, his/her representative (if requested), and any other individuals who may help resolve the grievance. This meeting must be held within fourteen (14) calendar days after the appropriate Vice President or his/her designee hearing the appeal receives the grievance from the Affirmative Action Department. Within seven (7) calendar days after this meeting, the appropriate Vice President or his/her designee hearing the appeal will communicate an answer in writing to the involved parties.

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, report findings and recommend a decision. The president will make the final grievance decision and communicate it to the appropriate parties.

In addition to filing a grievance with the University’s Affirmative Action Department, the student may file a complaint directly with the Office of Civil Rights, U.S. Department of Education or pursue avenues of complaint resolution.
DEGREES AND CURRICULA

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 at least seventy hours of General Education, Language and Literature, Science, Social Science, and designated Fine Arts courses, including at least eight hours in one foreign language, is eligible for the degree of Bachelor of Arts. If two or more years of high school preparation in one foreign language are presented for entrance, the requirements for foreign language may be waived.

BACHELOR OF BUSINESS ADMINISTRATION

BACHELOR OF FINE ARTS

BACHELOR OF MUSIC

BACHELOR OF SCIENCE
The student who completes a curriculum from the General Education program, and courses in the Language and Literature, Science, or Social Science areas, is eligible for the degree of Bachelor of Science.

BACHELOR OF SCIENCE IN ENGINEERING
Aircraft, Automotive, Computer Systems, Electrical, Environmental, 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 director of Academic Records 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: Counselor Education and Counseling Psychology, Education Leadership, and Special Education.

DOCTOR OF PHILOSOPHY
Programs leading to the Ph.D. degree are offered in Educational Leadership, Geology, Mathematics, Mathematics Education, Physics, Psychology, Science Education, Sociology, and Statistics.

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, 1968 have the following validity: Kindergarten through eighth grade(s) all subjects in a self-contained classroom; and sixth to, and including, eighth grade(s) in the teachable major(s) and/or minor(s).

2. SECONDARY certificates issued after September 1, 1968 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 Continuing certificate, which may eventually be obtained when the holder of a Provisional certificate meets requirements as outlined in the “Continuing Certificate Requirements” section below; the Temporary Vocational Authorization; and the Full Vocational Authorization. The Continuing certificate will be renamed the Professional certificate, and the Full Vocational certificate will be renamed the Occupational Education 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.

CONTINUING AND PROFESSIONAL CERTIFICATE REQUIREMENTS
The requirements for the Continuing and 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 earn eighteen semester hours after the issuance of the Provisional certificate
in a course of study established and/or approved as a "planned program" by an approved teacher education institution. A person with an approved master's or higher degree (regardless of when earned) is not required to complete the eighteen semester-hour program.

A "planned program" is a master's degree program, an additional subject endorsement (a major or minor program), an additional grade level program, or an eighteen hour professional development program signed by the Certification Officer.

Graduates of WMU who wish to be recommended for the Continuing and Professional certificate by WMU must earn at least twelve semester hours of the eighteen semester hour program from WMU.

Credits may not be earned by correspondence, from a two-year college, or from non-approved institution. The candidate must earn a grade equivalent to a "C" or better in all courses.

All candidates for the Michigan Continuing and Professional certificate must present a minimum of six semester hours of reading methodology credit for the elementary level certificate or three semester hours of reading methodology credit for the secondary level certificate. Such credit may be completed at any stage of the candidate's college level preparation.

Individuals holding a Provisional certificate with a vocational education endorsement are required to complete ten semester hours of relevant vocational education credit within the eighteen semester-hour planned program in order to earn a Full Vocational or Occupational Education certificate.

The Thirty-Hour Continuing certificate is not required but is available until June 30, 1992 to the teacher who qualifies and requests this certificate. For the Thirty-Hour Continuing certificate, the "planned program" is the completion of an approved master’s degree.

Provisional Renewal Requirements

When the Provisional certificate expires before the holder is able to fulfill all requirements for the subsequent certificate, such as any future time(s), qualify in the following manner for a renewal of the Provisional certificate: The first three-year renewal is available any time after actual completion of the first ten semester hours of the eighteen semester hour "planned program." After expiration of the first three-year renewal, if the holder has not completed the experience requirements for the Continuing certificate, a second three-year renewal is available any time after actual completion of the entire eighteen semester hour "planned program."

Certification Application Procedures

The Continuing, Professional, Full Vocational, Occupational, and Provisional Renewal will be recommended by the approved Michigan teacher education institution which "planned" or approved the eighteen semester-hour program of additional credit. The candidate applies directly to such Michigan college or university regardless of what other college or university may have recommended the initial Provisional certificate. Public Act 339 of 1988 requires the collection of certification fees by the Department of Education "as a condition of having the application evaluated for conformance with the application requirements." By signing a fee agreement card which is attached to the appropriate certification application form from the recommending college/university the applicant is agreeing to pay the appropriate fee when billed 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, 2206 Sangren Hall, 616-387-3473.

Validity Span of Michigan Certificates

All initial Michigan Provisional certificates, Provisional Renewal certificates, Professional Education certificates, Occupational Education certificates, and Temporary Vocational Authorizations expire on June 30 of the appropriate year, determined by the month and year of issuance. The initial Michigan Provisional certificate and the Temporary Vocational Authorization are valid for 5½ to 6½ years, depending on the month of issuance. A Provisional Renewal is valid for 2½ to 3½ years depending on the month of issuance.

Continuing certificates, Permanent certificates (permanent certificates were issued prior to July 1, 1976-predating the present Continuing certificate), and Full Vocational Authorizations issued before July 1, 1992, have identical validity spans and identical reinstatement requirements. They automatically remain valid as long as the holder remains in service in an "educational capacity." (any full- or part-time education employment at any level) for a minimum of 100 days (need not be consecutive days) in any given five-year period. (The "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 (2½ or more clock hours) constitutes the equivalent of one day, but no more than one day can be earned in a calendar day. Continuing certificates, Permanent certificates, and Full Vocational Authorizations applied for before July 1, 1992, and paid for before November 1, 1992 automatically lapse on any given day that the holder has failed to serve in an educational capacity for a minimum of 100 days in the immediately preceding five years.

Professional Education and Occupational Education Certificates

Beginning July 1, 1992, persons receiving a Professional Education Certificate or an Occupational Education Certificate will be subject to the provisions of Rule 390.1135. The certificate(s) will be renewed on the basis of having the application evaluated for conformance with the application requirements. By signing a fee agreement card which is attached to the appropriate certification application form from the recommending college/university the applicant is agreeing to pay the appropriate fee when billed 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, 2206 Sangren Hall, 616-387-3473.

Undergraduate Curricula and Approved Majors

College of Arts and Sciences:

L. S. Students selecting Communication or Psychology will be placed in Pre-Communication (PCM) or Pre-Psychology (PP) curricula if requirements have been met.

CURR: ASC Art and Sciences
Major: AME American Studies
ANT Anthropology
BIO Biology
BMS Biomedical Sciences
BUS Business-Oriented Chemistry
CHM Chemistry
COM Communication
CPS Conservation Science
EAF Earth Science
ECO Economics
ENG English
FHY Field Hydrogeology
FRE French
GEG Geography
GEL Geology
GEP Geophysics
GER German
HCP Health Chemistry
HIS History
HYG Hydrogeology
LAT Latin
LAV Latvian
LING Linguistics
MAT Mathematics
PHI Philosophy
PHY Physics
POL Political Science
PCM Pre-Communication
PSY Psychology
PUR Public Relations
REL Religion
SOC Social Science
SOCO Sociology
SOA Social Anthropology
SPL Spanish
STA Statistics
TOU Tourism and Travel

CURR: LA Liberal Arts
Major: Must elect major from ASC Curriculum
CURR: CPU Computer Science—Theory and Analysis
Major: CPU Computer Science—Theory and Analysis
CURR: CRJ Criminal Justice
Major: CRJ Criminal Justice
COR Corrections
CURR: EVS Environmental Studies
Major: EVS Environmental Studies
CURR: PAA Pre-Architecture
Major: PAA Pre-Architecture
CURR: PD Pre-Dentistry
Major: Must elect major from ASC Curriculum
CURR: SLL Pre-Law
Major: Must elect major from ASC Curriculum
CURR: PM Pre-Medicine
Major: Must elect major from ASC Curriculum
CURR: PAP Public Administration
Major: PAP Political Science in Public Administration
CURR: PUH Public History
Major: HIS History
CURR: STC Student Planned Curriculum
Major: STC Student Planned Curriculum
CURR: BRN Bronson Nurses (Application to this program is made through the Bronson Methodist Hospital School of Nursing)
Major: BRN Bronson Nurses
CURR: GST Guest Student
Major: GST Guest Student
CURR: PTC Permission to Take Classes
Major: PTC Permission to Take Classes

Coordinate Majors: These are majors to be selected only along with a standard major.

AFS African Studies
AIS Asian Studies
### CURRICULUM

**Hawthorne College of Business: BUS**

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Description</th>
<th>Major</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURR: PBA</td>
<td>Pre-Business Administration</td>
<td>Must elect major from BAD Curriculum</td>
<td></td>
</tr>
<tr>
<td>CURR: BAD</td>
<td>Business Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURR: EDU</td>
<td>College of Education: EDU</td>
<td>Students selecting teacher certification programs will be placed in the &quot;PRE-EDUCATION&quot; (PED) CURRICULUM until requirements have been met. See the College of Education section for complete information on admission requirements.</td>
<td></td>
</tr>
<tr>
<td>CURR: PED</td>
<td>Pre-Education</td>
<td>Major: Select major approved for certification</td>
<td></td>
</tr>
<tr>
<td>CURR: SDC</td>
<td>Special Education—Emotionally Impaired (Elem.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURR: SME</td>
<td>Special Education—Mentally Impaired</td>
<td>Major: SME Special Education—Mentally Impaired (Sec.)</td>
<td></td>
</tr>
<tr>
<td>CURR: SBS</td>
<td>Special Education—Visually Impaired</td>
<td>Major: SBS Special Education—Visually Impaired (Elem.)</td>
<td></td>
</tr>
<tr>
<td>CURR: SCH</td>
<td>Special Education—Physically and Otherwise Health Impaired</td>
<td>Major: SCH Special Education—Physically and Otherwise Health Impaired (Elem.)</td>
<td></td>
</tr>
<tr>
<td>CURR: TET</td>
<td>Textile and Apparel Technology</td>
<td>Major: TET Textile and Apparel Technology</td>
<td></td>
</tr>
<tr>
<td>CURR: VET</td>
<td>Vocational Education Teaching</td>
<td>Major: VET Vocational Education Teaching (Non-Teaching)</td>
<td></td>
</tr>
<tr>
<td>CURR: SBE</td>
<td>Special Education—Visually Impaired (Non-Teaching)</td>
<td>Major: VTE Vocational-Technical Education (Non-Teaching)</td>
<td></td>
</tr>
</tbody>
</table>

### College of Education: EDU

**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.**

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Description</th>
<th>Major</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURR: DI</td>
<td>Di Dietsics</td>
<td>Major:</td>
<td></td>
</tr>
<tr>
<td>CURR: EED</td>
<td>Elementary Education</td>
<td>Major: EGM Elementary Group Minors</td>
<td></td>
</tr>
<tr>
<td>CURR: EEM</td>
<td>Elementary Music</td>
<td>Major: MUS Music, Elementary</td>
<td></td>
</tr>
<tr>
<td>CURR: FAS</td>
<td>Fashion Merchandising</td>
<td>Major: FAS Fashion Merchandising</td>
<td></td>
</tr>
<tr>
<td>CURR: FSA</td>
<td>Food Service Administration</td>
<td>Major: FSA Food Service Administration</td>
<td></td>
</tr>
<tr>
<td>CURR: IFR</td>
<td>Individual and Family Relationships</td>
<td>Major: IFR Individual and Family Relationships</td>
<td></td>
</tr>
<tr>
<td>CURR: IET</td>
<td>Industrial Education (Teaching)</td>
<td>Major: DRA Drafting</td>
<td></td>
</tr>
<tr>
<td>CURR: JHS</td>
<td>Middle School and Junior High School</td>
<td>Major: CPM Computer Science</td>
<td></td>
</tr>
<tr>
<td>CURR: PED</td>
<td>Pre-Education</td>
<td>Major: TET Textile and Apparel Technology</td>
<td></td>
</tr>
<tr>
<td>CURR: SDC</td>
<td>Special Education—Emotionally Impaired (Elem.)</td>
<td>Major: SME Special Education—Mentally Impaired (Sec.)</td>
<td></td>
</tr>
<tr>
<td>CURR: SME</td>
<td>Special Education—Mentally Impaired</td>
<td>Major: SBS Special Education—Visually Impaired (Elem.)</td>
<td></td>
</tr>
<tr>
<td>CURR: SBS</td>
<td>Special Education—Visually Impaired</td>
<td>Major: SCH Special Education—Physically and Otherwise Health Impaired (Elem.)</td>
<td></td>
</tr>
<tr>
<td>CURR: SCH</td>
<td>Special Education—Physically and Otherwise Health Impaired</td>
<td>Major: TET Textile and Apparel Technology</td>
<td></td>
</tr>
<tr>
<td>CURR: VET</td>
<td>Vocational Education Teaching</td>
<td>Major: VET Vocational Education Teaching (Non-Teaching)</td>
<td></td>
</tr>
</tbody>
</table>

### College of Engineering and Applied Sciences: CES

**Students not selecting a curriculum at this time will be placed in the UNIVERSITY (UNV) CURRICULUM until a selection can be made. Students are encouraged whenever possible to select a specific curriculum.**

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Description</th>
<th>Major</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURR: ECT</td>
<td>AAS Actuary</td>
<td>Major: AET Aircraft Maintenance Engineering Technology</td>
<td></td>
</tr>
<tr>
<td>CURR: PBA</td>
<td>Pre-Business Administration</td>
<td>Major: AET Aircraft Maintenance Engineering Technology</td>
<td></td>
</tr>
<tr>
<td>CURR: BAD</td>
<td>Business Administration</td>
<td>Major: AET Aircraft Maintenance Engineering Technology</td>
<td></td>
</tr>
<tr>
<td>CURR: EDU</td>
<td>College of Education: EDU</td>
<td>Students selecting teacher certification programs will be placed in the &quot;PRE-EDUCATION&quot; (PED) CURRICULUM until requirements have been met. See the College of Education section for complete information on admission requirements.</td>
<td></td>
</tr>
<tr>
<td>CURR: PED</td>
<td>Pre-Education</td>
<td>Major: Select major approved for certification</td>
<td></td>
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<tr>
<td>CURR: SDC</td>
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<td>Major: SME Special Education—Mentally Impaired (Sec.)</td>
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</tr>
<tr>
<td>CURR: SME</td>
<td>Special Education—Mentally Impaired</td>
<td>Major: SBS Special Education—Visually Impaired (Elem.)</td>
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<tr>
<td>CURR: SBS</td>
<td>Special Education—Visually Impaired</td>
<td>Major: SCH Special Education—Physically and Otherwise Health Impaired (Elem.)</td>
<td></td>
</tr>
<tr>
<td>CURR: SCH</td>
<td>Special Education—Physically and Otherwise Health Impaired</td>
<td>Major: TET Textile and Apparel Technology</td>
<td></td>
</tr>
<tr>
<td>CURR: TET</td>
<td>Textile and Apparel Technology</td>
<td>Major: VET Vocational Education Teaching (Non-Teaching)</td>
<td></td>
</tr>
<tr>
<td>CURR: VET</td>
<td>Vocational Education Teaching</td>
<td>Major: VTE Vocational-Technical Education (Non-Teaching)</td>
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</table>

### College of Health and Human Services: HHS

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Description</th>
<th>Major</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURR: OT</td>
<td>Occupational Therapy</td>
<td>Major: OT Occupational Therapy</td>
<td></td>
</tr>
<tr>
<td>CURR: PSW</td>
<td>Pre-Social Work</td>
<td>Major: PSW Pre-Social Work</td>
<td></td>
</tr>
<tr>
<td>CURR: SPN</td>
<td>Speech Pathology and Audiology</td>
<td>Major: SPN Speech Pathology and Audiology</td>
<td></td>
</tr>
</tbody>
</table>

### Honors College

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Description</th>
<th>Major</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURR: HNC</td>
<td>Honors College</td>
<td>Major: HNC Honors College</td>
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</tbody>
</table>

### Division of Continuing Education: DCE

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Description</th>
<th>Major</th>
<th>Requirements</th>
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</thead>
<tbody>
<tr>
<td>CURR: GUI</td>
<td>General University Studies</td>
<td>Major: GUI General University Studies</td>
<td></td>
</tr>
<tr>
<td>CURR: AMT</td>
<td>American Studies</td>
<td>Major: AMT American Studies</td>
<td></td>
</tr>
<tr>
<td>CURR: ALS</td>
<td>Applied Liberal Studies of CCJ Criminal Justice</td>
<td>Major: ALS Applied Liberal Studies of CCJ Criminal Justice</td>
<td></td>
</tr>
<tr>
<td>CURR: HTH</td>
<td>Health Studies</td>
<td>Major: HTH Health Studies</td>
<td></td>
</tr>
<tr>
<td>CURR: TAS</td>
<td>Technical and Scientific Studies</td>
<td>Major: TAS Technical and Scientific Studies</td>
<td></td>
</tr>
</tbody>
</table>

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**DEGREES AND CURRICULUM 57**

- CURR: MAD Manufacturing Administration
- CURR: MFT Manufacturing Engineering Technology
- CURR: ME Mechanical Engineering
- CURR: MFT Manufacturing Engineering Technology
- CURR: PAE Paper Engineering
- CURR: PAS Paper Science
- CURR: PE Pre-Engineering
- CURR: PRO Production Technology
- CURR: SED Secondary Education
- CURR: SPN Speech Pathology and Audiology
- CURR: OT Occupational Therapy
- CURR: PSW Pre-Social Work
- CURR: SPN Speech Pathology and Audiology
- CURR: MAD Manufacturing Administration
- CURR: MFT Manufacturing Engineering Technology
- CURR: ME Mechanical Engineering
- CURR: MFT Manufacturing Engineering Technology
- CURR: PAE Paper Engineering
- CURR: PAS Paper Science
- CURR: PE Pre-Engineering
- CURR: PRO Production Technology
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.

<table>
<thead>
<tr>
<th>USE CODE</th>
<th>DESCRIPTION</th>
<th>MAJOR AND/OR CURRICULUM SLIP REQUIRED</th>
<th>MINOR SLIP REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>Accountancy</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>ADS</td>
<td>Administrative Systems</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>ADV</td>
<td>Advertising</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>AFS</td>
<td>African Studies</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>AAE</td>
<td>Aircraft and Automotive Engineering</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>AET</td>
<td>Aircraft Maintenance Engineering Technology</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>AMS</td>
<td>American Studies</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>AMT</td>
<td>American Studies</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>ANT</td>
<td>Anthropology</td>
<td>Yes</td>
<td>None</td>
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<tr>
<td>ALS</td>
<td>Applied Liberal Studies</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>ART</td>
<td>Art</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>AFR</td>
<td>Art History</td>
<td>None</td>
<td>Yes</td>
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<tr>
<td>ATE</td>
<td>Art Teaching</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>AIS</td>
<td>Asian Studies</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>ATR</td>
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The usual major/minor requirements are suspended within this program. Instead, the advisor selects coursework based around a concentration. Arrangements for consultation 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 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, SE Grand Rapids, MI 49546-5936

Kalamazoo Off Campus Programs Office B-103 Ellsworth Hall Western Michigan University Kalamazoo, MI 49008-5161

**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**

Norma Hayes, Medical Sciences Advisor 2060 Friedemann Hall 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 biology, physics, good communication skills, and some background in the humanities and social sciences. In general, dental schools require two semesters each of 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 Friedemann Hall. The Dental Admission Test (DAT) is required by all dental schools, and is offered at Western Michigan University each spring and fall. Most pre-dental students at Western Michigan University major in either Biology, Biomedical Sciences, or Chemistry. However, dental schools look with favor on other majors, as long as students complete the minimal pre-dental requirements. It is important that pre-dental students see the preprofessional advisor on a regular basis for curriculum guidance. The advisor is located in 2060 Friedemann Hall.

Also available through the advising office are Predental Advisory Booklet, Dental Admission Test application forms, centralized application service forms, and Preprofessional Evaluation Committee Services. Pre-dental 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 offers courses which fulfill minimum dental school requirements, and also provide a good foundation for the Dental Admission Test. The list 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 and 207/208. (Physics is not required for the Dental Admission Test.) 4. ENGL 105 plus a literature course.

**LAW**


Advisors: College of Arts and Sciences G. H. Demetrakopoulos 2060 Friedemann Hall 387-4366

P. G. Renstrom 3029 Friedemann 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 bachelor's 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
Norma Hayes, 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.H8) 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, and physiology 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
2060 Friedmann Hall
387-4366

The following is a typical pre-architecture program for students who wish to pursue an architecture degree at another college or university. Total hours are 60-64.

<table>
<thead>
<tr>
<th>Recommended Semester Requirements</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>4</td>
</tr>
<tr>
<td>Computer Language</td>
<td>2</td>
</tr>
<tr>
<td>Physics</td>
<td>8</td>
</tr>
<tr>
<td>Natural Science</td>
<td>4</td>
</tr>
<tr>
<td>Economics</td>
<td>3</td>
</tr>
<tr>
<td>Social Science</td>
<td>7-6</td>
</tr>
<tr>
<td>English</td>
<td>4</td>
</tr>
<tr>
<td>Humanities</td>
<td>12</td>
</tr>
<tr>
<td>Drawing</td>
<td>6</td>
</tr>
<tr>
<td>Drawing</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>8-15</td>
</tr>
</tbody>
</table>
MILITARY SCIENCE

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 or Physical Aptitude Exam; 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 three and four years. Four-year scholarships are awarded to incoming college freshmen. Three 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 $410 per year for textbooks; and a tax-free subsistence allowance (up to $1,000) each year the scholarship is in effect.

Facilities
The department is located in Oakland Gym, with an indoor marksmanship range and classroom facilities. Special training is also conducted at Fort Custer 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 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 ROTC) 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 attend 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 complete the Military Science minor. These courses will be taken in the general education distribution program areas. The Department of Military Science advisor should be consulted on the specific courses which satisfy these requirements. Exceptions must be approved by the chair of the department.

LTC Joseph H. Dunlap, Department Chair
MAJ Donald Martin
MAJ David L. Darroch
CPT Walter Herbert
CPT Fernando Pereira
MSG Lloyd Jones
SGP John Kregel
SGT Rodney Best
Mr. Jim Zesiger
Mrs. Sandy Lallicher

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 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.

Exceptionsto the above requirements

SGT Rodney Best
Mrs. Sandy Lallier
Mr. Jim Zesiger

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 courses, 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, the student is trained, fed, and housed at the expense of the government. The student also receives travel pay plus a salary of approximately $675. 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 requirement 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 session (up to $1,000 a year).

Military Science Minor

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 321 3 hrs.
HIST 420 3 hrs.

B. Mathematics
MATH 111 3 hrs.
MATH 116 3 hrs.
MATH 368 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/hot 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 summer camp designed for students who were unable to take the Military Science Basic Course on campus. The students receive practical experience and employment of small military units to include their movement based on topographic map reading and land navigation techniques.

MLSC 340 Advanced Leadership (3-2) 3 hrs. Fall
A study of tactical situations. Development of planning and coordination sequences applicable to the employment of military resources. Prerequisite: Approval of department chair.

MLSC 375 Studies In Combat Leadership (3-0) 3 hrs. Fall
This course focuses on leadership in a combat environment. Extensive use will be made of the case study method. The case study topics will cover 20th century American and foreign combat experiences. Throughout the course distinguished guest speakers will relate personal combat leadership experiences, films depicting examples of leadership will be studied, and written accounts of historical battles will be examined. The course studies, analyzes and discusses the leadership displayed in these examples.

MLSC 390 Advanced Military Leadership (3-0)
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 440 Command and Staff (3-2) 3 hrs. Fall
A comprehensive course in the fundamentals of military administrative, logistical, and training management. Prerequisites: Approval of department chair.

MLSC 450 Military Law, Ethics and Professionalism (2-2) 2 hrs. Winter
A study of legal principles and their application to military leaders. Prerequisite: Approval of department chair.

MLSC 499 Studies in Military Science 1-4 hrs. Fall, Winter, Spring, Summer
An opportunity for students who have been unable to take military science courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the students. Topics may vary from semester to semester and students may repeat the course. Prerequisite: Approval of department chair.

ADVANCED COURSES
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.
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 and counselors 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.
THE CARL AND WINIFRED LEE
HONORS COLLEGE

Faith Gabelnick
Dean

Joseph G. Reish
Associate Dean

Jean Wyer
Academic Advisor

Julie Wyrwa
Director, Student Volunteer Services

Lily Lee
Information Specialist

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

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

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

A special focus for the Lee Honors College is community involvement and volunteerism. The Office of Student Volunteer Services housed in the college provides all University students with information and referral services to over 150 local agencies and to state, national and international volunteer opportunities. Student Volunteer Services also sponsors campus-wide service events such as the College Volunteer Opportunities Fair.

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

The Lee Honors College serves as the campus office for the WMU chapters of Alpha Lambda Delta and Phi Eta Sigma and Phi Kappa Phi. Each spring eligible students are invited to apply for membership. These organizations sponsor academic and social events throughout the school year.

THE ACADEMIC PROGRAM OF STUDY

The Carl and Winifred Lee Honors College admits students 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 Testing (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 616-387-3230.

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.
OFFICE OF INTERNATIONAL AFFAIRS

Norman C. Greenberg
Senior Advisor to the President for International Affairs

Howard J. Dooley
Administrative Officer for International Affairs

Michitoshi Soga
Administrative Officer for International Affairs

Larry L. Tyler
Sunway College Liaison Officer

W. Wilson Woods
Director of Operations

Christina Sonneville
Foreign Study Coordinator

2090 Friedmann Hall
(616) 387-3851
FAX (616) 387-3962

Western Michigan University conducts active programs of international education, research and service on campus and in a variety of overseas locations. The Office of International Affairs, established in 1981, provides leadership and administration for programs of international education, and assists with applications for international fellowships for faculty and students. 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 senior advisor. 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 Petaling Jaya, 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, and computer science 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
• University of Liberia, Monrovia, Liberia
• Obafemi Awolowo University, Ille-Ife, Nigeria

Americas
• University of Quebec at Hull, Quebec, Canada
• University of Quebec at Trois Rivières, 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, Sakado, Saitama, Japan
• Keio University, Tokyo, Japan
• Nihon University, Tokyo, Japan
• Rikkyo University, Tokyo, Japan
• St. Margaret's Junior College, Tokyo, Japan
• Takaoka College of Law, Toyama, Japan
• Sukmyung Women's University, Seoul, Republic of Korea
• Sunway College, Petaling Jaya, Malaysia

Europe
• Sibelius Academy, Helsinki, Finland
• University of Tübingen, Tübingen, Germany
• Fachhochschule Neoreinhein, Mönchengladbach, 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, U.S.S.R.
• Academy of Sciences, Moscow, U.S.S.R.
• Inter-University Center, Dubrovnik, Yugoslavia

Middle East
• The American University in Cairo, Cairo, Egypt University
• Tel Aviv University, Ramat Aviv, Israel
On-Campus 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 area studies 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

Western Michigan University believes that in this era of global affairs and multi-national business, familiarity with other cultures is an essential element of education. In order to facilitate cross-cultural education and communication, the Office of International Affairs offers a variety of opportunities for study, travel, and/or work in foreign countries. Students may enroll in one of Western's overseas courses or seminars, enroll directly in a foreign university, or participate in foreign study programs offered by other American colleges or universities. Information and advice about these three options may be obtained by contacting the Office of International Affairs.

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 areas, programs in developing countries, and programs that include an experiential learning component. In addition to the C.I.E.E. language and business programs in France and Spain noted below, WMU students may participate in area studies programs in Australia, Czechoslovakia, Hungary, Poland, and the Soviet Union, and business administration programs in China, Japan and the Soviet Union. Summer programs are available in China, France, Germany, the Soviet Union, and Japan. C.I.E.E. also offers programs in the developing countries of Brazil, Costa Rica, the Dominican Republic, Indonesia, Thailand, and Vietnam. Full information and application materials are available for all of these programs at the Office of International Affairs.

WMU Programs Abroad

CHINA
Student Exchange Programs

Western Michigan University has linkage agreements with three Chinese universities enabling students to study Chinese language and culture at: Nankai University, Tianjin; Guangxi University, Nanning; and Xibei University, Xi'an.

DOMINICAN REPUBLIC
Geography and Tourism Program

A field course offered in cooperation with the Universidad Catolica Madre y Maestra in Santo Domingo, this program focuses on the tourist industry in the Caribbean region.

EGYPT
Middle East Studies

Offered in cooperation with the American University in Cairo, students may elect courses in Arabic language, Arabic literature, Islamic art and architecture, Egyptology, and Middle East history, as well as courses in political science, mass communication, psychology, anthropology, sociology, and business administration oriented to the contemporary Middle East. Semester, academic year, and summer options.

ENGLAND
London Tour

British Studies Program annual winter semester break tour to London. Ten days in March to experience the life of one of the world's great cities. Theatre tickets included.

University of Leicester Seminar

Business in Europe and the development of the European Community are the focus of this summer program offered in conjunction with the University of Leicester. Includes visits to the European Community in Brussels, Belgium and the United Kingdom in England and Belgium.

Oxford Seminar

Summer study in residence at the University of Oxford, followed by optional two-week tour on the Continent. Focus on literature, history and politics from Victorian era to present.

FRANCE
Brittany: Undergraduate Language Program in Brittany

For the French major, this program is offered in cooperation with the Council on International Educational Exchange (C.I.E.E.) and the University of Haute-Bretagne in Rennes. Study either for one or two semesters in courses designed to help participants achieve fluency in French.

Paris: Internship and Study Program

Experiential learning forms the core of this C.I.E.E. one semester program which combines academic courses and an eleven week internship with a French business or government agency. Areas in which students may work include commercial management, marketing, museum administration, communications, engineering, computer systems, banking and translation.

Lyon: Summer Study Program

Intermediate level students of French increase their language proficiency and knowledge of French culture through formal study at the Institute de langue et de culture francaise and living with a French family.

GERMANY

Student Exchange Programs

Western Michigan University has linkage agreements with four German universities: the Free University of Berlin, the University of Tbingen, the University of Paderborn, and the University of Passau. Student exchange scholarships for tuition and fees, and in some cases housing, facilitate study in Germany for two semesters.

Geography and Tourism Program

A summer field course offered in cooperation with the University of Tbingen, this program brings American and German students together in a study of the tourism industry in southern Germany, the Alps and northern Italy.

"GRAND TOUR" OF EUROPE

European Arts and Culture: Renaissance to Modern

A summer field course following in the tracks of Boswell and Goethe on the classic itinerary of the Grand Tour: The Netherlands, France, Switzerland, Germany, Austria and Italy.

ISRAEL

Israel Studies at Tel Aviv University

Offered in cooperation with Tel Aviv University, this program includes courses in history, politics, society, language and cultural and international relations. Participants receive introductory instruction in Hebrew language. Semester or academic year options.

JAPAN

Keio University Student Exchange Program

Student Exchange scholarship program with Keio University offers tuition, room, and board for two semesters of study in Tokyo.

Japan Center for Michigan Universities

Educational programs at the Center in Himeji, Shiga Prefecture include courses in Japanese language and culture for full-time students enrolled in Michigan public universities. The State of Michigan provides a limited number of partial scholarships, worth a maximum of $7,500 each for two semesters of study, for students recommended by their university. The Japan Center was established in 1988 by Shiga Prefecture and the State of Michigan to mark twenty years of formal sister-state relationship. Semester and academic year options.

Rikkyo University

The Ryu-Rikkyo International Student Assistance Scholarship covers tuition for an academic year of studies at Rikkyo University in Tokyo.

KENYA

East Africa Safari and Seminar

A summer safari in Kenya provides an opportunity to view and study the richest concentration of wildlife and animal life on the continent of Africa in a spectacular range of habitats. Learn about and experience the life of this young nation in its bustling capital of Nairobi and tribal villages.

MEDITERRANEAN

Summer Institute on the Mediterranean World

A summer term ship-based cruise program which visits archaeological sites in Italy, Southern France, Greece, Turkey, Egypt and Israel.

PUERTO RICO

Seminar in Tropical Biology

A field course held annually in spring term in Puerto Rico, the seminar explores the ecologies of a Caribbean island: rain forests, desert zones, and coral reefs.

SOVIET UNION

Summer Study in the U.S.S.R.

The study tour explores the history, politics, and cultures of the Soviet Union. The program has featured visits to Moscow, Leningrad, Kiev, Georgia, and the Baltic Republics.

SPAIN

Undergraduate Language Program in Seville

For the Spanish major, this program is offered in cooperation with the Council on International Educational Exchange (C.I.E.E.)
and the University of Seville. Students may study one or two semesters in courses designed to help students achieve fluency in Spanish. Business and Society Program in Seville. A one semester C.I.E.E. program at the University of Seville which includes classes in Spanish business, economy, society, and advanced language. Also part of the program are visits to local companies, and optional internships in businesses such as IBM, Banque National de Paris, Investandalusia, and Television Española. Language and Area Studies in Alicante. Elementary-level Spanish language courses are offered at the University of Alicante, as well as undergraduate courses in English, in cooperation with the Council on International Educational Exchange (C.I.E.E.).

**YUGOSLAVIA**

Criminal Justice Seminar. This spring seminar explores issues in criminal justice at the Inter-University Centre for Post-Graduate Studies in Dubrovnik. Future of Religion Seminar. Attend a spring term seminar on the Future of Religion at the Inter-University Centre of Post-Graduate Studies in Dubrovnik.

**INTERNATIONAL MUSIC SEMINARS**

Strings, Piano, Alexander Technique, Art and Photography. Summer workshops for musicians, painters and photographers inspire a rich artistic interchange. Concurrent with the workshops are a concert series and international art and photography exhibits. Location varies from year to year. Past locations include: Exeter, England; Bologna, Italy; Innsbruck, Austria.

**SOCIAL WORK SEMINARS**

Field Courses in Comparative Social Service Systems. Social work issues and practices may be studied in overseas settings in cooperation with universities and social service agencies. Location varies. Past sites have included England, Nicaragua, and Jamaica.

**SUMMER SEMINARS**

In addition to these programs, Western Michigan University sponsors a variety of summer seminars created for a particular term designed for students, teachers, alumni/ae, and the general public. University summer seminars have included study-tours to the People's Republic of China, Japan, India, and locations in Africa. Short field trips are also offered between semesters to England, Egypt, and elsewhere. Since Western Michigan University's foreign study offerings are subject to change, interested students are urged to contact the Office of International Affairs for current information.

**Travel, Work, and Volunteer Information**

Students may purchase the International Student Identity Card, Youth Hostel Pass, and C.I.E.E. travel insurance, and faculty may obtain the International Teacher/Professor Card through the Office of International Affairs. Information is available on all aspects of foreign travel, including passport application procedures, visa information, foreign currencies, health and customs regulations, and inexpensive air and rail travel options. Information about work abroad is available, including C.I.E.E.'s Work Abroad Program which enables U.S. students to work abroad legally on a temporary basis in Britain, Canada, Costa Rica, France, Germany, Ireland, Jamaica, and New Zealand. Information is also available about International Workcamps and other opportunities for voluntary service abroad.

**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 in overseas programs sponsored by WMU, but circumstances vary if directly enrolling in a foreign university or in a study abroad program sponsored by another American college or university. Scholarships offered by the Office of International Affairs 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.

**Performing Arts Abroad**

The Office of International Affairs arranges concert tours and other art events abroad. In 1987, it organized a China Concert Tour for the Western Brass Quintet, an ensemble of music professors from the University's School of Music. The group toured Guangxi Autonomous Region, presenting nine concerts at sites which included Guilin, Nanning, and Beihai. In 1984, the office supported a Music Festival and Workshop by the Fontana Concert Society in San Cristobal de las Casas, Chiapas, Mexico.

**Summer Institutes**

Summer Institutes in "English Language and American Culture" and "Technology and American Society" are offered by the Office of International Affairs in cooperation with the Career English Language Center for International Students (CELCIS) each year in June, July and August. A combination language and lecture program is tailored to the interests and normative level 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 and Technology Programs include visits to factories, offices, and farms, including such places as General Motors, Nippondenshi, Ricoh Seid 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/alumnae of the Fulbright program who have won awards to Australia, Belgium (2), Botswana, Finland, France, Germany (4), India (7), Japan, Peru, the Philippines (3), the Soviet Union, 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 Colombia, and a teaching assistantship in Germany.

**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, travel bureaus, 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 the NAFA: 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**

Noman C. Greenberg, Director 2900 Friedmann Hall (616)387-3951

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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 15 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**
Bradley Hayden, Chair
715 Sprau Tower
(616)387-2597

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 mission of the College of Arts and Sciences, in accordance with the traditional stewardship of the College, is to engender in students those skills, attitudes, and habits of mind which permit them to function responsibly in a profoundly complex and changing world. The College of Arts and Sciences at Western Michigan University offers undergraduate courses and programs of study in the humanities, the social and behavioral sciences, and the physical, biological and mathematical sciences. In addition to providing specialization in its many disciplines, the College contributes to the basic knowledge and the general liberal education of all students attending Western Michigan University.

The goals of the College for the undergraduate student, while including professional, pre-professional or vocational training, are specifically focused on developing the liberally educated adult. To this end, the College seeks to ensure that its students learn the skills necessary for critical thinking, decision making, problem solving and adapting to change, that they explore broadly in areas that will encourage understanding of their western and/or global heritage, and that they develop a respect for diversity in the world and the pluralism in this society. The College strives to encourage the growth of persons who have the self-confidence that comes with knowledge and the ability to seek out, analyze and evaluate information; persons who are prepared to make their way in a changing world, who are competent, humane and sensitive to the human condition and to the physical environment in which they live, and who, therefore, will make effective and substantial contributions to society.

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 35 semester hours. Transfer students with more than 35 hours should apply before matriculation. Failure to do this may mean that a student will not be permitted to enroll in major core courses. Change of curricula during the junior or senior year will be accommodated where possible. 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 (BA degree only).
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.

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. One course in the Humanities (excluding language courses)
5. One course in the Fine Arts

These requirements are in addition to the General Education requirements.

3. Major and Minor in the College of Arts and Sciences.
4. A minimum of fifty (50) hours of 300, 400, or 500 level courses.
5. Sixteen (16) hours of a foreign language or proficiency by exam.
6. General Education requirement thirty-five (35) hours. Consult the curriculum advisor.
7. Two (2) hours of Physical Education.
8. University Intellectual Skills, College Writing, Baccalaureate Writing, and Computer Literacy requirements.
9. Electives and/or cognates required by 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
K. Kileen Cassidy
George H. Demetrakopoulos
Norma Hayes
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.
The 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 American 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 Minor
12. World Literature Minor

American Studies Program
Ronald Davis, Advisor
4075 Friedmann Hall (387-4650)

Students in American Studies follow an interdisciplinary program bringing to bear the insights of art, music, economics, 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
185 Sprau Tower
(616) 383-8015

Benjamin C. Wilson

Leander C. Jones

This interdisciplinary program has a corrective and supportive function to the curricula and services of the University. Its broad design is to permeate, percolate, 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 play in making America what it is. It is retelling the American story.

A minor will consist of the four undergraduate courses (BAS 200, 300, 500, and 314 or 320) and at least 8 hours of departmental courses. 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 the advisor in the student's major. BAS core courses 200 Black Presence and 300 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 European colonies of the Western Hemisphere from the earliest days of the age of exploration to the present. Historically oriented, the course is designed to be interpretive rather than chronologically; to deal with Black presence as party to the expansion of Western Europe in the New World; as active participation in settling and developing the colonies; as a people apart or of contrast. How did the presence of Africans influence the development of the life and institutions of the country in Colonial, National and later years?

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

- **BAS 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 community of experience, the characteristics of which became and remain a distinctive American co-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-1865 to the present**
  3 hrs.
  The Black Experience 1865 to the present will concentrate on the plight of the newly freed African-American. The development of the family in post bellum years, the Euro-American reaction to the change in status, the rise of pseudo scientific racist thought, the long term psychological effects of slavery on both the victims and the victimizers, the search and the rise of Black Messianic leaders, the migration from the rural-agricultural south to the urban-industrialized north, the emergence of black nationalism-civil rights movement and the non-black backlash. BAS 300 is highly recommended.

- **BAS 310 The Black Woman: Historical Perspective and Contemporary Status**
  3 hrs.
  This course is an examination of the historical perspective and contemporary status of the Black woman, paying critical attention to her image as reflected in her role in the American society. The central thrust of this course will be an in-depth treatment of the problem, status and concerns surrounding images of the Black woman.

- **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.
  Ecology and the Black Community will be an investigation of the relationships between human beings (local residents) and their social and physical environments. The course will focus on the determination of the individual's status in the community by an examination of the social, political, economic and psychological impact of the environments as influenced by the social order of the American society and philosophy.

- **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 emigrants, and the development of the Black families and church as principal forces in the Black community. We will study the political, social, and economic implications of being Black in Michigan, both in urban and rural areas from 1790 to the present. The student will be introduced to the varieties of historical sources available for such study.

**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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>201</td>
<td>Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>202</td>
<td>Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>314</td>
<td>American Minorities</td>
<td>3</td>
</tr>
<tr>
<td>368</td>
<td>African Civilization</td>
<td>3</td>
</tr>
<tr>
<td>200</td>
<td>Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>314</td>
<td>Ethnic Relations</td>
<td>3</td>
</tr>
</tbody>
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**INTERDISCIPLINARY PROGRAMS**

**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 lifestyles 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 Multietnic Education**

3 hrs.

This course is designed to prepare teachers and administrators who will work in a multietnic 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 multietnic courses and for evaluation materials prepared.
Criminal Justice Program
Paul C. Friday, Director
2408 Sangren Hall
(616) 387-2894
Carole J. Rogers, Advisor
2407 Sangren Hall
(616) 387-2896

Criminal Justice is an interdisciplinary curriculum designed to provide perspective on the entire criminal justice system. The program is designed to provide a well-rounded, theoretical, and practical education necessary for careers in criminal justice and/or graduate work in law, criminology, or other areas.

The Criminal Justice Major requires thirty-six 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 certifiability as a Michigan police officer.

The Corrections Major provides an alternative focus in the area of corrections. It is designed for students to take advantage of job opportunities in the Department of Corrections and meet new requirements for certification under PA 415.

The Corrections Major requires thirty-three hours of preservice and core courses including: Introduction to Corrections, Client Growth and Development, Correctional Institutions and Facilities, Client Relations in Corrections, Legal Issues in Corrections, Correctional Process and Techniques, Advanced Institutional Treatment of Offenders, Non-Institutional Treatment of Offenders, and Internship/Field Experience.

Curriculum and program details may be found under Sociology/Criminal Justice.

Environmental Studies
John Cooley, Director
240 Moore Hall
(616) 387-2723

Molly Cole, ProgramCoordinator
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 provoke 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 professional roles 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.

Students in the program are encouraged to become actively involved in community environmental affairs by designing an independent project, or by participating in an internship with a local organization or government agency.

Academic credit can be obtained for such experiences through ENVS 550 Contemporary Environmental Projects or ENVS 399 Internship.

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.

Program Options

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 or Bachelor of Arts 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

32-35 hrs. plus cognates

This option is offered for those who desire to graduate with a Bachelor's degree in a particular discipline in a curriculum other than Environmental Studies but also want a complementary major in Environmental Studies to broaden their perspective and possibly enhance career opportunities.

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 PERSPECTIVES
ENVS 300 Appropriate Technology ... 3

OR
ENVS 305 Selected Environmental Topics (may be repeated with different topics) ... 2-3

ENVS 350 Environmental Problem Solving (prerequisite: ENVS 110) ... 4

ENVS 360 Building Sustainable Societies (prerequisite: ENVS 110) ... 4

4. PRACTICA
ENVS 399 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. 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
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

OR
PHYSICAL SYSTEMS:
GEOG 105 Physical Geography ... 4

HUMAN SYSTEMS:
ANTH 220 or 240 Cultural Anthropology ... 3

OR
PSCI 306 Environmental Politics ... 3

3. ENVIRONMENTAL PERSPECTIVES
ENVS 300 Appropriate Technology ... 3

OR
ENVS 305 Selected Environmental Topics (may be repeated with different topics) ... 2-3

ENVS 350 Environmental Problem Solving (prerequisite: ENVS 110) ... 4

ENVS 360 Building Sustainable Societies (prerequisite: ENVS 110) ... 4

4. PRACTICA
ENVS 400 Senior Seminar (prerequisites: ENVS 350, 360) ... 3

The Teaching Minor
24-25 hrs.

This option is available only to those enrolled in the secondary education curriculum. Those electing a teaching minor in Environmental Studies must successfully complete 25 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

OR
PHYSICAL SYSTEMS:
GEOG 105 Physical Geography ... 4

HUMAN SYSTEMS:
ANTH 220 or 240 Cultural Anthropology ... 3

OR
PSCI 306 Environmental Politics ... 3

3. ENVIRONMENTAL PERSPECTIVES
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
3. ENVIRONMENTAL PERSPECTIVES

ENVS 350 Environmental Problem Solving (prerequisite: ENVS 110) .... 4
ENVS 360 Building Sustainable Societies (prerequisite: ENVS 110) .... 4

4. PRACTICA

Approved environmental/outdoor education course (such as BIOS 234) .... 4
ENVS 400 Senior Seminar (prerequisites: ENVS 350, 360) ............. 3

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

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. Prerequisite: ENVS 110 or departmental permission.
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 360 or ENVS 380.
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.
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 550 Contemporary Environmental Projects .... 1-4 hrs.
Contemporary Environmental Projects 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, 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.

INTERDISCIPLINARY PROGRAMS 75

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
Communication English
COLLEGE OF EDUCATION
Education and Professional Development
COLLEGE OF HEALTH AND HUMAN SERVICES
Speech Pathology and Audiology

This 24-hour interdepartmental 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 at The Education and Professional Development Department or from Michele McLaughlin in the English Department, 690 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. Application forms are available from The Education and Professional Development Department or from Michele McLaughlin in the English Department, 690 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 interdepartmental minor for elementary education students consist of the following:
Entry Courses—must be taken concurrently:
ILAM/ENGL 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:
ILAMED 460 Integrated Language Arts Seminar ............... 4 hrs.

For individual course descriptions see catalog listings under the participating department.
International and Area Studies
Norman C. Greenberg
Senior Advisor to the President for International Affairs
Director, International and Area Studies

AFRICAN STUDIES PROGRAM
Sisay Asefa, Advisor

ASIAN STUDIES PROGRAM
Arthur W. Helweg, Advisor

EUROPEAN STUDIES PROGRAM
William Ritchie, Advisor

LATIN AMERICAN STUDIES PROGRAM
David Chaplin, 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 Programs is provided by the Office of International Affairs.

There are numerous programs that should be of great interest to undergraduate students; a 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 the cultures, their history, languages, literature and fine arts, social ingroup and outgroup 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 courses.

The International and Area Studies Programs are designed for those undergraduate students who plan to pursue careers in international business, education, government, or in 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 their cultures.
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 undergraduate level or in 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 a 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 advisor for the development of a program of study and for the registration if necessary.

AFRICAN STUDIES PROGRAM

Coordinate Major
Sisay Asefa (Economics), Advisor
5023 Friedmann Hall
387-5545

The African Studies Program is an interdisciplinary international education program of concentrated study leading to a coordinate major or ordinary 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.—Africa 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 minor or major must be taken from the following list of courses and departments. Students must have their program of study approved by the African Studies Program advisor.

*ANTH 332 Peoples and Cultures of Africa
*ANTH 542 Development Anthropology
BAS 200 Black Presence
ECON 484 Comparative Economic Systems
ECON 588 Economics of Development

*ENG 314 African Literature
*GENL 305 Non-western Societies
*GEOG 356 Sub-Saharan Africa
GEOG 399 Studies in Regional Geography—Africa

ASIAN STUDIES PROGRAM

Arthur W. Helweg (Anthropology), Advisor
111 Moore Hall
387-5362

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 complex issues affecting the contemporary world. Offerings also include programs to study abroad, language training and developing an understanding of Asian communities in the United States.

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 strongly 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 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.

For an up-to-date course listing, see the program advisor listed above.

*HIST 388 Introduction to African Civilization
*HIST 488 History of West Africa
*PSCI 250 International Relations
*PSCI 341 African Political Systems
REL 304 African Religions
SOC 430 Sociology of Development
* Core Courses

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.

ASIAN STUDIES PROGRAM

Arthur W. Helweg (Anthropology), Advisor
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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.

For an up-to-date course listing, see the program advisor listed above.
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 sixteen 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 field of study. The European Major must be undertaken in conjunction with a disciplinary major and is designed to broaden the student 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 Pattison (Department of History)
   - Germanic Studies—Professor Johannes Kissel (Department of Languages and Linguistics)
   - Romance Studies—Professor Joseph G. Reish (Honors College)
   - Slavic Studies—Professor James Butsch (Political Science)
   - General Option—Professor William Ritchie, General Advisor

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. 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. Opportunities, including exchange scholarships, are made available through the Office of International Affairs.

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
387-3010

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. Opportunities, including exchange scholarships, 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 may pursue under the guidance of an advisor from over forty courses in thirteen departments. Eight credit hours or the corresponding knowledge of German or another Germanic language area 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.

A SELECTION OF GERMANIC STUDIES COURSES

A-S 504-505 Foreign Studies
A-S 504-505 Foreign Studies
ART 221 History of Art
ART 597 History of Modern Architecture
ECON 484 Comparative Economic Systems
ENGL 252 Shakespeare
ENGL 340 Development of English Verse
ENGL 442 Modern Drama
ENGL 532 English Renaissance Literature
ENGL 534 Restoration and 18th Century Literature
ENGL 536 19th Century British Literature
ENGL 538 Modern Literature
ENGL 544 The British Novel
GEOG 383 Western European Economic Systems
HIST 361 British History: 1485-1815
HIST 363 British History: 1815-Present
HIST 460 Europe: 1945-Present
HIST 462 Ages in English History
HIST 561 Victorian England
PSCI 340 West European Political Systems

GER 200 -201 Intermediate German 3
GER 316 German Literature 3
GER 317 German Conversation 3
GER 322 German Life and Culture 3
GER 346 Modern Germany 3
GER 420 War in the Modern World 3
GER 444 Early Medieval History 3
GER 445 Later Medieval History 3
GER 458 Europe 1919-1945 3
MUS 270 -271 Music History and Literature 4
MUS 572 Baroque Music 3
MUS 573 Classical Music 2

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.

British Studies
Dr. Dale Pattison (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 are currently approved and are included in the list below. Students should consult with the advisor as to additions or changes.

A-S 504-505 Foreign Studies
A-S 504-505 Foreign Studies
A-S 504-505 Foreign Studies
ART 221 History of Art
ART 597 History of Modern Architecture
ECON 484 Comparative Economic Systems
ENGL 252 Shakespeare
ENGL 340 Development of English Verse
ENGL 442 Modern Drama
ENGL 532 English Renaissance Literature
ENGL 534 Restoration and 18th Century Literature
ENGL 536 19th Century British Literature
ENGL 538 Modern Literature
ENGL 544 The British Novel
GEOG 383 Western European Economic Systems
HIST 361 British History: 1485-1815
HIST 363 British History: 1815-Present
HIST 460 Europe: 1945-Present
HIST 462 Ages in English History
HIST 561 Victorian England
PSCI 340 West European Political Systems

INTERDISCIPLINARY PROGRAMS 77
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 Romance languages and cultures. It is designed to provide students with a comprehensive understanding of the Romance world, including its languages, literature, history, and cultures. The program offers a variety of options to students, allowing them to tailor their studies to their interests and goals.

In addition to the above courses many departments offer seminars, independent study, and variable topic courses which may be included in this program when they concentrate on Romance areas.

Slavic Studies Program

James Butterfield (Political Science), Advisor
3013 Friedmann Hall
387-5696

Dasha Nisula (Languages and Linguistics), Advisor
413 Sprau Tower
387-3005

John Norman (History), Advisor
4029 Friedmann Hall
387-4656

Slavic Studies, an option of European Studies, is an interdisciplinary program which focuses on the Soviet Union and Eastern Europe. This region, which is undergoing rapid social, cultural, and political change is increasingly a center of world attention. The program is designed for those who are considering careers in international law or business, government work, or journalism. It would also be of interest to those who are considering graduate study, or those who simply wish in-depth interdisciplinary study of the Soviet and East European geographical area.
**Baccalaureate Writing Requirement**

Students who have chosen the Latin American Studies coordinate major will satisfy the Baccalaureate Writing Requirement by successfully completing the designated course in their standard major.

**MINOR**

Fifteen semester hours (24 for students enrolled in education curricula) taken from the list of Latin American studies courses are required for completion of a minor concentration in Latin American studies. Students enrolled in this minor are strongly urged to acquire a proficiency in Spanish. Students wishing to enroll in this minor concentration should make this desire known to the Latin American studies advisor before courses employed to satisfy this program are taken; records of the minor are maintained and verified by the Latin American studies advisor.

**GOALS**

The Latin American studies program offers students a combination of area specialized courses in geography, political science, economics, sociology, Spanish, history, religion, and anthropology to be linked to Spanish Language courses and complemented by majors or minors in other fields. Especially appropriate choices would be Spanish, international business, tourism, or economics. In addition, secondary education certification would be especially relevant. Individual directed courses are also available on Latin American topics from a wide range of faculty.

A special feature of this program is the opportunity to spend a year abroad in approved settings in Latin America or Spain. Such experiences are very valuable aid to linguistic fluency.

For an up-to-date course listing, see the program advisor listed above.

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**The Medieval Institute**

Ottó Grünendler, Director and Advisor

Knowledge of Medieval and Renaissance culture is being increasingly recognized as essential to an understanding of modern culture. The Medieval Institute was established by the University to develop and coordinate interdisciplinary programs in medieval and Renaissance studies. In addition to an undergraduate minor, the Institute offers a graduate program leading to an M.A. in Medieval Studies.

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

The headquarters of the Medieval Institute is in the Hillside West Building.

**MINOR PROGRAM**

Students with an undergraduate minor must elect twenty 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.
4. Electives from the approved list with the approval of the advisor.

**APPROVED COURSES**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Introduction to the History of Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>102</td>
<td>Introduction to the History of Religion</td>
<td>3</td>
</tr>
<tr>
<td>103</td>
<td>Introduction to the History of Art</td>
<td>3</td>
</tr>
<tr>
<td>104</td>
<td>Introduction to the History of Philosophy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Courses**

For an up-to-date course listing, see the program advisor listed above.

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**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 ideals and values of modern Western culture as they are expressed and exemplified in the images of medieval heroes and their counterparts. Faculty from different departments will deal with the topic of the course by examining and interpreting the evidence in light of their respective fields of study such as art, history, literature, music, religion, and sociology.

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). In each case faculty from several departments will approach the semester's topic from the perspective and with the methodological tools of their respective disciplines, such as art, history, literature, music, philosophy, political science, and religion.

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

MDVL 597 Directed Study 1-3 hrs.

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

**Group Science Majors**

Group majors are intended for students in the middle school and junior high school curricula. 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

- BIOC 101 Animal Biology 4
- BIOC 102 Plant Biology 4
- BIOC 211 Human Anatomy 4
- BIOC 220 Applied Botany 4
- BIOC 234 Outdoor Science 4
- BIOC 250 General Genetics 4
- BIOC 541 Invertebrate Zoology 3

Geology

- GEOL 105 Physical Geography 4
- GEOL 130 Physical Geology 4
- GEOL 131 Earth History and Evolution 4
- GEOL 300 Oceanography 3
- GEOL 301 Minerals and Rocks 3
- GEOL 225 Intro. to Meteorology and Climatology 3
- GEOL 350 Principles of Conservation and Environmental Management 3

Physics

- PHYS 107 and 108 Elementary Physics and Physics Lab 5
- PHYS 113 and 114 General Physics I and Physics Lab 5
- PHYS 140 Intro. Environmental Chemistry 4
- PHYS 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)

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 of 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, 300, 310
3. ANTH 110, 501; HIST 100, 101, 102
4. HIST 210, 211, 250, 315, 412, 416
5. BAS 200, 300, 301; SOC 200, 320, 390
6. ANTH 220, ECON 480, 586; HIST 313, 370, 385; PSCI 250, 343, 350
7. GEOG 102, 105, 205, 311

GROUP SOCIAL SCIENCE MINOR (secondary education, concluding in elementary education and middle school/junior high school teaching minor)
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
   - PSCI 300
   - 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.

Science and Mathematics Teaching Minor
Advisor: College of Education
Office of Admission 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.

Mathematics courses must be taken in sequence. Practica and seminar may be taken concurrently. Courses approved for general education are marked with an *.

A. REQUIRED SCIENCE (Select one course from each area. Courses approved for general education are marked with an *)

- BIOC 101 Biological Science 4
- BIOC 234 Outdoor Science 4

B. REQUIRED MATHEMATICS
- MATH 151 Geometry for Elementary Teachers (Prerequisite: MATH 150) 3
- MATH 265 Probability and Statistics for Elementary Teachers 4

C. REQUIRED PRACTICA AND SEMINAR
- ED 401 Teaching Elementary School and Mathematics (Prerequisite: ED 401 and ED 402) Seminar in Elementary Education I 4
- ED 402 Seminar in Elementary Education II 4

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 of 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, 300, 310
3. ANTH 110, 501; HIST 100, 101, 102
4. HIST 210, 211, 250, 315, 412, 416
5. BAS 200, 300, 301; SOC 200, 320, 390
6. ANTH 220, ECON 480, 586; HIST 313, 370, 385; PSCI 250, 343, 350
7. GEOG 102, 105, 205, 311

GROUP SOCIAL SCIENCE MINOR (secondary education, concluding in elementary education and middle school/junior high school teaching minor)
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
   - PSCI 300
   - 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.

Group Social Science Major and Minors
For advising in the non-teaching group social science major and minor, and the elementary education and middle school/junior high school teaching minor, contact College of Arts and Sciences advisor in 2060 Friedmann Hall.

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. 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. 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
   - GEOG 102 or 105 or 205
   - 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.
ADDITIONAL SOCIAL SCIENCE PROGRAMS

Two additional interdisciplinary social science programs are available through the Division of Continuing Education listed 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.

Social Science Courses (SSCI)

SSCI 300 Teaching of Social Studies in Secondary Schools
3 hrs. Fall
Definition of objectives: selection, organization, and use of materials; procedures and problems of effective teaching in this area. Prerequisite: Junior standing.

SSCI 500 Data Processing for Behavioral Scientists
3 hrs.
An introduction to data processing for students of the behavioral sciences. Emphasis will be placed upon computer programming in one or more general purpose computer language and individual projects involving a behavioral problem selected by each student. In addition, there will be a survey of a number of computer techniques, which show promise for research in the behavioral sciences. Intended solely for persons in the behavioral sciences. No special mathematical background required. Prerequisite: consent of instructor.

Women's Studies Minor
Barbara Speas Havira, Advisor
4013 Friedmann Hall
387-5366

This interdisciplinary program expands traditional approaches to teaching and research by examining the diverse experiences, perspectives, and contributions of women. Women's Studies courses bring new scholarship on women, feminist theory, and gender studies into the University curriculum. They also critically evaluate theories and methodologies in traditional disciplines as they apply to women's experiences.

The Women's Studies minor brings an additional perspective to any field of study, but is particularly useful in social work, education, the social sciences, the health professions, business, counseling, communication, and management. 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 minor consists of twenty or more hours of coursework selected in consultation with the advisor of Women's Studies. The Status of Women is the only required course; all others are electives. Courses that address variable topics require the approval of the advisor. Women's Studies courses are open to all students and may fulfill general education, major, and elective requirements. For specific descriptions of the courses consult the departmental sections of the catalog.

In addition to the courses listed, students may pursue an independent study projects through independent studies developed in consultation with the advisor of Women's Studies. Credit hours earned through independent studies are variable.

Required
WMS 200 Status of Women 4 hrs.

Electives (sixteen or more additional credits to be taken from the following)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>ANTH 345</td>
<td>Topics in Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>COM 579</td>
<td>Gender Issues (variable)</td>
<td>3</td>
</tr>
<tr>
<td>CRT 205</td>
<td>Topics in Consumer Resources and Technology</td>
<td>3</td>
</tr>
<tr>
<td>CRT 210</td>
<td>Sex Education—An Introduction to Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>Contemporary Topics in Literature: Man, Woman, and Marriage in Literature (variable)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>Women in Literature</td>
<td>4</td>
</tr>
<tr>
<td>GENL 305</td>
<td>Non-Western Societies in the Modern World: Role and Status of Women (variable)</td>
<td>4</td>
</tr>
<tr>
<td>GSCI 133</td>
<td>Issues in Social Biology</td>
<td>4</td>
</tr>
<tr>
<td>HIST 316</td>
<td>Women in the American History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 336</td>
<td>Women in European History</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 512</td>
<td>Women in Management</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 314</td>
<td>Philosophy and Public Affairs</td>
<td>4</td>
</tr>
<tr>
<td>PSCI 270</td>
<td>Political Topics: Women and Politics (variable)</td>
<td>1-3</td>
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<tr>
<td>PSY 524</td>
<td>Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>REL 510</td>
<td>Phenomenological Studies in Religion: Women's Religious Lives; Goddesses and Gendered Symbols (variable)</td>
<td>4</td>
</tr>
<tr>
<td>SOC 190</td>
<td>Men and Women in Contemporary Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 510</td>
<td>Studies in Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC 579</td>
<td>Female/Male Interaction</td>
<td>3</td>
</tr>
<tr>
<td>SWRK 564</td>
<td>Women and Therapy</td>
<td>3</td>
</tr>
<tr>
<td>WMS 400</td>
<td>Women: Past, Present, and Future</td>
<td>3</td>
</tr>
<tr>
<td>WMS 410</td>
<td>Female and Male Psychological Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>WMS 498</td>
<td>Readings in Women's Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Women's Studies Courses (WMS)

(Courses described in italics are approved for General Education.)

WMS 200 The Status of Women 4 hrs.

This course is designed as a general exploration of the content and the effect (including affect) of the traditional definition of "woman." Attention is given to such sources as law, religion, literature and art, mass media, psychology, biology, and social conventions, and to the social processes which transmit and reinforce sex role behavior.

WMS 400 Women: Past, Present, and Future 3 hrs.

This course will concern itself with the subject of "women" as a legitimate field for scholarly inquiry in order to establish the facts and explore the myths of women's role in Western culture. The approach is interdisciplinary: historical for background, biological to explore facts versus myths, artistic models, literary tradition, changing social forces and the contemporary world of female consciousness.

WMS 410 Female and Male: Psychological Perspectives 3 hrs.

This course will examine traditional and contemporary psychological theories and related research on women and men. The course will investigate age-old assumptions about sex roles and sex identity through an analysis of the psychological literature of the twentieth century.

WMS 498 Readings in Women's Studies 1-3 hrs.

Supervised reading and research in various aspects of women's studies. May be repeated to a maximum of three hours.

World Literature Minor

William Combs, Department of English, Advisor
Robert Feikiel, Department of Languages and Linguistics, Advisor

This is an interdisciplinary 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 stage of interests) to begin to 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 be of interest to students interested in social, scientific, and engineering curricula who wish to do a minor outside their main field.

The minor should interest students who, whatever their career goals or major, wish to study the varied view and mixture of experiences of an interdisciplinary program. Also, the wide range of electives possible should make the minor attractive to students who would like the opportunity to study the varied view and mixture of experiences of an interdisciplinary program. Also, the wide range of electives possible should make the minor attractive to students who would like the opportunity to study the varied view and mixture of experiences of an interdisciplinary program.
Prerequisites listed for any of the courses in this minor will be waived. However, students with questions about the advisability of taking courses for which there are prerequisites should consult one of the minor advisors.

Transfer students should consult the minor advisor to determine the applicability of courses taken at other colleges. Minor slips are required. Both the English and the 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
Twenty hours, with the following distribution:

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.
   - THEA 570 Devel. of Theatre Arts.

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
Robert Sundick, Chair
James Clifton
Nicole Constable
William Cremin
Elizabeth Garland
William Garland
Norman Greenberg
Arthur Helweg
Lawrence Israel
Alain Jacobs
Erika Loeffler
Charles Rutheiser
Allen Zagarrell

MAJOR AND MINOR
Courses are designed to (1) give students a better understanding of humanity; (2) broaden familiarity with the diverse ways of human life, past and present; (3) increase understanding of the contemporary world; (4) meet the needs of students preparing to teach in the social science fields; (5) assist students to prepare for employment in a variety of applied fields in the public and private sectors; and (6) prepare students for graduate work in anthropology.

All major and minor programs must be approved by one of the department's undergraduate advisors.

A major in anthropology consists of a minimum of 35 hours of anthropology courses and must include ANTH 110 or 210, 240, 100 or 250 and 490. Nineteen hours of courses must be at the 400 level or above and no more than six hours can be at the 100 level.

A minor in anthropology consists of a minimum of 24 hours of anthropology courses and must include ANTH 100 or 250, 110 or 210, 240, and 490. Six hours of courses must be at the 400 level or above and no more than six hours can be at the 100 level.

Though not required, it is recommended that at least 6 additional hours of elective work be taken in appropriately related fields, such as Black American studies, biological sciences, economics, environmental studies, geography, geology, history, linguistics, philosophy, political science, religion, psychology, social work, or sociology.

A combined major in anthropology and sociology consists of a minimum of 30 hours with at least 12 hours in each department. ANTH 210, 240, and 250, and SOC 200, 300, and 382 are required. ANTH 490 or SOC 456 must also be taken.

GROUP SOCIAL SCIENCE
Students in the secondary education curriculum who major in Anthropology 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.

Baccalaureate Writing Requirement
Students who have chosen the Anthropology major will satisfy the Baccalaureate Writing Requirement by successfully completing ANTH 490 Writing Culture.
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, including comparison with other primates, living and extinct, and a consideration of the present-day human variation. Prerequisite: ANTH 220 or consent of instructor.

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 illustrate 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.
Studies 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-modern, 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 and 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 programming commands for purposes of customizing software packages for specific research tasks. Students will be expected to implement on their own 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-day human variation. Prerequisite: ANTH 250 or consent of instructor.

ANTH 360 Sex, Gender, Culture
3 hrs.
Sexual differences around the world are culturally elaborated into gender-specific behaviors, and 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 foundations of processes and the social, cultural, and psychological consequences of gender coding on 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. Intended as a general introduction to such fields as semiotics, proxemics, aesthetics, folklore analysis, structuralism, ethnomasculines, 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 do researchers write in order to convey credibility for both their description and interpretations of other cultures. Course designed to meet baccalaureate-level writing requirement.

ANTH 498 Honors Study
3 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.

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, 210 or consent of current instructor.

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, 210 or consent of current instructor.

ANTH 502 The Origins of Agriculture
3 hrs.
An intensive study of the human transition from hunting-gathering to cultivation during the post-Pleistocene period. Topics to be treated include: both archaeological and botanical models to explain these processes; the comparison of agricultural systems in various parts of the world; the geographic distribution and bioecosystems of selected cultivars; and the cultural systems which have arisen from the economic foundations of plant domestication. Prerequisite: ANTH 110, 210 or consent of current instructor.

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
ANTH 520 Social Science Theory
3 hrs.
The philosophical/theoretical and conceptual foundations of the social sciences in general will be discussed with special emphasis on contemporary theory, 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. Prerequisites: ANTH 120, 220, 240 or consent.

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. Included is 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, 240, or consent of instructor.

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 or consent.

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 ensure 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, 240, or consent of instructor.

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, 220 or consent of instructor.

ANTH 551 Human Osteology
3 hrs.
A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, palaeopathology, and reconstruction of the individual and the population. Prerequisite: ANTH 250 or consent of instructor.

ANTH 552 Forensic Anthropology
3 hrs.
The study of physical anthropology as it applies to the legal system. Primary emphasis will be on skeletal and dental identification, facial reconstruction and analysis of time since death. Courtroom procedures and responsibilities of the expert witness in the legal system will be covered. Prerequisite: ANTH 250 or 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 genetics, human growth and constitution, palaeopathology, 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 1-4 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
Karim Essart
Gyula Ficsor
Stephen B. Friedman
Edgar Inselberg
William F. Jackson
Stephen B. Malcolm
Cecil McIntire
Richard W. Pippen
Jack S. Wood

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.

The Biology Major is designed to prepare students for biomedical careers by providing (1) a core of basic biological sciences courses required of all department majors, (2) biomedical sciences courses in human anatomy, general microbiology and human physiology, and (3) advanced laboratory techniques in several elective courses.

The specific objectives of the Biomedical Sciences major include: (1) providing technical training for employment in hospitals, clinics and basic research laboratories, industrial laboratories, and state and federal agencies; and (2) producing highly qualified students for advanced training at the graduate-professional levels, i.e. M.S., Ph.D., D.D.S., D.V.M., D.O., D.P.M., or Pharmacy.

The Biomedical Sciences Major is designed to prepare students for biomedical careers by providing (1) a core of basic biological sciences courses required of all department majors, (2) biomedical sciences courses in human anatomy, general microbiology and human physiology, and (3) advanced laboratory techniques in several elective courses.

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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, 616-387-5600; 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 a departmental advisor. Students who want to major or minor in Biology or Biomedical Sciences should consult with the appropriate departmental advisor during
freshman or transfer student orientation and regularly thereafter.

Only departmental courses (BIO) in which a grade of "C" or better is obtained may be counted towards a major or minor in Biology and Biomedical Sciences.

Baccalaureate Writing Requirement

Students who have chosen the Biology major or the Biology major in Secondary Education will satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 319 Plant Physiology or BIOS 350 Human Physiology or BIOS 404 Problems in Teaching Biology.

Students who have chosen the Biomedical Sciences major will satisfy the Baccalaureate Writing Requirement by successfully completing BIOS 350 Human Physiology.

Biology Major—Secondary Education Curriculum

The SED curriculum consists of core course requirements including BIOS 101 (Animal Biology), BIOS 102 (Plant Biology), BIOS 301 (Ecology), BIOS 211 (Human Anatomy), BIOS 213 (Cell Biology), BIOS 250 (Genetics), a microbiology course (BIOS 232 or 312), a physiology course (one of the following: BIOS 240, 319, or 350) and BIOS 404 (Problems in Teaching Biology). Also required are two 500-level BIOS courses (excluding 598 and 599) are required.

In addition, the following Group Science Electives must be completed: CHEM 101 or 102, and one of the following: PHYS 113, 114, 115, 116 (or 207, 208) and 4 hours of physical geology.

Cognate requirements include MATH, any two of the following: 118 and 200, or 118 and 222, and 122 or 123, or 200 and 260, or 122 and 260.

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 of 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.

Suggested Sequence of Coursework

For Biology Majors

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
<th>HOURS</th>
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</thead>
<tbody>
<tr>
<td>Fall (15-17 hours)</td>
<td></td>
</tr>
<tr>
<td>BIOS 101 or 102</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101 or 102</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics—One of five courses specified, or a prerequisite for one of these, according to placement test</td>
<td>3-4</td>
</tr>
<tr>
<td>General Education elective—English 101, recommended</td>
<td>3-4</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1</td>
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</tbody>
</table>

Towards a minor. Only BIOS courses in which a grade of "C" or better is obtained may be counted toward the minor.
**GENERAL EDUCATION elective 3-4**

PHYS 113, 114 or 205, 206 4

BIOS 250 3

**GENERAL EDUCATION elective 4-6**

CHEM 360 or 365 4

BIOS 213 3

**SOPHOMORE YEAR**

Fall (14-15 hours)

BIOS 213 3

CHEM 363 or 365 4

PHYS 113, 114 or 205, 206 4

General Education elective 3-4

Physical Education 1

**PHYS 115, 116 or 207, 208 4**

BIOS 213 3

**GENERAL EDUCATION elective 3-4**

**SENIOR YEAR**

Biological Sciences electives to complete thirty-six hours, which must include a minimum of eight credit hours above the 300 level.

Complete General Education requirements, minor, and at least 122 total credit hours for graduation requirements.

**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 the life cycle and the life cycle of plants is included. This course may be taken concurrently with BIOS 101, Animal Biology.

BIOS 106 Environmental Biology 3 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, 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 study of the mechanisms of heredity at the level of cells, individuals, families and populations. Prerequisite: BIOS 101 or BIOS 112 or equivalent.

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 towards 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. Credit does apply toward a minor in Biomedical Sciences, a Biology Secondary Education major or minor, and also for Bronson Hospital nurses or by consent of instructor.

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 an introduction to the identification of common organisms living in our area and in 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: 8 hours of biological sciences

**For the Biomedical Sciences Major**

**FRESHMAN YEAR**

Fall (16-17 hours)

BIOS 101, 102 4

CHEM 101 or 102 4

Mathematics 4

General Education elective 3-4

Physical Education 1

Winter (16-17 hours)

BIOS 102, 101 4

CHEM 120 4

Mathematics 4

General Education elective 3-4

Physical Education 1

**SENIOR YEAR**

Biological Sciences electives to complete thirty-six hours, including six hours above the 300 level.

Complete Chemistry, Mathematics and Physical Education requirements.

Complete specific curriculum requirements, such as the language requirement in the Liberal Arts curriculum or the courses specified under the Preprofessional and Secondary Education curricula.

Complete 122 credit hours.
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 department.

BIOS 319 Plant Physiology
3 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 cells and tissues. The structure of plant cells and tissues is observed, in order to provide an understanding of the functional organization of the plant. 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 102 and a course in organic chemistry.

BIOS 321 Clinical Physiology
5 hrs. Winter
A study of the functioning and regulation of the organ systems and the application of this knowledge to an understanding of their malfunctions. The molecular and cellular mechanisms involved are emphasized. Students must be in 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 emphasis on the 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 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 SPADA (Specialty program in Alcohol and Drug Abuse) or consent of instructor.

BIOS 509 Evolution
3 hrs.
This course considers the theory of evolution, and predictions that derive from them. Students are introduced to topics such as population genetics, speciation, phylogenetics, molecular evolution, and adaptation. Prerequisites: BIOS 250 and BIOS 301 or consent of instructor.

BIOS 512 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. Prerequisite: 8 hours of biological sciences.

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 grapes. Following 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 it is grown and why, the special aspects of its composition and growth habits that account for its economic prominence, its value in human nutrition, and some of its 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 biochemical 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 525 Genetics Laboratory
3 hrs. Winter (alternate years)
Students will acquire techniques currently used in the field of genetics. Although all areas of genetic interest will be presented, emphasis will be placed on the areas of cytogenetics, biochemical genetics, genetic toxicology and genetic counseling techniques which are currently used in industrial and biomedical research areas. In addition, time will be provided for indepth experimentation. Prerequisite: BIOS 250 or equivalent.

BIOS 527 Systematic Botany
4 hrs.
Principles and techniques of plant classification, nomenclature, and bioecological systems 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 bryophytes. The 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 Bryology
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: Eight hours of BIOS including 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 organisms with aging. Clinical applications are introduced where they provide additional insight into the aging process. Prerequisites: An introductory physiology course or consent of instructor.

BIOS 532 Bacterial Physiology
3 hrs. Winter
Bacterial structure-function relationships are examined in a biochemical context. Current concepts of cell biochemistry are organized around the bacterial model system for understanding energetics, synthesis of cell structures, transport, metabolism and regulatory mechanisms. The course is designed for advanced undergraduates and beginning graduate students. No textbook is required; reading assignments are from the scientific literature. Prerequisites: a microbiology course and a biochemistry 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 535 Plant Nutrition
3 hrs.
The elements essential for plant growth and development, their uptake, and their main functions in the plant are examined. Some important relationships of plant nutrition to human nutrition will be pointed out. Throughout the course a balance between
theory and application will be maintained. The cycling of elements in nature provides insights into ecological relationships and nutrient. Several demonstrations and lab experiences serve to enrich the course: for example, the students make up nutrient solutions, grow various plants in them, and observe the effects of nutrient deficiencies. Prerequisite: BIOS 102, CHEM 101, and a course in physiology.

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 or consent of instructor.

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. Prerequisite: 8 hours of Biological Sciences or consent of instructor.

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: 12 hours of biological sciences, including 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: 8 hours of Biological Sciences, including 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 548 Animal Ecology
3 hrs.
Principles of animal populations and communities, with emphasis on the interrelations of life history features (such as habitat selection and reproductive patterns and population traits; competition and predation and their role in the evolution of community structure; and the roles of animals in the functioning of ecosystems). Methods of determining abundance are studied. Prerequisite: BIOS 301 or equivalent.

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. Prerequisite: 8 hours of biological sciences or consent of instructor.

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. Prerequisites: Two courses in biological sciences or consent of instructor.

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 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 213, 250 or equivalent.

BIOS 577 Comparative Animal Physiology
3 hrs.
An examination of how different groups of animals have adapted to various aspects of a dynamic environment. Prerequisite: One course in physiology and one course in organic chemistry.
CHEMISTRY

Michael E. McCarville, Chair
Michael Barcelona
Donald C. Berndt
Donald J. Brown
Dean W. Harmon
Robert E. Harmon
Thomas Houser
James A. Howell
Joseph M. Kautzmeuller
George G. Lowry
Dean W. Cooke
Susan R. Stapleton
Donald R. Schreiber

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 curriculum 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 European 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 in the professional society 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 360, Organic Chemistry I
CHEM 361, Organic Chemistry II
MATH 122, Calculus I
MATH 123, Calculus II

Sophomore Year:
CHEM 360, Organic Chemistry I
CHEM 361, Organic Chemistry II
MATH 272, Vector and Multivariate Calculus
PHYS 205 and 206, Mechanics and Heat
PHYS 207 and 208, Electricity and Light

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 590, Instrumental Methods
CHEM 510, Inorganic Chemistry

In addition two 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 students, must complete a minimum of 14 credit hours or 7 credit hours, respectively, in the Chemistry Department following the declaration of the major or minor with the departmental advisor. Students who plan to attend graduate school in chemistry should take a minimum of 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 Major requires 34 hours in chemistry including the basic sequence through Physical Chemistry as in the ACS certified program and two or 3 hour 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 355 and 556, Intro Biochem. and Lab.
CHEM 552 and 556, Biochem. I and II with Laboratory
CHEM 555, Introduction to Physical Chemistry
CHEM 430, Physical Chemistry I
CHEM 436 (1 hr.), Physical Chemistry Laboratory
CHEM 506, Chemical Laboratory Safety
CHEM 564, Drugs and Pesticides

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 General Business—option I (21 hrs.), Management (21 hrs.), or Marketing—option 5 (21 hrs.) in the Haworth College of Business and must include BUS 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 355, Introductory Biochemistry
CHEM 356, Physical Chemistry Laboratory
CHEM 355, Introduction to Physical Chemistry
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 complete 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 in order to insure that students are placed in beginning professional chemistry courses based upon the skills they possess in mathematics and chemistry. It tests mathematics at the level of one year of high school algebra (or MATH 110) and chemistry at the level of one year of high school chemistry. Passing only the mathematics portion allows a student to enroll in CHEM 100. Passing both portions meets the prerequisite for CHEM 101 and 103. A high level passing grade allows the student to enroll in CHEM 102.

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 for college level chemistry which develops skills essential to a working understanding of the science of chemistry. Instruction and practice in the fundamental tools for solving chemical problems: chemical formulas, chemical equations, stoichiometry, measurement units, conversions. An introduction to the nature of matter is developed. Enrollment is restricted to students without high school chemistry or to those who demonstrate inadequate retention of their chemistry background. This course credit will not apply to curricular requirements of chemical science at this university and should be followed by CHEM 101 or CHEM 103. It is assumed that students have mathematical competence through MATH 110.
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. Prerequisite: CHEM 100 with a grade of "C" or better or one year of high school algebra and one year of high school chemistry and a passing grade on the chemistry placement examination. This course includes lecture and laboratory. Students can receive credit for only one of Chem 101, 102, 103.

CHEM 102 General Chemistry I
4 hrs. Fall
The theory and fundamental principles of chemistry are emphasized in this foundation course which serves primarily those who intend to enroll for more than two semesters of chemistry. Prerequisite: One unit of high school chemistry and one unit of algebra, pass chemistry placement examination at upper level. Students may earn credit by taking examination. This course includes lecture and laboratory. Students can receive credit for only one of CHEM 101, 102, 103.

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. Prerequisite: CHEM 100 with a grade of "C" or better or one year of high school algebra and one year of high school chemistry and a passing grade on the chemistry placement examination. May be used as a prerequisite for CHEM 120 if passed with a grade of "C" or better. This course includes lectures and laboratory. Student can receive credit for only one of CHEM 101, 102, 103.

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, paint, 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, or other students of art and design 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 as part of the course. 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. 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 calculations of quantitative analysis 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 308 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.
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 355 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 chemistry majors. Prerequisite: CHEM 365 or 361.
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 or reenrolled for a total of 2 credit hours. Prerequisites: CHEM 222 and 430 or 535. Repeatable for up to 2 credit hours.

CHEM 501 Chemical Communications 1 hr, Fall
Principles and techniques involved in writing and/or presenting technical information are discussed and practiced through a series of lectures and assignments. Prerequisite: 24 hours of chemistry.

CHEM 505 Chemical Literature 2 hrs, Fall
An introduction to the use of the various types of chemical literature such as journals, abstracts, monographs, government, and institutional publications and patents. Both manual and computer search techniques are employed in the course of completing assigned problems involving literature searches in analytical, inorganic, biological, organic, and physical chemistry fields. Prerequisite: 23 hours of chemistry.

CHEM 506 Chemical Laboratory Safety 1 hr, Fall
A study of toxic, corrosive, flammable, explosive, radioactive, 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 Chemistry 3 hrs, Fall
An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. 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
This course consists of CHEM 550 plus laboratory. Experiments involve more advanced techniques and instrumentation than in CHEM 356. Emphasis will be on purification and properties of proteins and nucleic acids. Prerequisites: CHEM 361, and 430 or 535.

CHEM 554 Biochemistry II 3 hrs, Winter
Continuation of CHEM 550. Chemistry and metabolism of carbohydrates and lipids. Metabolism of amino acids and photosynthesis. Prerequisite: CHEM 550 or 552.

CHEM 556 Biochemistry II with Laboratory 4 hrs, Winter
This course consists of CHEM 554 plus laboratory. Experiments will involve more advanced techniques than CHEM 356. Emphasis will be on metabolism of carbohydrates, lipids, proteins, and nucleic acids. Prerequisite: CHEM 550 or 552.

CHEM 560 Qualitative and Spectroscopic Analysis of Organic Compounds 4 hrs, Fall
A course in spectroscopic and chemical methods of identification of organic compounds in the pure state and in mixtures, which has as a secondary goal the development of deductive reasoning in the field of organic chemistry. Prerequisites: CHEM 361 and 24 hrs. of chemistry.

CHEM 564 Drugs and Pesticides 3 hrs, Winter
This course introduces students to the chemical nature and uses of drugs and pesticides. Abuses and potential toxicological hazards are also discussed in respect to biological-chemical properties and the behavioral-sociological implications. Prerequisite: CHEM 361 or 365.

CHEM 570 Polymer Chemistry 3 hrs, Winter
The aspects of macromolecular chemistry which are significantly different from the chemistry of small molecules are studied. In particular, mechanisms and techniques 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. Prerequisites: CHEM 361 or 365, and CHEM 431 or 535.

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

Richard J. Dieker, Chair
Lynwood Bartley
Roy Beck
June Cottrell
Loren Crane
Beth Ellis
Leigh A. Ford
Richard A. Gersh
James Gilchrist
Ruth Heining
James Jaksa
Richard Joyce
Steven Lipkin
Peter G. Northouse
Thomas F. Pagel
Steven C. Rhodes
George Roback
Jules Rossman
Thomas Sill
Carolyn Silver-Alford
Robert L. Smith
Shirley A. Van Hoeven
Earl Washington
Shirley C. Woodworth
Paul Yetema

Communication is the principal mode for establishing and maintaining human relationships. It consists of those processes by which society is made possible, by which people develop and exchange ideas, solve problems, and work cooperatively in attaining common objectives. Effective 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. Several emphases within the major and minor are available: public relations; interpersonal communication; organizational communication; communication education; mass communication—radio, television, and film. While some students specialize in one emphasis, most take coursework in two or more of these general areas.

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, WIDR-FM radio station, video-taping of special events, film-making, and internships in a variety of organizations.

Academic credit may be earned for significant participation in many of these communication activities.

Students planning to major in COM or Public Relations or minor in COM should discuss their program needs and interests with a departmental advisor at the earliest possible date. Appointments to see a departmental advisor may be made at the departmental office, 301 Sprau Tower, or by calling 387-3130. 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

Any freshman or transfer student planning to pursue communication as a major 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 the departmental major, since more students apply for admission than can be accepted. A student's application for admission as a major in communication 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 in the first semester, and will be acted upon at the completion of their first semester.

Admission as 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, and October 15

Application forms and additional information 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 the major in COM 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 COM credit.
2. Students must earn a grade of "C" or better in all course work applied toward a major/minor program.
3. Petition for exceptions to any departmental policies should be directed to the department chair.

Baccalaureate Writing Requirement

Students who have chosen the Communication or Public Relations major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- COM 355 Leadership
- COM 359 Broadcast Journalism
- COM 372 Introduction to General Semantics
- COM 441 Documentary in Film and Television
- COM 482 Communication Processes in the Organization

 Majors

Communication Major

A communication major requires 36 semester hours of COM, including COM 104, COM 170, COM 200 and 27 hours of electives to be arranged in consultation with the departmental advisor. Twelve of these hours must be taken at the 300-400 level.

Public Relations Major

The public relations major is designed to prepare students with the knowledge and skills for an entry-level position in public relations in various organizations, and to provide students with the background in communication theory and practice to understand the role and function of public relations in organizations and society.

Application is required for acceptance to this major. An application form is available from the Undergraduate Advisor. Deadlines for submitting applications are October 1, February 1, and June 1.

A major in public relations consists of 36 hours of COM credit, and 14 hours of required cognate courses, for a total of 50 hours.

CORE COURSE REQUIREMENTS include (12 hours):
170 International Communication I ........3
200 Intro. to Communication Theory .......3
549 Public Relations and Organizations .....3
550 Public Relations Program Development (549 Prerequisite) ..........3

Select one of the following (3 hours):
358 Television and Film Scripting ........3
359 Broadcast Journalism ................3

Select one of the following (3 hours):
104 Public Speaking .......................3
204 Advanced Public Speaking (104 Prerequisite) ..........3

Select one of the following (3 hours):
482 Communication Processes in the Organization (256 Prerequisite) ..........3
547 Organizational Uses of Radio and TV ..........3

Select one of the following (3 hours):
232 Discussion .........................3
335 Leadership .........................3
483 Interviewing .......................3

Select two of the following (6 hours):
256 Broadcast Operations ................3
257 Radio Programming and Production (256 Prerequisite) ..........3
355 Small Format Video Production (256 Prerequisite) ..........3
356 Film Production (241 Prerequisite) ..........3
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. (Students who have received credit for COM 130 in the past may not receive credit for COM 104.)

COM 106 Voice and Diction
3 hrs.
Individual improvement program emphasizing voice production and diction.

COM 131 Parliamentary Procedure
1 hr.
Study and practice of the principles and rules which govern business meetings in voluntary organizations.

COM 170 Interpersonal Communication
3 hrs.
An introductory course in communication theory and practice in which students utilize their powers of speech to increase their effectiveness in interpersonal 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 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 232 Discussion
3 hrs.
Study and practice in discussion and conference. Skill in participation, leadership, group thinking, and evaluation are emphasized. Recommended for students whose vocational plans involve work with groups.

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/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 273 Communication Skills and Career Planning
3 hrs.
Systematic self-assessment and job search, making use of intrapersonal and interpersonal communication skills. The student attempts to fit his/her personality with specific favorable job environments, researches those jobs, and builds a resume to communicate these findings. The course makes use of real interviews and outside resource people as an integral part of the experience.

COM 305 Special Topics in Communication
1-4 hrs.
Group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the Departmental office, 301 Sprau Tower. Six hours of COM 305 and COM 505 may be accumulated as credit toward a major or minor in COM.

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 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.

COM 342 The Film Industry
3 hrs.
The history and development of the American film medium from an economic, social, and cultural perspective. Emphasis will be on methods of production, distribution, exhibition, and legal issues. Prerequisite: COM 241.

COM 355 Small Format Video Production
3 hrs.
Practical experience in the design, production, implementation and evaluation of small-format television programs. Applications of portable video technology to the broadcast industry and community cable television systems will be 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.
Examines 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.

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 coverage, features, and structure of the newscast.

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.

COM 366 Oral Communication and the Early Elementary Child
4 hrs.
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 reading and writing. Deals with the child from birth through seven years. (This course is required for the integrated language arts minor.)

COM 367 Oral Communication and the Later Elementary Child
4 hrs.
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 or consent of instructor.

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.

COM 396 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 arts and sciences. One to six hours credit may be accumulated. Prerequisite: Consent, Chair of Department.

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.

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 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.

COM 483 Interviewing
3 hrs.
Theories and principles of planning, conducting, and evaluating interviews are studied and applied to specific interview types, including selection, performance appraisal, survey, and journalistic interviews. Emphasis is placed on the perspective of the interviewer rather than the interviewee.

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 301 Sprau or 2232 Brown Hall, or from an undergraduate advisor.

Open to Advanced Undergraduate and Graduate Students

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 offices, 301 Sprau Tower. Six hours of COM 305 and COM 505 may be accumulated as credit toward a major or minor in COM.

COM 530 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 530. 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 540 Studies in Mass Communication: Variable Topics
3 hrs.
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. Topics include:

1. Broadcast Sales
2. Broadcast/Cable Programming

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.

COM 542 Mass Media and the Child
3 hrs.
Assesses the impact that mass media, including radio, television, films, comics, and other media, may be having on the minds and behaviors of children.
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.

COM 543 Mass Communication and Social Change
3 hrs.
The course examines the role of the mass 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 544 Mass Communication, News, and Public Affairs
3 hrs.
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 545 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 546 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 547 Organizational Uses of Radio and Television
3 hrs.
Applications of radio and TV technology for the business professional, educator, media specialist, and the clinician. Utilization of electronic media for training, research observation and instruction. In addition to required text materials, students must provide supplies averaging about $10.00 per student. $10 lab fee.

COM 548 Broadcast Management
3 hrs.
Studies the functions and responsibilities of broadcast station management. Students examine theories of station management, audience research, budgeting and accounting principles, sales, and regulatory problems.

COM 549 Public Relations and Organizations
3 hrs.
The course will examine the role of public relations and public information in a variety of organizations with a communication theory perspective. The course is designed to prepare individuals for positions in public relations and public information, or for other positions in organizations concerned with the flow of information across organization boundaries.

COM 550 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 549.

COM 551 Methods of Film Analysis
3 hrs.
An investigation of the approaches to film analysis (auteurist, intentionalist, sociological, structural, historical, ideological, psychological) by intensive "reading" and shot sequence examination and evaluation of widely divergent works. $14 fee. Prerequisite: COM 241 or COM 356.

COM 556 Studies in Communication Education: Variable Topics
3 hrs.
Selected studies in background, method, materials, and procedures in any one of the several speech areas. Possible 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 558 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.

COM 557 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 571 Theories of Interpersonal Communication
3 hrs.
A study of the dynamics of interpersonal communication from various theoretical perspectives. Emphasis is on the assumptions, conceptualizations and models which explain how people interact at the content and relationship levels.

COM 572 Nonverbal Communication
3 hrs.
The course examines theory and research in the nature and function of nonverbal message systems. Topics include: the role of nonverbal communication in the developmental stages of humans; individual differences in ability to interpret messages; the relationship of nonverbal communication to the concept of culture; extension of a person such as space, clothing, possessions; and specific messages related to the face and body.

COM 573 Personality and Communication
3 hrs.
The course examines the major personality theories as they contribute to an understanding of the role of communication in self-development. Particular emphasis is given to humanistic theories.

COM 574 Intercultural Communication
3 hrs.
An examination of the factors contributing to effective communication in an intercultural context. The course focuses on such topics as ethnocentric, cultural perceptions, values and beliefs, language and meaning, and nonverbal factors. Communication systems of selected cultures are described and analyzed.

COM 575 Family Communication
3 hrs.
Examines the current literature pertaining to holistic systems, power influences, and satisfactory patterns of family communications. Students analyze family interactions and identify satisfactory patterns of marital family communication.

COM 577 Communication Ethics: Honesty and Deception
3 hrs.
Principles and perspectives 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 579 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 580 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.

COM 581 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 582 Group Communication Theory
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*
*Marianne Vakalis, Assistant to Chair/
Academic Advisor*

Fred Boals
Ajay Gupta
Donna Kambinski
Elise de Doncker Kapenga
John Kapenga
Mark Kerstetter
Dionisos Kountanis
Dalia Motzkin
Carolyn Oberlink
Ben Pinkowski
Nadeem Sherwani
Robert Trenary
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 with the departmental advisor, Marianne Vakalis, by contacting the Computer Science Office located in 3090 Friedmann Hall (phone 387-5654). 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 105.
COMPUTER SCIENCE COURSES

CS 202 Programming in COBOL 2
CS 112 Computer Science II 3
CS 201 Programming in FORTRAN 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 electives may be a language course 2-3

REQUIRED MATHEMATICS COURSES
MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 230 Elementary Linear Algebra 4
MATH 200 Application and Analysis 4

Minors

General Option

COMPUTER SCIENCE COURSES
CS 111 Computer Science I 4
CS 112 Computer Science II 3
CS 201 Programming in FORTRAN 2
CS 202 Programming in 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 electives may be a language course 2-3

REQUIRED MATHEMATICS COURSES
MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 200 Application and Analysis 4

Sciences Option

COMPUTER SCIENCE COURSES
CS 111 Computer Science I 4
CS 112 Computer Science II 3
CS 201 Programming in FORTRAN 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 123 Calculus II 4
MATH 230 Elementary Linear Algebra 4
MATH 374 Introduction to Linear Algebra and Differential Equations 4

Teaching Minor

COMPUTER SCIENCE COURSES
CS 111 Computer Science I 4
CS 112 Computer Science II 3
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

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 CS 105 and CS 106. A student may not receive credit for CS 105 after the completion of any 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 they can use BASIC in further courses.

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-numerical problem solving.

CS 111 Computer Science I 4 hrs.
A first course in the science of programming digital computers. Analysis of problems and examples of systems software: assemblers, linkers, loaders, macroprocessors, compilers, and language run times. An introduction to operating systems concepts and language run times systems. An introduction to operating systems concepts 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 112 Computer Science II 3 hrs.
A second course in the science of programming digital computers. Analysis of problems and development of correct procedures for their solution will be emphasized along with the expression of algorithmic solutions to problems in a structured 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 111 Computer Science I 4 hrs.
A first course in the science of programming digital computers. Analysis of problems and development of correct procedures for their solution will be emphasized along with the expression of algorithmic solutions to problems in a structured 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 desiring to learn a specific language being taught. Course can be repeated for credit in a different language. Prerequisite: CS 110 or CS 111 and 1 1/2 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 times systems. An introduction to operating systems concepts 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 299 Professional Concerns for Computer Scientists 1 2 hrs.
This writing-intensive course explains the different things computer scientists do and how it affects the world around them. It
teaches about the use of research tools such as library and electronic tools. Emphasis is placed on oral and written communication skills. Professionalism and professional societies are discussed. Students are required to become involved with the profession outside of class.

CS 302 Teaching of Computer Science 3 hrs. This course deals with the problems and current trends of teaching high school computer science. The main emphasis is on effective methods of instruction. Practical methods of selection, organization, and maintenance of hardware and software are also considered. Topics such as computer literacy, the computer as a problem-solving tool, issues in computing, and related computer applications will be considered and discussed. This course does not carry credit towards a Computer Science Major or Minor; however, it is required course for those in Secondary Education. Prerequisites: CS 105, CS 112, and junior status.

CS 306 Introductory Programming: FORTRAN 2 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. Various data structures such as stacks, queues, lists, trees and graphs will be modeled and analyzed. Algorithms to manipulate structures will be studied and analyzed. Memory management systems as well as techniques for searching and sorting will be discussed. The idea of a data base will be introduced. 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 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. Approaches—relational, hierarchical and network—are briefly described. Data access techniques such as sequential and multi-level sequential indexes, linked lists, inverted files and hashing are briefly reviewed. A few commercial systems will be surveyed. Security, reliability and integrity will be studied. Students will acquire experience with the various topics by applying them to an actual data base system. Students will also write application programs which use the data base system. Not for Computer Science Majors (except Teaching major). Prerequisite: CS 202 or BIS 362. A student may not receive credit for both CS 443 and CS 543.

CS 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, HPO, project management. Emphasis is placed on the solution of large software system problems using a team approach. Prerequisite: CS 331.

CS 485 Programming Languages 3 hrs. Properties of various programming languages including scope of declarations, storage allocation, control structures and formal parameters will be studied, as well as run time representation of programs and data structures. A study of compilers and interpreters will be made. This will include loading, execution, storage allocation, symbol tables, lexical scan, parsing and object code generation. The relation of automata to formal languages and grammars will be discussed. Prerequisites: CS 331; 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 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 skills will also be required. Students are required to become involved with the profession outside of class. Prerequisite: Senior status.

CS 501 Computer Concepts for Public Administrators 3 hrs. A fundamentals course for students in academic programs in Public Administration. An introduction to how computers work, how they are programmed and their use in information systems. Students learn to work with computer input and output on the WMU DEC System-10 and write at least one elementary computer program. Course requirements include several reports and a term project. This course may not be used towards a major or minor in Computer Science.

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 covered 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 506 Scientific Programming 3 hrs. An introduction to solving scientific and engineering problems on computers. The topics include root-finding, matrix calculations, numerical integration and the numerical integration and the numerical solution of differential equations. The FORTRAN language and various library subroutines will be used. Prerequisite: MATH 230 or MATH 374, and CS 201 or CS 306. Jointly listed with Mathematics and Statistics.

CS 518 Introduction to Computer Modeling and Simulation 3 hrs. This course provides an overview of both model development and computer simulation. A methodology is introduced which is generally applicable to simulation projects. The relationships between real systems, models, and simulation are presented, and the concept of experimental frames is discussed. General purpose simulation languages (e.g., Simscript, GPSS, CSMP, 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 programs 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. VLSI design topics may include algorithms for circuit compaction, circuit extraction, and design rule checking. Prerequisites: EE 250 and 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 discussed. Emphasis is on theoretical considerations in the design of interactive computer graphics software systems. Prerequisites: MATH 230 and CS 331.

CS 530 Artifical Neural Systems 3 hrs. An introduction to neural net concepts, algorithms, and applications. A history of neural nets will be presented along with some discussion of models of biological neural systems. The mathematics of neural nets (architecture, activation functions, weighting scheme) will be characterized. Standard algorithms will be presented including Hopfield associative models, bidirectional associative memories.
and adaptive resonance models. The student will use neural net software to experiment with standard models to develop an application for a project. Prerequisite: CS 331. An introductory statistics course is recommended.

CS 543 Principles of Database Management Systems 3 hrs.
The fundamental concepts of database design and efficient usage are presented. Topics include: an overview of databases; the three data models—relational, hierarchical, and network; conceptual, logical, and physical database design and evaluation. The design theory of relational data models will be emphasized. Query languages, query optimization, security, integrity, and concurrency protocols will also be covered. A student may not receive credit for both CS 443 and CS 543. Prerequisite: CS 342.

CS 544 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 structured design, composite design, HIPO, project management. Emphasis is placed on the solution of large software system problems using a team approach. Prerequisite: CS 331.

CS 554 Operating Systems 3 hrs.
Fundamentals are stressed. A historical survey of the development and growth of operating systems is given to lend perspective to the ideas that follow. Basic concepts and terminology will be emphasized. Programming assignments leading to the construction of a simple operating system are required. Processes, communication and synchronization, shared resources, memory management, resource allocation, scheduling, deadlock, file management, and protection are discussed. Applications to a real system are investigated to motivate the ideas presented in the text and lectures. Prerequisite: CS 331.

CS 555 Computer Networks and Distributed Systems 3 hrs.
The design and evaluation of computer networks using current hardware and software are explained. Various types of computer buses, local area networks, and long haul networks are defined. Case studies of popular networks are presented. Layered network models are studied. There is lab work with local area and long haul networks. Prerequisite: CS 224 and CS 331.

CS 580 Theory of Computation 3 hrs.
Provides an introduction to the theory of computation in the framework of programming languages. Basic definitions and concepts dealing with algorithms, sets, relations, functions, induction operations on functions and cardinality are covered. Primitive and partial recursive functions are defined and their properties treated with 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. Prerequisites: CS 485 or CS 560.

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 585 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 589 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
Sisay Asefa
Nancy Barrett
William Bosshardt
Phillip Caruso
Gilbert Davis
Wayland Gardner
Bassam E. Hanl
Salim E. Hanl
Emily Hoffman
Kevin Hollenbeck
Wei-Chiao Huang
Timothy L. Hunt
William S. Kern
Jean Kimmel
Donald Meyer
Jon Neill
Christopher O'Leary
Susan Pozo
Robert Spiegelman
Mark Wheeler
Raymond E. Zelder
David Zinn
Huizhong Zhou

Courses are designed (1) to contribute to General Education by providing basic understanding of the economy; (2) to fulfill the requirements for the training of teachers in certain professional groups, such as social sciences, business studies, and business administration; (3) to furnish courses and explore areas of economic thought which are prerequisite to graduate study in economics; and (4) to provide areas of study as pre-professional training for business administration, engineering, foreign service, journalism, law, and social work.

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 (301, 302), Income Analysis and Policy (306), Price Theory (303), and Statistics (402; in 1991-92 ECON 502 may be substituted).

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 graduate 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 will satisfy the Baccalaureate Writing
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 Economics 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 303 Price Theory 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 and 202.

ECON 306 Income Analysis and Policy 3 hrs. Fall, Winter, Spring, Summer
An analysis 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 and 202.

ECON 410 Labor Problems 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 420 Money and Credit 3 hrs. Fall, Winter, Spring 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 functions and relationships of commercial banks and the Federal Reserve are examined. Prerequisites: ECON 201 and 202.

ECON 424 Federal Government Finance 3 hrs. Fall, Winter, Spring or Summer
Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation. Prerequisites: ECON 201 and 202.

ECON 445 Corporations and Public Policy 3 hrs. Fall, Winter, Spring or Summer
A study of the organization of economic enterprise, particularly large corporations. The history, financing, and control of these enterprises is studied in an effort to determine how the public interest is affected and how public control has protected and can protect the public interest. Prerequisites: ECON 201 and 202.

ECON 480 International Economics 3 hrs. Fall, Winter, Spring or Summer
A study of the fundamentals of international trade and related problems, with special reference to the implications of the international economic policies of the United States both for the economy and for the firm. Prerequisites: ECON 201 and 202.

ECON 484 Comparative Economic Systems 3 hrs. Fall or Winter
The economic institutions and conditions of capitalism, socialism, communism, fascism, and the cooperative movement are critically examined as to ideology and actual operation. Prerequisites: ECON 201 and 202, or consent of instructor.

ECON 487 Studies in Asian Economics 3 hrs. Fall, Winter, Spring or Summer
The course concentrates on the study of the Japanese, Chinese and Indian economic systems. These models are then applied as a basis of comparison to other Asian economies. Prerequisites: ECON 201 and 202.

ECON 500 Continuing Education in Economics: Variable Topics 1-3 hrs.
Application of economic principles and analysis to specific topics of economic interest to students in Continuing Education courses and workshops. Topics vary and courses may be repeated twice. May not be counted in fulfilling economics major, minor, or M.A. requirements.

Courses By Topic

PRINCIPLES AND GENERAL THEORY
100 Contemporary Economic Problems 201 Principles of Economics (micro)
202 Principles of Economics (macro)
303 Price Theory
306 Income Analysis and Policy
400 Managerial Economics
402 Introductory Economic Statistics
501 Studies in Economic Problems: Variable
502 Economic Statistics
504 Introduction to Mathematical Economics
505 History of Economic Thought
509 Econometrics

LABOR AND RESOURCE ECONOMICS
313 Poverty and Economic Security
316 The Economics of Medical Care
319 Environmental Economics
410 Labor Problems
512 Collective Bargaining
515 Economics of Human Resources
516 Collective Bargaining in Public Employment
517 Economics of Health and Human Services

MONEY, CREDIT AND FINANCE
420 Money and Credit
424 Federal Government Finance
507 Monetary Theory and Policy
525 State and Local Government Finance

INDUSTRIAL ORGANIZATION AND PUBLIC CONTROL
404 The Structure and Performance of Industry
445 Corporations and Public Policy

INTERNATIONAL ECONOMICS
480 International Economics
484 Comparative Economic Systems
487 Studies in Asian Economics
588 Economic Development

SPECIAL STUDIES
500 Continuing Education in Economics: Variable Topics
591, 592 Guest Economist Seminar
598 Readings in Economics

Economics Courses (ECON)

(Courses described in italics are approved for General Education).

ECON 100 Contemporary Economic Problems 3 hrs. Fall, Winter, Spring
Focuses on several of the most important economic problems confronting our society—for example, unemployment, environmental pollution, inflation, poverty, balance of international payments, monopoly power, the standard of living in developing nations and other problems. Utilizing a non-technical approach, an attempt is made to show what economics can contribute to the analysis and possible solutions to these problems. Cannot be used to satisfy major or minor program requirements in Economics.

ECON 201 Principles of Economics 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 Economics 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 303 Price Theory 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 and 202.

ECON 306 Income Analysis and Policy 3 hrs. Fall, Winter, Spring, Summer
An analysis 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 and 202.

ECON 410 Labor Problems 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 420 Money and Credit 3 hrs. Fall, Winter, Spring 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 functions and relationships of commercial banks and the Federal Reserve are examined. Prerequisites: ECON 201 and 202.

ECON 424 Federal Government Finance 3 hrs. Fall, Winter, Spring or Summer
Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation. Prerequisites: ECON 201 and 202.

ECON 445 Corporations and Public Policy 3 hrs. Fall, Winter, Spring or Summer
A study of the organization of economic enterprise, particularly large corporations. The history, financing, and control of these enterprises is studied in an effort to determine how the public interest is affected and how public control has protected and can protect the public interest. Prerequisites: ECON 201 and 202.

ECON 480 International Economics 3 hrs. Fall, Winter, Spring or Summer
A study of the fundamentals of international trade and related problems, with special reference to the implications of the international economic policies of the United States both for the economy and for the firm. Prerequisites: ECON 201 and 202.

ECON 484 Comparative Economic Systems 3 hrs. Fall or Winter
The economic institutions and conditions of capitalism, socialism, communism, fascism, and the cooperative movement are critically examined as to ideology and actual operation. Prerequisites: ECON 201 and 202, or consent of instructor.

ECON 487 Studies in Asian Economics 3 hrs. Fall, Winter, Spring or Summer
The course concentrates on the study of the Japanese, Chinese and Indian economic systems. These models are then applied as a basis of comparison to other Asian economies. Prerequisites: ECON 201 and 202.

ECON 500 Continuing Education in Economics: Variable Topics 1-3 hrs.
Application of economic principles and analysis to specific topics of economic interest to students in Continuing Education courses and workshops. Topics vary and courses may be repeated twice. May not be counted in fulfilling economics major, minor, or M.A. requirements.
ECON 501 Studies in Economic Problems: Variable Topics
3 hrs.
An examination of a selected area of concern not intensively covered in other courses. The focus of the course will be substantive as well as analytical. Topics may include such areas as poverty, the war industry, farm problems, misallocation of resources, welfare programs, unemployment and others. May be repeated for credit with a different topic. Prerequisites: ECON 201 and 202.

ECON 502 Economic Statistics
3 hrs. Fall or Winter
An advanced course concerned with economic applications of statistical methods. This course is an in-depth examination of topics in probability theory, statistical inference, regression analysis and time series (including economic applications of parametric and non-parametric statistical methods). Prerequisites: MATH 122, ECON 402.

ECON 504 Introduction to Mathematical Economics
4 hrs. Fall
An introductory course to acquaint the student with the application of basic mathematical concepts to economic analysis, including such topics as revenue curves, cost curves, capital assets, growth models, and multipliers and accelerators. Prerequisites: ECON 201 and 202, MATH 122 or consent of instructor.

ECON 505 History of Economic Thought
3 hrs. Fall or Winter
A survey of the origin and development of economic thought from early times to the present. After a brief consideration of early mercantilism and the evolution of the philosophy of natural liberties, special emphasis will be placed on the contributions of significant economic thinkers and the influence of various schools of economic thought on national policy and economic development. Prerequisites: ECON 201 and 202.

ECON 507 Monetary Theory and Policy
3 hrs. Fall or Winter
This course concentrates on the main elements of monetary theory and policy having to do with such problems as promoting economic growth, maintaining full employment and price stability, influencing the flow of capital into the various economic sectors with different possible social goals in mind, and stabilizing international trade and financial relationships. Prerequisite: ECON 420 or equivalent.

ECON 509 Econometrics
3 hrs. Fall or Winter
The application of econometric techniques to the estimation of economic models, properties of estimating procedures, and time series analysis. Prerequisites: ECON 201, 202, and 202 or equivalent.

ECON 512 Collective Bargaining
3 hrs.
An analysis of the major problems in present day collective bargaining including the negotiation of collective agreements, the practical aspects and the economic implications. Prerequisites: ECON 201 and 202, or consent of instructor.

ECON 515 Economics of Human Resources
3 hrs. Fall or Winter
The course examines the development and utilization of manpower in the United States, including such topics as labor force components, contributors to productivity such as education, training, health and mobility, and issues of manpower policy. Prerequisites: ECON 201 and 202.

ECON 516 Collective Bargaining in Public Employment
3 hrs. This course examines collective bargaining developments in local, state and federal governments, including bargaining units, negotiations, grievance procedures, strikes and dispute settlements. Prerequisites: ECON 201 and 202, or consent of instructor.

ECON 517 Economics of Health and Human Services
3 hrs.
Economic problems of health and human services will be considered. Alternative policy solutions are viewed from the economist's point of view. Not open to Economics graduate students.

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 tax, 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. Special attention will be paid to evaluating the effectiveness of the United States foreign-aid program and examining the issues arising as a result of the conflict with the U.S.S.R. 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 advanced students to be arranged in consultation with the instructor. Prerequisite: Consent of chairperson of department.

ENGLISH

Shirley Clay Scott, Chair
Thomas Bailey
Miriam Bar-Ami
Ellen Brinkley
Norman Carlson
William Combs
John Cooley
Seamus Cooney
Nancy Cutbirth
Clifford Davidson
Rollin Douma
Stuart Dybek
Philip Egan
Nancy Ewers
Owen E. Elster-Lewis
C.J. Gianakaris
Clare Goldfarb
Russell Goldfarb
Jaimy Gordon
Maryellen Hains
Ruth Harring
Bradley Hayden
Robert Hinkel
Edward Jayne
Paul Johnston
W. Arnold Johnston
Elise B. Jorgens
Katherine Joslin
Harriet Linkin
Tom Minehart
John Murphy
William Olsen
Stephanie Richardson
Herbert Scott
Thomas Seiler
Robert Shafer
Thomas Small
John Stroupe
Larry Syndergaard
Craig Thomas
Daneen Wardrop
Constance Weaver
John Woods

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, 266 Writing Fiction and Poetry, 282 Children's Literature, 305 Practical Writing, 307 Good Books II, 311 Perspectives Through Literature, 312 Western World Literature, 313 Asian Literature, 314 African
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 and Minors

1. The requirements for the English majors (listed below) are flexible enough to allow students to follow individualized programs 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.

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). 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

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 (371, 372, or 572);
4. Two courses chosen from those indicated with an * (courses which emphasize literature written before 1950);
5. Plus electives to complete the 30 hours.

Twenty of the thirty hours must be in 300, 400, or 500 level courses. (300-500 level courses fulfilling other basic requirements of the major may be included in this total; for instance, the two * courses.)

English advisors (387-2575) will help plan individualized programs.

Middle School and Junior High School 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. ENGL 282 Children’s Literature;
2. ENGL 369 Writing for Elementary Teachers;
3. ENGL 373 Reading as a Psycholinguistic Process;
4. Two literature courses in addition to ENGL 110 and ENGL 282;
5. One 400 or 500 level course (other than ENGL 497, ENGL 597, or ENGL 582).

This course may count as one of the two literature courses required in No. 4;
6. Plus electives to make 30 hours.

No more than two of the following courses—ENGL 282 Children’s Literature, ENGL 283 Literature for Adolescents, and ENGL 582 Studies in Children’s Literature—may count toward the 30 hours.

An alternative option for the ENGL 282, ENGL 369, ENGL 373 core listed above is the IALM/ENGL 375-376 sequence plus one course selected from ENGL 282, ENGL 369, or ENGL 373. Both ENGL 375 and ENGL 376 must be taken or no credit toward the major will be given under this option. This option requires a major slip. The student should see an advisor before completing the first eight hours of course work under this option.

Students with this English major should not register for courses in the teaching of English (380) without consulting with an English advisor.

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 266 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 coursework);
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; ENGL 465, ENGL 466, ENGL 467, ENGL 468, ENGL 469, ENGL 565 (Prerequisite: 2 upper level writing courses; plus electives to complete the 20 hours. For English minors in non-teaching curricula, only one specific course (ENGL 110) is required in order that the minor program may be individualized to supplement or complement a major in virtually any other field of study—business, technology, fine arts, the sciences, social sciences, or humanities. To discuss these possibilities, see an English advisor (387-2575).)
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 hours by taking 3-4 courses selected from the following cognate options. GE means that the courses listed carry General Education Credit.

COMMUNITY JOURNALISM PROGRAM COGNATE OPTIONS

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>COM 104</td>
<td>Public Speaking</td>
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<tr>
<td>COM 358</td>
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<tr>
<td>COM 359</td>
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<tr>
<td>COM 547</td>
<td>Organizational Uses of Radio and TV</td>
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<td>ED 458</td>
<td>Audiovisual Media I</td>
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<tr>
<td>ED 550</td>
<td>Photography Workshop</td>
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<tr>
<td>GEOG 311</td>
<td>Geography of Michigan</td>
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<tr>
<td>GHUM 315</td>
<td>Human Communication</td>
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<tr>
<td>GHUM 316</td>
<td>Mass Media: Messages and Manipulation</td>
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<tr>
<td>HIST 204</td>
<td>Business History (GE)</td>
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<td>HIST 250</td>
<td>Michigan History</td>
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<tr>
<td>MATH 396</td>
<td>Introduction to Statistics</td>
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<td>PAPR 150</td>
<td>Graphic Arts</td>
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<tr>
<td>PS 300</td>
<td>State and Local Government</td>
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</table>

One English course to be selected in consultation with the department advisor.

PRACTICAL WRITING PROGRAM COGNATE OPTIONS

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<td>MATH 396</td>
<td>Introduction to Statistics</td>
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</table>

One English course to be selected in consultation with the department advisor.

The English Major with Community Journalism Emphasis may be expanded from 30 to 44-46 hours by taking 3-4 courses selected from the following cognate options. GE means that the courses listed also carry General Education Credit.

COMMUNITY JOURNALISM PROGRAM COGNATE OPTIONS

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<td>Broadcast Journalism</td>
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<tr>
<td>COM 541</td>
<td>Mass Communications Law</td>
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<tr>
<td>COM 544</td>
<td>Mass Communication, News and Public Affairs</td>
</tr>
<tr>
<td>ED 550</td>
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<td>PAPR 150</td>
<td>Graphic Arts</td>
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</tbody>
</table>

One English course to be selected in consultation with the department advisor.

Practical Writing Minor

Students in the Arts and Sciences, Liberal Arts, or other non-teaching curricula may elect to take a practical writing minor, consisting of a cumulative series of upper-level courses in writing and analyzing English. Required: one course in English language or literature, to be taken early in the sequence from those courses which presently count toward an English major or minor, approved by an English advisor prior to enrollment; plus at least twelve hours to be selected from ENGL 305 Pre-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 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 writing emphasis 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

Literature, ENGL 283 Literature for Adolescents, ENGL 582 Studies in Children's Literature.

An alternative option for the ENGL 282, ENGL 369, ENGL 373 core listed above is the ILAM/ENGL 375-376 sequence plus one course selected from ENGL 282, ENGL 369, or ENGL 373. Both ENGL 376 and ENGL 376 must be taken, or no credit toward the minor will be given under this option. This option requires a minor slip. The student should see an advisor before completing the first eight hours of coursework under this option.

Elementary Education minors should not register for the course in the teaching of English (380).
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 San Joaquin (387-2803).

Integrated Language Arts Minor
The Department of English is one of several participating departments in the integrated language arts minor—a program designed particularly for preservice elementary school teachers. The program provides opportunities for a wide variety of individual interests and alternate learning styles. For a full description of the program, consult its listing under the “Interdisciplinary Programs” section of the College of Arts and Sciences, in the College of Education or the College of Health and Human Services or call the English Department (387-2575).

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. All 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 human experience such as death or evil, as social criticism and analysis, as revelation of character and psychology, as experience of unfamiliar customs and cultures.

ENGL 307 Good Books II 4 hrs.
An advanced version of ENGL 107 Good Books. An introduction to good literature, selected from all times and countries experienced in a variety of ways—where literature is seen as imaginative response to human experience such as death or evil, as social criticism and analysis, as revelation of character and psychology, as experience of unfamiliar customs and cultures.

ENGL 210 Film Interpretation 4 hrs.
Study of literature through its relationship to other arts. The course approaches literature by relating novels, stories, poems, or plays to their representations in other media and art forms, particularly film (including TV), music and song, dramatic representation, and painting.

ENGL 220 American Literature and Culture 4 hrs.
A study of some of the recurrent themes in American life as seen in American literature.

ENGL 222 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 Writing 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 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, fantasy, fiction and non-fiction, myth and poetry.

ENGL 305 Practical Writing 4 hrs.
A practical course for juniors and seniors who wish to develop their skills in writing. Emphasis is on understanding the writing forms of non-fictional prose such as research papers and reports; personal writing, and pre-professional writing (for students planning careers in business, social service, industry, law, the arts, or other professions). Topics vary and will be announced each year. May be repeated for credit, but may be counted only once toward fulfilling General Education requirements, and counted only once for 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 prerequisite. 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, 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 363 Reporting
4 hrs.
Instruction and practice in covering news beats, writing complex news stories, and developing good interviewing skills. Prerequisite: ENGL 264.

ENGL 364 Feature and Article Writing
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, drama, films, television, concerts, and exhibitions for various kinds of mass-audience publication. 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 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 the relationship of 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 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 484 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 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.

ENGL 510 Special Topics in Literature 4 hrs.
Study of a literary movement, theme, or genre, such as classicism, the Arthurian tradition, the lyric. May be repeated for credit as long as the topics are different. Prerequisite: ENGL 110 or permission of the department.

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. Prerequisite: ENGL 110.

ENGL 532 English Renaissance Literature* 4 hrs.
Readings in representative writers of the period 1500-1660. Prerequisite: ENGL 110.

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. Prerequisite: ENGL 110.

ENGL 536 Nineteenth Century British Literature* 4 hrs.
Readings in representative writers focusing on one or more principal movements of the century. Prerequisite: ENGL 110.

ENGL 538 Modern Literature* 4 hrs.
Readings in representative writers in the period 1890-1945, not exclusively in British and American literature. Prerequisite: ENGL 110.

ENGL 540 Contemporary Literature 4 hrs.
Readings in representative writers who have come to prominence chiefly since 1945. Prerequisite: ENGL 110.

ENGL 544 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 555 Studies in Major Writers* 4 hrs.
Study of the works of classical, European, British or American writers. Limited to one or two authors. Prerequisite: ENGL 110.

ENGL 556 Creative Writing Workshop 4 hrs.
A workshop and conference course in the writing of poetry, fiction, or drama, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Prerequisite: Six hours of creative writing, graduate standing, or permission of the department.

ENGL 574 Grammar for Teachers 4 hrs.
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 577 Studies in English: Variable Topics 1-3 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. Prerequisite: ENGL 282 or permission of the department.

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.

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

FRENCH
See "Languages and Linguistics" in the College of Arts and Sciences.
GENERAL STUDIES

Nita Hardie, Chair
Franklin G. Fisk
Ronald Flaspholzer
Arnold Gerstein
David Hargreave
Franklin G. Fisk
George LeBonte
Kamlesh Sharma
Viswo Sharma
Michael D. Swords

GOALS OF THE DEPARTMENT
1. The goals of the Department of General Studies will be compatible with the goals of the University.
2. The most comprehensive goal of the Department of General Studies is to assist students in developing the ability to think critically and to engage successfully in intellectual pursuits. The General Studies program seeks to engender the disposition to seek knowledge and the habit of bringing knowledge of all kinds to bear on decision making.
3. The Department of General Studies aims to assist students in developing confidence in their ability to make judgments while acquiring a willingness to reconsider their judgments in the light of new insights, information, and patterns of values.
4. The Department of General Studies acknowledges positively more than one mode of inquiry and encourages exploration of interdisciplinary interests and programs of study.
5. The Department of General Studies maintains a coherent program that assists students in developing a responsible awareness of themselves as human beings and of their social and physical environments.

Within the framework of these goals, the faculty of the Department has developed individual courses for the Distribution Program which provide alternate choices for students in meeting their general education requirements. Students in the Distribution Program choose from among interdisciplinary courses offered by Humanities, Science, and Social Science, and from among General Purpose courses which apply toward general education area requirements.

General Purposes Courses (GENL)
(Courses described in italics are approved for General Education.)

GENL 151 Library Resources I
1 hr.
Students will be introduced through lectures, projects and exercises, to materials, methods and people that can help them find what they want in the library. They will become acquainted with (1) library organization, including the card catalog; (2) forms of publication—books, documents, periodicals, microforms, etc.; (3) indexes, bibliographies, on-line computer retrieval systems and other reference tools which aid in the pursuit of information; and (4) strategies for using the library effectively. All of this is intended to help students with their course work and to pursue their personal and career interests in the future. Does not count for General Education. Cannot be repeated for credit.

GENL 195 Methods of Inquiry
4 hrs.
An introduction to independent study techniques, with emphasis on asking questions and locating sources of information. Students will design an independent study project and do some preliminary investigation in their field of interest.

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 reactions thereto, and by a study of contemporary social, economic, and political problems of non-Western countries.

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 types 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 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 that such a course offers. 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 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 Dean of General Studies and General Studies. May be repeated for credit.

Science Courses (GSCI)
An important part of the general education of a person is an understanding of the science and technology that have had such a tremendous impact on our daily lives and on the shaping of our culture. The main emphasis of some Science Area courses is comprehension of the development of scientific thought and the relationship of science to other aspects of our cultural development. Other courses consider recent discoveries and technological advances. Also considered are the possible environmental and social consequences of applying these advances. The scientific knowledge necessary to understand the new technology is presented. This is followed by exploration of different points of view and the evolution of alternative solutions in terms of practical considerations and moral and ethical values.

Other courses are directed toward students in elementary education. Scientific concepts and processes are considered in the context of new elementary science programs that see science as a vital part of the general education of children.

Courses described in italics are approved for General Education.)

GSCI 130 Social Issues in Physical Science
4 hrs.
A course designed to look at current science-related problems of science using their factual core of knowledge in the physical sciences. Sufficient understanding of this knowledge is acquired to give non-scientists an understanding of the trade-offs resulting from alternative attempts to solve a problem. Emphasis will be placed on understanding the scientific enterprise, how it
GSCI 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 understanding of 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 majors and is at the same time appropriate for majors and minors in all fields of endeavor.

GSCI 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 affects and is affected by culture. The interrelationships between science and other disciplines and some of the important issues of our day are discussed.

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

GSCI 134 Problem-Solving and Decision-Making
4 hrs.
This course helps students become more proficient in the essential skills of solving problems and making decisions as a professional as well as personal and social level. It accomplishes this through the study of many approaches and techniques, including those used with great success in science and technology. It also provides an understanding of "probabilities" as aids to problem-solving and decision-making.

GSCI 231 Physical Science in Elementary Education II
4 hrs.
This course is a continuation of GSCI 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 GSCI 131 and will also introduce additional important concepts in the physical sciences. Prerequisite: GSCI 131 or consent of instructor.

GSCI 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-prediction, "harmonies" between entities, ESP, telepathy, the aura, PK, UFO's, extraterrestrial life, ancient astronauts, and others.

GSCI 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.

GSCI 434 Biomedical Ethics and Society
4 hrs.
This course concentrates on contemporary scientific and ethical issues in biomedicine. The range of issues discussed includes: new reproductive technologies and their appropriate use; experimentation on human subjects (the meaning of informed consent, risks and benefits); new technologies to extend life and the quality of the life extended; biological engineering: death, transplantation, and resource allocation; ethical aspects of biomedical innovation.

Social Science Courses (GSSC)

GSSC 123 Human Society
4 hrs.
A study of the biological and social aspects of human diversity. Discussions of the structure of society and its institutions will give special attention to such contemporary topics in the American scene as values, political and economic systems, ethnic relations, environmental quality.

GSSC 301 Men, Women, and Work
4 hrs.
This course examines recent significant changes in the structure and conditions of work in industrial society from historical, sociological, political and economic perspectives. These changes include a shift from "smoke stack" to service and government employment, the increasing employment of women, and the role of government in regulating the treatment of workers.

GSSC 325 Self-Images and Social Images
4 hrs.
An inter-disciplinary 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.

GSSC 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.

GSSC 425 Theories of Human Behavior
4 hrs.
A critical inquiry into the development of social science method and theory with a focus on key individuals who have influenced the directions of present-day inquiry.
GEOGRAPHY

Eldor C. Quandt, Chair
David G. Dickason
Val L. Eichenlaub
Rainer R. Erhart
Charles F. Haider
Eugene C. Kirchner
Phillip P. Mcklin
Henry A. Raup
Hans J. Stolle
Joseph P. Stolman
George Vuicich

These programs are designed to provide students with an improved understanding of human's physical and cultural surroundings and the interrelations of 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 studies and 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.

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 Minor

20 hours credit
105 Physical Geography .......... 4 hrs. or
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

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.
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 Soviet Peoples .............. 3 hrs.
385 The Pacific Realm ........... 3 hrs.
386 Sub-Saharan Africa .......... 3 hrs.
389 Monsoon Asia ............... 3 hrs.
390 U.S. and Canada ....... 3 hrs.
460 Concepts and Strategies in the Teaching of Geography .... 3 hrs.

Electives ....................... 12 hrs.
The choice of a physical or social science emphasis within the major, and selection of all remaining courses and the minor will be made with the consent of a departmental 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.
380 U.S. and Canada ....... 3 hrs.
460 Concepts and Strategies in the Teaching of Geography .... 3 hrs.

Electives ....................... 12 hrs.
The choice of a physical or social science emphasis within the major, and selection of all remaining courses and the minor will be made with the consent of a departmental advisor.

Science and Mathematics Teaching Minor

The Department of Geography participates in the science and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

Science Credit

The geography courses 100, 105, 204, 225, 265, 306, 350, 375, 521, 553, 554, 555, 557, 568, 580, and 582 are acceptable for science credit in appropriate science sequences.

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 Soviet Peoples .............. 3 hrs.
385 The Pacific Realm ........... 3 hrs.
386 Sub-Saharan Africa .......... 3 hrs.
389 Monsoon Asia ............... 3 hrs.

Electives: In consultation with and under 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).

Courses By Topic

SYSTEMATIC GEOGRAPHY
100 World Ecological Problems and Man
102 World Geography Through Media and Maps
205 Physical Geography
204 National Park Landscapes
205 Human Geography
225 Introduction to Meteorology and Climatology
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 101 World Geography Through Media and Maps</td>
<td>3 hrs.</td>
<td>This course presents an introduction to the geography of the world. This includes the geography of 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.</td>
</tr>
<tr>
<td>GEOG 105 Physical Geography</td>
<td>4 hrs.</td>
<td>(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. Maps, photos, reading, laboratory, and outdoor observation are utilized as primary investigative tools. Laboratory work is an integral part of this course.</td>
</tr>
<tr>
<td>GEOG 204 National Park Landscapes</td>
<td>3 hrs.</td>
<td>(Science credit) Introduction to the physical and human landscapes of the national park system. Examination 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.</td>
</tr>
<tr>
<td>GEOG 205 Human Geography</td>
<td>3 hrs.</td>
<td>An introduction to those aspects of geography concerned with the efforts of humans to cope with the environment. Included are population and settlement forms, the utilization of resources, the impact of technology on human occupancy of the earth, and the origin and dispersal of cultural elements among the various world realms.</td>
</tr>
<tr>
<td>GEOG 225 Introduction to Meteorology and Climatology</td>
<td>4 hrs.</td>
<td>(Science credit) A non-mathematical analysis of atmospheric behavior. The fundamental physical laws affecting the elements of weather—solar radiation, temperature, moisture, pressure, and winds—are examined during the first half of the course. Weather systems and forecasting, atmospheric opics, climatic change, and regional climates are examined during the second half of the course. Laboratory meetings dealing with instrumentation and weather map analysis are an integral part of the course. Prerequisite: GEOG 105 or equivalent.</td>
</tr>
<tr>
<td>GEOG 237 Environmental Earth Science</td>
<td>4 hrs.</td>
<td>An interdisciplinary environmentally oriented science offering for students in the Science and Mathematics Teaching minor. The course integrates the environmental aspects of meteorology and geology. The students spend 7½ weeks in environmental geology and 7½ weeks in environmental meteorology. Techniques for presenting the content of the course will model the ways in which environmental earth science can be presented to elementary students. The course is usually taught by cooperating faculty from Geography and Geology.</td>
</tr>
</tbody>
</table>
GEOG 311 Geography of Michigan
3 hrs.
An introduction to the physical and cultural patterns in Michigan with emphasis upon understanding 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 in North America. Conflicts between environmental and economic interests are examined in both historical and contemporary contexts.

GEOG 356 Introduction to City and Regional Planning
3 hrs.
Intended to provide the student with an introduction to planning thought and professional practice: examination of the evolution from traditional physical land-use planning to the comprehensive planning process which incorporates physical, social, and economic elements; consideration of the impact of planners and planning movements of the 19th and early 20th centuries such as the "New Towns" programs; relationship of planning to zoning; the emergence of regional administrative units and regional planning programs.

GEOG 361 Population: The Crowding World
3 hrs.
Population distribution and settlement patterns are examined geographically. Population topics include mapping and analysis, theories of population change, and types of migration. Emphasis is also placed on functions and structure of urban and rural settlements in selected world regions.

GEOG 375 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 techniques of lettering, symbolization and drafting, map layout and design, methods and materials of map reproduction, the compilation of map projections, procedures in map compilation and the production of thematic maps. Prerequisite: GEOG 265 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 interrelationships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social, and economic conditions is included.

GEOG 382 Mexico and the Caribbean
3 hrs.
Systematic consideration of the physical environment of Mexico, Central America, and the West Indies. A problems approach is utilized to reckon with the economic, social, and political trends of the region.

GEOG 383 Western and Southern Europe
3 hrs.
Intensive regional study of those Western European nations situated west of the Iron Curtain. 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 Soviet Peoples and Landscape: Continuity and Change
3 hrs.
A general examination of the most important aspects of the Soviet peoples and landscape set in a spatial framework. Topics discussed include: The physical environment, population distribution and dynamics, the Soviet strategy of economic development (both national and regional), problems of agricultural development, industrial and transport patterns, and problems of environmental deterioration.

GEOG 385 The Pacific Realm
3 hrs.
Selected studies of the relationships between human beings and the environment in Australia, New Zealand, Melanesia, and Polynesia.

GEOG 386 Sub-Saharan Africa: Man, Environment, Resources
3 hrs.
Survey of the principal physical and political patterns of Africa south of the Sahara, followed by studies of the significant elements of the major realms and states, e.g., population distribution, patterns of subsistence and commercial agriculture, status of mineral and power resources, 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 regional 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 406 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 recent and an analysis of tourist frequency patterns to various resorts, cultural opportunities, and perception of places through travel brochures and literature are included in the present. 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.

GEOG 521 Studies in Climatology and Meteorology
3 hrs.
(Science credit) Studies at an advanced level in meteorology and climatology. Topics of current interest to atmospheric scientists are examined in depth. Regional climatic phenomena and their relation to atmospheric circulation patterns are also investigated. Prerequisite: GEOG 225 or consent of department.

GEOG 544 Studies in Economic Geography
2-3 hrs.
Present 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.

1. Agriculture. Describes and analyzes the distribution of major crops and livestock, and their combinations in common farming operations. The spatial organization of agriculture through time is analyzed for selected areas.

2. Industry. Evaluates the general distribution and locational factors associated with selected industries, giving particular attention both to models of industrial location and to the empirical interrelation of economic, technological, and political elements affecting the locational decision.

3. Transportation. Emphasizes the historical evolution of transport systems in developed and developing nations, transport factors that facilitate, inhibit, or control techniques of transport analysis, the urban transport problem, and competitive and complementary characteristics of transport modes in differing political systems. Prerequisites: GEOG 205 and GEOG 244 or consent of department.

GEOG 545 Studies in Human Geography
2-3 hrs.
Each course listed under this general title is a concentrated study of one of the principal subdivisions of human geography. The scope and principal themes of each specialized field are reviewed, with consideration given to current research on selected problems. Prerequisite: GEOG 203, or GEOG 205 or GEOG 244, or by consent of instructor. Courses may be repeated for credit.

1. Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion, and present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth's surface.

2. Historical Geography. Studies of geographic and related features which
have combined to influence the course of historical development. This course will concentrate on a particular region and/or period of time during each semester in which it is offered. Each specialization will be designated in the class schedule.

3. Political Geography. General survey of the principles and the applied aspects of political geography: primary emphasis on the physical and cultural resource bases and conflicts of national states, the assessment of location, boundary delimitation and the territorial sea, politically-organized territories within the administrative hierarchy, and electoral geography.

GEOG 553 Water Resources Management
3 hrs.
(Science credit) Examination of water resources management with emphasis upon rational development and utilization of available supplies. Topics include supply and demand, methods of supply augmentation (desalination, inter-basin transfers), water administration and policies, and various water problems together with their solutions.

GEOG 554 Outdoor Recreation: Resources and Planning
3 hrs.
(Science credit) Examination of extensive, resource-based outdoor recreation (such as parks, wilderness, wild rivers, hunting and fishing, hiking, etc.) with emphasis upon recreational planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and student-designed and executed individual studies provide professional orientation.

GEOG 555 Contemporary Issues in Resources Management
3 hrs.
(Science credit) Examination of selected contemporary natural resource and environmental problems, such as questions of natural resource adequacy, environmental pollution, energy shortages, political and economic problems related to resource management, and individual studies of local environmental problems. Prerequisite: GEOG 350 or consent.

GEOG 556 Studies in Urban and Regional Planning
3 hrs.
Each of the courses listed under this number focuses on a major aspect of planning, including a review of the objectives of the planning process, legislation pertaining to planning operations, and methods of field and library investigation required for analysis and policy formulation in matters related to planning.

1. Urban Planning and Zoning. A survey of American planning thought and practice; the background of planning and zoning in American municipalities; traditional and contemporary approaches to the comprehensive plan; elements of land use and transportation planning; the legal foundations of zoning; and the organization of the planning agency.

2. Regional Planning. Organization and plans of regional development programs.

3. Public Lands and Parks. Specific programs and policies relating to the preservation and/or development of government-controlled lands. Prerequisite: GEOG 356 or consent of department.

GEOG 557 Environmental Impact Assessment
3 hrs.
(Science credit) Alteration of the natural and human environment for perceived economic and social benefits often has significant adverse consequences. Recognition of this problem is reflected in federal, state, and local laws and regulations requiring environmental impact statements. This course provides an introduction to the analysis and preparation of environmental impact statements. Prerequisites: Senior standing and GEOG 350 or permission.

GEOG 566 Field Geography
2-4 hrs.
The theory and application of geographic techniques and instruments of field investigations: collection and analysis of field data, preparation and presentation of materials. The course is based primarily upon field observations. Prerequisite: GEOG 265 or 375, and 582, or consent of department.

GEOG 567 Computerized Geodata Handling and Mapping
4 hrs.
Principles and procedures involved in structuring and using computerized geographic data systems (applicable to land use analysis, impact assessments, and urban and regional planning), and in representing these data by computer mapping methods. Equivalent applications of these methods will be made to both microcomputers and larger main-frame computer systems. Prerequisite: Senior or graduate standing.

GEOG 568 Quantitative Methodology
3 hrs.
The application of quantitative concepts and methods to the solution of geographic problems. Critical review of research in quantitative geography, ranging from the use of common statistical techniques to alternate methods of model formation and the analysis of spatial problems. Prerequisite: GEOG 567 or the consent of department.

GEOG 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 student will acquire proficiency in the fundamental techniques and skills of photogrammetry and photo-interpretation during the first part of the course. The remainder of the semester will be spent in interpreting photos dealing with such topics as geomorphology, archaeology, vegetation and soils, water resource, rural and urban land use as well as topics adapted to the interest and anticipated future work of the student.

GEOG 597 Readings in Geography
1-3 hrs.
Designated 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
David Barnes
Ronald B. Chase
John D. Grace
William B. Harrison, III
Duane Hampton
Alan Kehew
Richard N. Passero
William A. Smith
Christopher J. Schmidt

Geology Major

Minimum 35 Hours

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>GEOL 130 Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 131 Earth History and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 335 Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 336 Optical Mineralogy</td>
<td>3</td>
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<tr>
<td>GEOL 430 Structural Geology</td>
<td>4</td>
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<tr>
<td>GEOL 433 Invertebrate Paleontology</td>
<td>4</td>
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<tr>
<td>GEOL 440 Petrology and Petrography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 532 Surficial Processes and Groundwater Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 535 Sedimentation and Stratigraphy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 560 Introduction to Geophysics</td>
<td>3</td>
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</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 532 Geomorphology
- GEOL 535 Sedimentation and Stratigraphy

COGNATE REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>CHEM 101 or 102</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 113, 114 and 115, 116 or 205, 206 and 207, 208</td>
<td>6-8</td>
</tr>
<tr>
<td>BIOS 101 Animal Biology</td>
<td>4</td>
</tr>
<tr>
<td>CS 105 Introduction to Programming</td>
<td>3-4</td>
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<tr>
<td>CS 306 Introduction to Programming</td>
<td>2</td>
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<tr>
<td>MATH 123 Calculus II</td>
<td>4</td>
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<tr>
<td>MATH 122 Calculus I</td>
<td>4</td>
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<tr>
<td>MATH 272 Vector and Multivariate Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 115 General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 114 General Physics II Laboratory</td>
<td>1</td>
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<tr>
<td>PHYS 116 General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101 OR 102 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 120 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS (8 hours)</td>
<td></td>
</tr>
<tr>
<td>CHEMISTRY (8 hours)</td>
<td></td>
</tr>
<tr>
<td>BIOL 101 Animal Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 101 OR 102 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 120 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS (8 hours)</td>
<td></td>
</tr>
<tr>
<td>PHYS 113 General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 114 General Physics I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 115 General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 116 General Physics II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 205 Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206 Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 207 Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208 Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

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 acceptable for education majors and minors.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 101 Animal Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 107 Introduction to Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101 OR 102 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 120 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>PHYSICS (8 hours)</td>
<td></td>
</tr>
<tr>
<td>CHEMISTRY (8 hours)</td>
<td></td>
</tr>
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<td>4</td>
</tr>
<tr>
<td>PHYS 208 Mechanics and Heat Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

Electives

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.

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 532 Geomorphology
- GEOL 535 Sedimentation and Stratigraphy
- ENGL 305 Practical Writing

Hydrogeology Major

Core: 39-40 hrs., Total: 74-75 hrs.

The hydrogeology major is designed to give individuals at the bachelor’s level a strong background in geology, hydrogeology, supporting sciences, mathematics and computer science. This program will prepare students to enter graduate programs and the job market as hydrogeologists.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 130 Physical Geography</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 131 Earth History and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 305 Practical Writing</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 124 Introductory Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 110 Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 130 Earth History and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 210 Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 500 Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 535 Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 532 Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 539 Field Studies in Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 544 Environmental Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 560 Introduction to Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

Students must elect one of the following courses:

- GEOL 536 Glacial Geology
- GEOL 565 Stream Hydrology
- GEOL 582 Remote Sensing of the Environment

Capstone Course

- GEOL 529 Summer Field Hydro...

Required Supporting Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 122 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 212 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 123 Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206 Mechanics and Heat</td>
<td>4</td>
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<tr>
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<td>4</td>
</tr>
<tr>
<td>CHEM 120 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 365 Introduction to Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CS 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>CHEM 222 Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 525 Techniques in Water Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 274 Introduction to Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 364 Statistical Methods</td>
<td>4</td>
</tr>
<tr>
<td>CS 201 Programming in FORTRAN</td>
<td>2</td>
</tr>
<tr>
<td>COM 104 Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>COM 170 Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 305 Practical Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

A minimum of a "C" is required in each of the required Geology courses.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Hydrogeology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- GEOL 532 Geomorphology
- GEOL 535 Sedimentation and Stratigraphy
- ENGL 305 Practical Writing

Field Hydrogeology Major


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.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ENGL 130 Physical Geography</td>
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</tr>
<tr>
<td>ENGL 131 Earth History and Evolution</td>
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</tr>
<tr>
<td>GEOL 210 Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 536 Glacial Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 565 Stream Hydrology</td>
<td>3</td>
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<tr>
<td>GEOL 582 Remote Sensing of the Environment</td>
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Capstone Course

- GEOL 529 Summer Field Hydro...

Required Supporting Courses

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<td>CS 111 Computer Programming I</td>
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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>
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</tr>
<tr>
<td>ENGL 305 Practical Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

A minimum of a "C" is required in each of the required Geology courses.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Field Hydrogeology major will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following courses:

- GEOL 532 Geomorphology
- GEOL 535 Sedimentation and Stratigraphy
- ENGL 305 Practical Writing
Science and Mathematics Teaching Minor

The Department of Geology participates in the sciences and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

Geology Courses (GEOL)

(Courses described in italics are approved for General Education.)

GEOL 100 Earth Studies 4 hrs. Fall, Winter, Spring
Students are introduced to the materials of which the earth is made, to the processes which have created the earth as we know it and to the geological hazards which affect our lives. Included are such topics as rocks and minerals, earthquakes and the structure of the earth, water occurrences and resources, glaciers, volcanoes, oceanography, mineral resources and fossil fuels, plate tectonics and continental drift, and the origin and evolution of life. Students intending to major or minor in earth science or related sciences should take GEOL 130.

GEOL 129 Physical Geology Laboratory 1 hr.
A laboratory experience covering minerals and rocks, and the interpretation of topographic and geologic maps. Prerequisite: Minimum 3 hours of nonlaboratory geology.

GEOL 130 Physical Geology 4 hrs. Fall, Winter, Spring
A study of the common rocks and minerals and geologic processes acting upon the materials that form the structure and surface features of the earth. Three lectures and a two-hour laboratory period.

GEOL 131 Earth History and Evolution 4 hr. Fall, Winter, Spring
Geologic time, evolution of prehistoric life, and principles of earth history with case examples from North America. Prerequisite: GEOL 130 or consent of department.

GEOL 300 Oceanography 3 hrs. Fall, Winter, Spring
Survey of oceanographic sciences including physical, chemical, biological, and geological oceanography. Lecture 3 hours a week.

GEOL 301 Minerals and Rocks 4 hrs. Winter
A one-semester course covering hand specimens, mineralogy, and petrology. Includes introduction to crystallography, physical and chemical properties of minerals, and rock description and genesis. Will not count toward a major in geology. Prerequisite: GEOL 100 or 130.

GEOL 307 Teaching of Earth Science 2 hrs.
Methods, educational philosophy, objectives, activities, professionalism, and preparation 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: 16 hours of Earth Science (including GEOL 100 or GEOL 130) or consent of the instructor.

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 descriptive 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 department.

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 2 hours a week. Prerequisite: GEOL 335 (may be taken concurrently).

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. Prerequisite: GEOL 131 or consent of department.

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 department.

GEOL 434 Problems in Geology 1-3 hrs.
Intensive reading and research on a topic in geology under the direction of a member of the geology faculty. Prerequisite: 16 hours in Geology and permission of department.

GEOL 440 Petrology and Pegotrophy 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 336.

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: 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 Hydrogeology 3 hrs.
The study of surface and groundwater with special emphasis on its chemistry, movement, and relation to the geologic environment. Prerequisite: Senior standing.

GEOL 513 Wetland Hydrology 3 hrs.
Introduction to hydrologic functions of wetlands, wetlands classification, and the relationship between hydrology and soil and plants. Emphasis will be placed on the use of these parameters in wetlands delineation. Prerequisite: Senior standing.

GEOL 514 Water Law 3 hrs.
Study of those federal and state laws that govern the distribution, use and pollution of natural waters. Emphasis will be placed on current interpretations and policy.

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.

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 335, or consent of department.

GEOL 529 Summer Field Hydro 1-6 hrs.
The course will emphasize state-of-the-art techniques for sampling, monitoring, and evaluating groundwater systems and surface-groundwater interactions. Particular consideration will be given to contaminated systems, aquifer testing, and selected geophysical methods. The course will provide students with a variety of experiences in applied hydrology. Prerequisites: 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 tectonic plates. Prerequisites: GEOL 131, 301 or 335.

GEOL 532 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, geology maps, and air photographs. Prerequisite: GEOL 130.

GEOL 535 Sedimentation and Stratigraphy 4 hrs. Fall
Processes, characteristics, and relationships among fluvial, deltaic, lacustrine, lagoon, shell and slope terrigenous depositional systems. Laboratory includes textural analysis, sedimentary structures, palaeocurrent 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 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 131 and consent of department.
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: Eight hours of geology, earth science, or consent of department.

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, floods, erosion and sedimentation, land subsidence, volcanic hazards, earthquakes, and urban geology. Field trips required. Prerequisite: GEOL 131 or consent.

GEOL 545 Carbonate and Evaporite Depositional Systems 
3 hrs. 
Processes, characteristics, and relationships of modern and ancient platform and basinal carbonate and evaporite facies. Course includes an 11-day field trip (Spring Vacation) to investigate Holocene, Pleistocene, and Tertiary carbonate environments and facies in Florida; and a 3-day trip to northern Indiana and Ohio to examine Silurian Platform carbonates. Student projects include logging description and interpretation of core and slabs at the mesoscopic level. Two 2 hour-meetings per week. Prerequisites: GEOL 433, GEOL 535 and consent.

GEOL 555 Clastic Deposition System 
3 hrs. 
Description and analysis of clastic depositional systems and the discussion of sediment that they produce with stratigraphic and seismic analysis. Prerequisite: GEOL 535 or consent of department.

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 130, 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 Shallow Exploration Geophysics 
3 hrs. 
Geophysical techniques (excluding electrical methods) used for shallow exploration: gravity, magnetics, seismic refraction and shallow seismic reflection. Theory, data collection, processing, and interpretation using analytical solutions, computer modeling and other techniques. Methods considered having particular applications to hydrogeology, civil engineering and mineral exploration. Two lectures and 3 hours practical laboratories, field exercises and problems. Prerequisites: GEOL 560, CS 306, and 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 hrs. 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.

GERMAN

See "Languages and Linguistics" in the College of Arts and Sciences.

HISTORY

Ronald Davis, Chair
George Beech
Linda Borish
Ernst Breisach
Richard Burke
Andrew Carlson
Lewis Carlson
Carol Cathcart
Janet Coryell
Howard Dooley
E. Rozanne Elder
James Ferree
Ralph Gordon
Ross Gregory
Robert Hahn
Bruce Haight
H. Nicholas Hammer
Barbara Havira
Graham Hawks
John T. Houdek
Paul Maier
Larry Massie
John Norman
R. Patrick Norris
Dale Pattison
Dale Porter
Evan Richards
Lucian Rosu
Peter Schmitt
Judith Stone
Joellette Stubbe
J. Kelli Sweet
Luis Toledo Pereyra
Bruce Westrate
Victor Xiong

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.

History majors 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/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.
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 3 hrs. at the 400-level  12
3. Electives in history  12
4. ANTH 210 and 250  3
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.

Minors
Ronald Davis, Undergraduate Adviser
4075 Friedmann Hall

PUBLIC HISTORY CURRICULUM (PUH)
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 Minor
COLLEGE OF ARTS AND SCIENCES CURRICULA; OTHER CURRICULA

Major requirements:
1. HIST 190, 390  4
2. One course from 404, 406, 410, 496, 499  3
3. At least one course each in United States, Non-Western, and European/General history at the 400-level  3
4. At least one course in United States history before 1877 or one course in European history before 1789  3-4
5. Minimum of 36 hrs. in history including 18 hrs. at the 400-level

Cognate requirements:
1. At least one approved course in a laboratory science  4
2. Two approved courses in allied 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

Public History Minor

COLLEGE OF ARTS AND SCIENCES 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

Cognate requirements:
1. One approved course in American history 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  3-4
3. Students whose teaching major is outside the College of Arts and Sciences must also complete HIST 396 (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.
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 MDVL 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. Extensive 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 outbreak of World War II. Topics include globalization of technology, commerce, communication and human expectations; economic integration and international cooperation; the dichotomy of nationalism and ethnicity and the emergence of a world culture, the world at war.

HIST 333 The World since 1945 3 hrs. Examination of the major developments of the second half of the twentieth century and the dichotomies of continuity and revolutionary change they present.

HIST 336 Women in European History 3 hrs. Examination of the condition of women in various periods of European history, with particular attention to women's changing status and experiences in the family and workplace. Study of various institutions, associations, and activities in which women expressed themselves becomes the basis for conclusions about women's contributions to European history and culture.

HIST 349 Ancient Near East 3 hrs. Ancient history of Near Eastern lands which also figure prominently in biblical accounts. Archaeology, prehistory, and the cradles of civilization in Mesopotamia and the Nile Valley. Survey of ancient Sumerian, Babylonian, Egyptian, Hittite, Phoenician, and Hebrew cultures, as well as the emergence of the Assyrian, Neo-Babylonian, and Persian empires.

HIST 350 Ancient Greece and the Hellenistic World 3 hrs. Origins of the ancient Greeks and their role in the Aegean civilizations of Crete, Troy, and Mycenae; the Homeric age, and development of the polis. Examination of the contrasting city-states of Athens and Sparta, as well as the unique cultural achievements and legacy of Hellenism; Alexander the Great and the Hellenistic world.

HIST 351 Ancient Rome 3 hrs. Roman history from earliest beginnings to the decline and fall of the Roman empire. The early Italic, Etruscan, and Greek cultures of ancient Italy prior to the emergence of Rome; rise of the Roman republic and conquest of the Mediterranean; civil wars, development of the empire and its ultimate collapse; cultural achievements of the age.


HIST 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, and the response of Latin America to the challenges of the twentieth century.

HIST 376 Modern 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 388 Introduction to African Civilization 3 hrs. Overview of major aspects of African history and civilization from earliest times to the present. Emphasis upon elements which contribute to the uniqueness of the African experience.

HIST 390 Introduction to the Study of History 3 hrs. Major themes and developments in historiography and historical thought. Ideas and 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; 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 1950s 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 into a unique Byzantine phenomenon. Coverage from Constantine the Great to the capture of Constantinople by the Ottoman Turks in 1453.

HIST 444 Early Medieval History 
3 hrs.
Evolution of medieval institutions and culture from the collapse of Rome to approximately the twelfth century.

HIST 445 Later Medieval History 
3 hrs.
The maturation and flourishing of medieval civilization from the twelfth century to the disintegration of medieval unity in the Renaissance. Emphasis on social and political institutions and intellectual developments.

HIST 446 Renaissance Europe 
3 hrs.
Political, intellectual, and artistic developments in Renaissance Europe, and the process of dissolution of the medieval world-view in the fourteenth and fifteenth centuries.

HIST 447 The Reformation 
3 hrs.
The collapse of European religious unity in the sixteenth century; religious wars, the appearance of regional churches, and Roman Catholic renewal; early traces of scientific and intellectual revolutions; arts and culture of the era.

HIST 450 Europe in the Seventeenth and Eighteenth Centuries 
3 hrs.
Major social, political, intellectual and cultural developments from the Thirty Years War through the Enlightenment.

HIST 452 French Revolution and Napoleon 
3 hrs.
Background, major events and phases of the French Revolution; Napoleon and the French empire; impact of the revolution on Europe and the rest of the world.

HIST 456 Europe 1815-1871 
3 hrs.
Europe from the Congress of Vienna to the Franco-Prussian War. Emphasis on the struggle between conservative and liberal forces and the growth of modern nationalism and national unity; economic and social impact of industrialization; arts and culture of the era.

HIST 457 Europe 1871-1919 
3 hrs.
Continued growth of nationalism and national rivalries; the golden age of European imperialism. Evolution of alliance patterns; background and major military and political events of World War I; economic and social impact of the second industrial revolution; arts and culture of the era.

HIST 458 Europe 1919-1945 
3 hrs.
Aftermath and political settlement of World War I; Europe of the 1920s; the rise of Fascism and economic collapse; the assault on ethnic and religious minorities and on democratic government; background and major events of World War II; arts and culture of the era.

HIST 460 Europe since 1945 
3 hrs.
Recovery and reconstruction following World War II; the East-West conflict; roles and objectives of major European states and blocs in international affairs; the movement toward European unity.

HIST 462 Great Ages in English History 
3 hrs.
Period studies in the history of England: Anglo-Saxon, medieval, Tudor-Stuart, Victorian and twentieth century. Topics listed in Schedule of 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 Early 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 Indo-Persian cultural influences in classical Islamic civilization; political, social, religious, and intellectual history from the seventh century to the Mongol conquests in the thirteenth century.

HIST 488 History of West Africa 
3 hrs.
Major themes of West African history from medieval times to the present, including development of states and empires; regional, Saharan and trans-Atlantic trade; economic transformations; the influence of Islam and
other religious institutions; and the dynamics of traditional West African civilization.

HIST 489 Topics in 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.

HIST 498 Directed Research 3 hrs.
Individualized research and production of a written project supervised by a faculty member. Registration requires a research proposal approved by a faculty member and the Department Chair. Prerequisite: 18 hours of history at the 300-level and above.

HIST 499 Senior Thesis 3-6 hrs.
Research, preparation and defense of a supervised research project. Registration requires approval by two faculty supervising project and the Department Chair. Honors students may substitute HNRS 499 (Honors College Thesis) with appropriate approval.

Undergraduates may not enroll in 500-level courses without 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 resources 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 520 Studies in Early American History 3 hrs.
Topics listed 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 556 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 558 Studies in Asian and African History 3 hrs.
Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 560 Proseminar 3 hrs.
Research and writing on selected themes. Topics may be listed in Schedule of Classes. May be repeated under different topics.

HIST 565 Studies in Modern European History 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 591 Topics in Theory and Practice 1-3 hrs.
Selected theoretical, technical, and interpretive issues in the field of history: interaction with methodologies of other social science and humanities disciplines; innovative forms and techniques of documentation and data collection; major historical interpretations currently before the academic world and the public. Topics listed in Schedule of Classes. May be repeated under different topics.

HIST 592 Computers in Historical Research 3 hrs.
Computer applications to historical and related research projects including manuscript analysis techniques, text-oriented databases, museum and historical agency database and registration systems, simulations, etc. Survey of applications in closely related disciplines. Prerequisite: CS 105 or equivalent.

HIST 595 History Writing Workshop 1-3 hrs.
Practicum in the writing of history: editing and publishing; preparation of written materials for lay readers and audiences outside the discipline. May be repeated to a maximum of six semester hours.

HIST 596 Local History Workshop 1-3 hrs.
Practicum in research techniques for problems in local and small community history, including oral tradition, genealogy, and interdisciplinary method. May be repeated to a maximum of six semester hours.

HIST 596 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.

INTEGRATED LANGUAGE ARTS MINOR
See "Interdisciplinary Programs" in the College of Arts and Sciences.
LANGUAGES AND LINGUISTICS

Peter W. Krawutschke, Chair
John Benson
Gary E. Bigelow
Roger L. Cole
E. Signe Dembow
Benjamin Ebbing
Jorge Febles
Robert Felkel
Jeffrey Gardiner
Robert Griffin
Diether H. Haenicke
Carolyn Harris
Daniel P. Hendriksen
Rand H. Johnson
Johannes Kissel
Paule M. Miller
Lalita R. Muizniece
Dasha Nisula
Robert A. Palmatier
Joseph Reish
Cynthia Running Johnson
Mercedes Tasende-Grabowski
Herman Teichert
Camille Vande Berg
Lindsey Wilhite

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.

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 work equivalent to one semester of University work. Consequently:

1. A student underplacing receives no more than 4 hours of University credit and no more than 4 hours credit towards a major or a minor until the required level is reached.

2. A student may overplace by one or two courses. This student is allowed to decide on whether to omit the course overplaced. If he/she chooses to omit the course, he/she is eligible to receive credit, but must check with the Placement Director.

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 of 20 credit hours for an undergraduate minor) beyond the 100-level (basic) courses. At least two 500-level courses must be included in a modern language major.

Teaching certification is approved for majors or minors in secondary and middle school and junior high school education for the following languages: French, German, Latin (secondary only), Russian (minor only), and Spanish.

A language methods course is required for all teaching majors and minors in the foreign languages. Exceptions to the patterns may be granted only by departmental permission. For courses in Independent Study, consult listings under the individual language concerned.

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

Baccalaureate Writing Requirement

Students who have chosen to major in French, German, Latin, and Spanish will satisfy the Baccalaureate Writing Requirement by successfully completing LANG 375 Foreign Literature in English Translation.

Students who have chosen to major in Latin or in Linguistics will satisfy the Baccalaureate Writing Requirement by successfully completing ENGL 305 Practical Writing.

Majors and Minors

FRENCH MAJOR
Thirty hours beyond the 100 level, to include French 316, 317, 322 or 323 (or both), 325, 560 and one additional course at the 500 level. Language 558 is required of education majors and minors.

FRENCH MINOR
Twenty hours beyond 100-level to include 316 and 317. Modern Language Instruction 558 may not be counted toward a minor.

GERMAN MAJOR
Thirty hours beyond 100-level to include 316, 317, 322, 325, and at least two 500-level courses other than 558. Students in the education curriculum are required to take Modern Language Instruction 558.

GERMAN MINOR
Twenty hours beyond the 100-level to include 316, 317, and 322 or 325 plus one 500-level course. Modern Language Instruction 558 may not be counted toward a minor.

JAPANESE MINOR
Twenty-three hours including 100-level (basic) courses or equivalent.

LATIN MAJOR
Thirty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series which may include LANG 250, 252, 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 250, 252, 375, and 450. Teaching minors must include LAT 200, 201, and 557.

LATVIAN MAJOR
Thirty-seven hours beyond LATV 200 competency, to include: 201, 316, 317, 320, 322, 325, 551, 560, and 597; and FSCI 549.

LATVIAN MINOR
Twenty-five hours beyond LATV 200 competency, to include: 201, 316, 317, 320, 322, 325, and 597; and FSCI 549.

RUSSIAN MINOR
Twenty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series.

SPANISH MAJOR
Thirty hours beyond the 100-level to include 322 or 323, 325, and three 500-level courses (to include 3 hrs. from 526, 527, 528, 529, or 560). Students in the education curriculum are required to take Modern Language Instruction 558, which will be accepted in place of one 500-level non-literature course.

SPANISH MINOR
Twenty hours beyond 100-level to include 6 hrs. from 322, 323 or 325. Modern Language Instruction 558 is required for students in the education curriculum, but may not be counted toward a minor.

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.

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.
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 insights 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
  - Selected works from the literature of ancient Greece and Rome, including masterpieces by Homer, the Greek dramatists, Vergil and Ovid.
- French Literature in English Translation
  - A thematic and stylistic analysis of major French writers from LaFayette to the present, to include Stendahl, 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, Turgenev, Dostoievski, Tolstoy, Gorki, Sholokhov, Pasternak, and Solzhenitsyn.
- 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 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 Lazarrillo de Torres.

Classics Courses 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 250 Ancient-Modern Studies 3 hrs.

The course is designed to examine the Greco-Roman world and its influence on the modern world in as many perspectives as possible. Examples: the rebel in society, concepts of justice, ancient literary criticism, ancient and modern technology. Topics vary and will be announced each year. May be repeated for credit with different topics.

LANG 252 Classical Origins of English Vocabulary 3 hrs.

This course gives the student—even the student without any knowledge of a foreign language—an understanding of how Greek and Latin elements, which make up over half of our English vocabulary, operate in both literary and scientific usage. Attention is paid to how words acquire their meaning and to enriching each student's working vocabulary.

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. Departmental approval required for admission. 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: permission of Department.

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. This course will be offered regularly.

The comparable methods course for Latin is LAT 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 multi-ethnic 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 knowledge of the language may also apply. Undergraduates must secure a “C” card. No oral work. This course does not count toward a major or minor in French.

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.

GER 101 Basic German I
4 hrs.
Continuation of 100. Prerequisite: GER 100 or equivalent. Does not count toward a major or a minor.

GER 102 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 371 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 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.

GREEK 101 Basic Greek I
4 hrs.
Fundamentals of classical Greek; readings emphasize Greek thought, culture, and civilization.

GREEK 102 Intermediate Greek I
4 hrs.
Continuation of 100. Prerequisite: GREEK 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.

Prerequisite: One 500-level course in the major; a minimum grade point average of 3.0 in the major. Not open to minors.

GER 552 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 553 Advanced German Conversation
3 hrs.
Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: GER 316 and 317.

GER 559 History of the German Language
3 hrs.
Survey of the development. Prerequisite: 6 hours of 300-level German or above.

GER 560 Studies in German Literature
3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: GER 316, 317, 322 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 (GREEK)
(Courses described in italics are approved for General Education.)

GREEK 100 Basic Greek I
4 hrs.
Fundamentals of classical Greek; readings emphasize Greek thought, culture, and civilization.

GREEK 101 Basic Greek II
4 hrs.
Continuation of 100. Prerequisite: GREEK 100 or equivalent.
### Japanese (JPNS)

**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.

### Latin (LAT)

(Courses described in italics are approved for General Education.)

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

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

**LAT 200 An Introduction to the Study of Latin Literature**
- 4 hrs.
- A review of Latin grammar based on selections from Latin authors representing various genres, for example: history, satire, political oratory, lyric poetry, comic drama. Prerequisite: LAT 101 or equivalent.

**LAT 201 Lyric Poetry**
- 4 hrs.
- Intermediate Latin. Readings from Latin lyric poems, with special attention to development in use of fundamental language skills and the understanding and appreciation of the thought and style of the Aeneid. Prerequisite: LAT 200 or equivalent.

**LAT 204 Vergil**
- 4 hrs.
- Intermediate Latin. Development in use of fundamental language skills and the understanding and appreciation of the thought and style of the Aeneid. Prerequisite: LAT 200 or equivalent.

**LAT 324 Latin Literature**
- 4 hrs.
- Selections from Latin prose and poetry. Since specific readings vary according to genre, author, or period, this course may be repeated for credit. Prerequisite: LAT 200 or 201 or equivalent.

**LAT 477 Foreign Study**
- 1-2 hrs. Fall-Winter; 1-8 hrs. Spring-Summer
- Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental advisor and chairperson.

**LAT 557 Teaching of Latin**
- 3 hrs.
- The purpose of the course is to acquaint the prospective teacher with theory and practice appropriate to the teaching of the Latin language, literature, and culture in its classical context and as it relates to the modern world. Required of Latin teaching majors and minors.

**LAT 560 Medieval Latin**
- 3 hrs.
- A study of the period 500-1500 A.D. when Classical Latin was evolving into new vernacular forms which would eventually become the modern Romance Languages. Prose and poetry readings include a variety of themes reflecting the intellectual, cultural, and religious thinking of the times. Prerequisite: One of LAT 200, LAT 201, LAT 324 or equivalent or permission of the department.

### Latvian (LATV)

**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 200 or equivalent.

**LATV 201 Intermediate Latvian II**
- 4 hrs.
- Continuation 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.
- Intensive practice in writing Latvian, in order to improve the student's ability to express him/herself effectively and to develop an individual style of composition. Recognition and production of various language usages and styles. Problems and practice of translation. Individual writing projects. Prerequisite: LATV 201 or equivalent.

**LATV 317 Latvian Conversation**
- 3 hrs.
- Emphasis upon increasing the student's command of spoken Latvian. Prerequisite: LATV 200 or equivalent, or instructor's permission.

**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.

**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: LATV 201 or equivalent, or instructor's permission.

**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: Instructor's permission.

**LATV 551 Advanced Latvian Grammar and Composition**
- 3 hrs.
- Intensive review of Latvian structure and practice in composition. Prerequisite: LATV 316 or equivalent.

**LATV 560 Studies in Latvian Literature**
- 3 hrs.
- Topic varies according to genre, author, or period and will be announced. May be repeated for credit under different topics. Prerequisite: LATV 325 or instructor's permission.

**LATV 597 Seminar in Latvian Linguistics**
- 2-4 hrs.
- Each seminar will deal with a selected topic relating to Latvian linguistics, e.g. the development of the Latvian literary language—from folk literature to the present-day idiom. May be repeated for credit with a different topic. Prerequisite: Instructor's permission.

**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. Permission of advisor, instructor and chairperson required.
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.  
Continuation of RUSS 101. Prerequisite: RUSS 100 or equivalent.

RUSS 101 Basic Russian II  
4 hrs.  Continuation of RUSS 100. Prerequisite: RUSS 100 or equivalent.

RUSS 104 Scientific Russian  
4 hrs.  Basic grammar and practice in translation of scientific and technical material from Russian to English. Course is intended for undergraduates who are declared majors in physical or social sciences and desire a knowledge of Russian for reading purposes only. Course is open on a non-credit basis to graduate students and interested faculty and staff.

RUSS 200 Intermediate Russian I  
4 hrs.  Level two Russian. Review and furthering of oral and reading skills based on 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; required for minors.

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 344 Summer Study in the Soviet Union  
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 of the Soviet Union 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.

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. 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.  
Continuation of SPAN 101. 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 317 Spanish Conversation  
3 hrs.  Emphasis upon increasing the student's command of spoken Spanish. Prerequisite: SPAN 201 or equivalent. (SPAN 316 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 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.

SPAN 510 Studies in Hispanic Culture  
3 hrs.  An intensive study of various aspects of Spanish and Spanish American culture. Emphasis is on cultural understanding as an avenue to increased proficiency in the Spanish language. Since specific topics will vary each semester, this course may be repeated for credit. Prerequisites: SPAN 316, 317, either 322 or 323, plus one additional course at the 300 or 500 level.

SPAN 526 Survey of Spanish Literature to the 18th Century  
3 hrs.  A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 316, 317 and 325.

SPAN 527 Survey of Spanish Literature from the 18th Century to the Present  
3 hrs.  A survey of Spanish literature from the eighteenth century to the present. Prerequisites: SPAN 316, 317 and 325.

SPAN 528 Survey of Spanish American Literature to Modernismo  
3 hrs.  A survey of Spanish American literature from its origin to the era of Modernismo (late 19th century). Prerequisites: SPAN 316, 317, and 325.

SPAN 529 Survey of Spanish American Literature from Modernismo to the Present  
3 hrs.  A survey of Spanish American literature from late 19th century to the present. Prerequisites: SPAN 316, 317, and 325.

SPAN 550 Independent Study in Spanish  
1-3 hrs.  Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One 500-level literature course in the major; a minimum grade point average of 3.0 in the major. Not open to minors.

SPAN 552 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 553 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 3 hours from 526, 527, 528, or 529 are recommended.

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: 3 hours from SPAN 526, 527, 528, 529 or departmental permission. Representative topics which may be treated in this 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.
Linguistics Programs

Linguistics Major and Minor

I. CORE COURSES IN LINGUISTICS (20 hrs. required for both majors and minors)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tr>
<td>Linguistics</td>
<td>105</td>
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<td>100 Basic Critical Languages I</td>
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<td>515 Methods of Teaching Critical Languages</td>
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<td>540 Generative Grammar</td>
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<td>551 Psycholinguistics</td>
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<td>552 Sociolinguistics</td>
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II. ELECTIVE COURSES IN LINGUISTICS
(Majors must take at least 4 hrs.)

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<tr>
<th>Course</th>
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<tr>
<td>Anthropology</td>
<td>370</td>
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<td>Culture and Communication</td>
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<td>Communication</td>
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<td>Intro. to Communication Theory</td>
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<td>372 Intro. to General Semantics</td>
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<td>572 Non-Verbal Communication</td>
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<td>574 Intercultural Communication</td>
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<td>English</td>
<td>371</td>
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<td>Structures of Modern English</td>
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<td>372 Development of Modern English</td>
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<td>373 Reading as Psycholinguistic Processes</td>
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<td>572 American Dialects</td>
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<td>574 Grammar for Teachers</td>
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<td>Modern and Classical Languages</td>
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<td>French Phonetics</td>
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<td>558 Modern Language Instruction</td>
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<td>559 History of the German Language</td>
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<tr>
<td>Speech Pathology and Audiology</td>
<td>203</td>
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<td>Normal Language Acquisition</td>
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<td>204 Phonetics</td>
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<td>260 Ling. Development of the Child</td>
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Critical Language Minor

20 hours

I. INTRODUCTORY LINGUISTICS COURSE
(to be taken during first year of major). 4 hrs.
LING 105 The Nature of Language  4

II. BASIC COURSES
(both in the given language) 8 hrs.
LING 100 Basic Critical Languages I  4
LING 101 Basic Critical Languages II (Prereq.: 100)  4

III. INTERMEDIATE COURSES
(both in the given language) 8 hrs.
LING 200 Intermediate Critical Languages I (Prereq.: 101)  4
LING 201 Intermediate Critical Languages II (Prereq.: 200)  4

IV. LITERACY COURSES
(Optional—see below) 4 hrs.
LING 315 Reading Critical Languages (Prereq.: 201)  4
LING 316 Writing Critical Languages (Prereq.: 201)  4

General Information

ADMISSION TO THE PROGRAM
Undergraduate students (including linguistics majors and minors) may be admitted to the critical language minor at any level, provided that they are not in a teacher education curriculum and are not native, fluent, and literate speakers of the language.

ELIGIBLE LANGUAGES
The eligibility of languages varies from year to year. Languages currently scheduled by name are automatically eligible. The eligibility of others depends on available resources. Contact the critical languages supervisor in Linguistics for up-to-date information.

LINGUISTICS MAJORS AND MINORS
Undergraduate majors and minors in linguistics, who are already required to take an introductory linguistics course for their program, must take a literacy course in the given language (315 or 316) in order to complete the requirements for the critical language minor.

CREDIT BY EXAMINATION
Undergraduate students who feel that they possess the equivalent of 100, 101, 200, 201, 315, or 316 may "comp out" courses for credit, provided that they pay the fees and pass an examination with a grade of "C" or better.

Integrated Language Arts Minor

The Department of Languages and Linguistics is one of five participating departments in the integrated language arts minor—a program designed particularly for preservice elementary school teachers. The program provides opportunities for a wide variety of individual interests and alternative learning styles. 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.

Courses By Topic

GENERAL LINGUISTICS COURSES
105 The Nature of Language  321 Phonology and Morphology
331 Syntax and Semantics  421 The Development of Language: History and Dialects
500 Introduction to Linguistics  511 Methods of Teaching English as a Second Language
512 Principles of Teaching English as a Second Language  515 Methods of Teaching Critical Languages
540 Generative Grammar  551 Psycholinguistics
552 Sociolinguistics  598 Readings in Linguistics

ENGLISH AS A SECOND LANGUAGE COURSES (for foreign students)
111 Standard American English: Intermediate
112 Standard American English: Advanced

Languages and Linguistics 127
CRITICAL LANGUAGES COURSES

(A "critical" language is a foreign language which is not described in the Undergraduate Catalog as a regular offering in Modern and Classical Languages. Critical language credit can be used to satisfy most undergraduate foreign language requirements.)

100 Basic Critical Languages I
101 Basic Critical Languages II
200 Intermediate Critical Languages I
201 Intermediate Critical Languages II
315 Reading Critical Languages
316 Writing Critical Languages

LINGUISTICS COURSES

(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 315 Reading Critical Languages
4 hrs.
Intensive practice in reading literature, newspapers, and other literary materials in the critical language, including sources from the student's major field of study. Prerequisite: LING 201 or equivalent.

LING 316 Writing Critical Languages
4 hrs.
Intensive practice in writing a critical language to improve the student's ability to express himself/herself effectively and to develop an individual style of composition. Prerequisite: LING 201 or equivalent.

LING 321 Phonology and Morphology
4 hrs.
An introduction to the study of sound systems (phonology) and word systems (morphology) and to the principles and methods of their analysis and description. Prerequisite: One linguistically-related course.

LING 331 Syntax and Semantics
4 hrs.
An introduction to the study of sentence systems (syntax) and meaning systems (semantics) and to the principles and methods of their analysis and description. Prerequisite: One linguistically-related course.

LING 421 The Development of Language: History and Dialects
4 hrs.
An examination of the processes of language change and dialect development and the principles which govern the historical and comparative study of languages and dialects. Prerequisite: one linguistically-related course.

LING 500 Introduction to Linguistics
4 hrs.
An introduction to modern linguistic theory and to the application of that theory to linguistically-related disciplines.

LING 515 Methods of Teaching Critical Languages
2 hrs.
Study of the application of linguistics to the teaching of one or more "critical" languages. Emphasis will be on modern and traditional methods and materials for instruction and testing. Course work will include tutorial experience. May be repeated for credit for a different language. Prerequisite: LING 201 or equivalent.

LING 540 Generative Grammar
4 hrs.
An examination of the theories of Transformational Grammar and Generative Semantics, and a study of their origins, development, modification, and applications. Prerequisite: LING 500 or equivalent.

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:**
  - LING 316 French Composition
  - LING 317 French Conversation
  - LING 325 Close Reading in French
  - LING 551 Advanced French Grammar and Composition

- **In German:**
  - LING 316 German Composition
  - LING 317 German Conversation
  - LING 325 Introduction to the Study of German Literature
  - LING 552 Advanced German Composition

- **In Latin:**
  - LING 316 Latin Composition
  - LING 317 Latin Conversation
  - LING 325 Introduction to the Study of Latin Literature

2. The prerequisite Language courses must have been completed with a "C" average prior to enrolling in this 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
ENGL 305 Practical Writing
TRNS 310 Introduction to Translation
TRNS 510 Translation Seminar
TRNS 590 Translation Practicum (3 X 3 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.

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, 551, or GER 316, 317, 325, 552, or LATV 316, 317, 325, 551, or SPAN 316, 317, 325, 552.

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.

LATIN
See "Languages and Linguistics" in the College of Arts and Sciences.

LATVIAN
See "Languages and Linguistics" in the College of Arts and Sciences.

LINGUISTICS
See "Languages and Linguistics" in the College of Arts and Sciences.

MATHEMATICS AND STATISTICS
Yousef Alavi, Chair
Robert Blefko
Christine Browning
Joseph T. Buckley
Dwayne Channell
Gary Chartland
A. Bruce Clarke
John Crowell
Clifton Ealy
Paul Eningenburg
James Flanders
Anthony Gioia
Donald Goldsmith
Christian Hirsch
Philip Hsieh
S.F. Kapoor
Robert Liang
Joseph McCanna
Joseph McKean
Ruth Meyer
Danel Mihaliko
Joshua Naranjo
Dennis Pence
John W. Petro
James Riley
Erik A. Schreiner
Allen Schwenk
Robert Sechler
Gerald Severs
Arthur Stoddart
Michael Stolte
Jay Treiman
Walter Tuner
Jung 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: Applied, General, Secondary Teaching, and Statistics. Minors available include the General Minor, Applied Statistics Minor, Statistics, Secondary Teaching of Mathematics, and the Science and Mathematics Teaching Minor. These major 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/assistant to the chair, through the Mathematics and Statistics Department. Phone (616) 387-4510 or write: Mathematics and Statistics Department, Western Michigan University, Kalamazoo, MI 49008. All majors must contact a faculty advisor in mathematics and statistics during their second year of study. All minors, except General Math minors, must contact an advisor.

At most, one course with a grade below "C" can be applied toward a major or minor in Mathematics or Statistics.

MATHEMATICS AND STATISTICS 129

Mathematics Major
Options

Applied Mathematics
Option

There is a growing need for people who combine knowledge of mathematics and science to formulate and solve practical problems. The intent of the Applied Mathematics Option is to provide a broad range of computational and analytical skills, practice in mathematical modeling and some fundamental knowledge of a scientific discipline. Computational and applied mathematicians are employed in a variety of positions in industry, business, and government. Students must complete a minor in one of Biomedical Sciences, Chemistry, Computer Science, Physics, or Statistics. 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
MATH 120
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
CS/MATH 506 Scientific Programming .... 3
PHYS 205 Mechanics and Heat .................. 4
PHYS 206 Mechanics and Heat Laboratory .... 1
PHYS 207 Electricity and Light
PHYS 208 Electricity and Light Laboratory

OR

CHEM101 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...
Mathematical Proofs.

successfully completing MATH 314 Teaching option will satisfy the Baccalaureate Writing Requirement by Students who have chosen the Secondary One of MATH 490, 506, 540, 570, 580 3 REQUIREMENT MATH 440 3 MATH 550 3 MATH 364 4 MATH 340 3 MATH 250 4 MATH 230 4 MATH 272 4 MATH 314 3 MATH 330 4 MATH 250 3 MATH 230 4 MATH 227 4 MATH 272 4 MATH 314 3 MATH 330 4 MATH 250 3 MATH 230 4

focus on the improvement of mathematics and science education, this program offers a

The Secondary Teaching Option, which combines theoretical mathematics with

students planning to teach in a junior or senior high school. With the current national

focusing on the improvement of mathematics and science education, this program offers a

timely and attractive option.

MATH 122 4 MATH 123 4 MATH 230 4 MATH 250 3 MATH 314 4 MATH 330 4 MATH 340 3 MATH 350 2 MATH 364 3 MATH 440 3 MATH 550 3 One of MATH 490, 506, 540, 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 Major

The field of statistics is concerned with the collection and analysis of data, with various
descriptive and inferential methods of analyzing data and with proper interpretation
of the results. Statisticians frequently work in government and industry as part of a team of
specialists, in areas such as business, biology, pharmacies, demography, economics, and the health sciences. Shortages of qualified statisticians are anticipated through the next decade.

MATH 122 4 MATH 123 4 MATH 230 4 MATH 272 4 MATH 314 3 MATH 362 4 MATH 364 4 MATH 391 4 MATH 460 3 MATH 567 4 Two of MATH 563, 566, 568, 570 . 6 Plus CS 111, CS 201, and MATH 506 or CS 306 and MATH 506 (5-8 hrs.). A minor in Computer Science is recommended. Students planning graduate study in statistics should elect MATH 570.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Statistics major will satisfy the Baccalaureate Writing Requirement by successfully completing MATH 314 Mathematical Proofs.

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 4 MATH 123 4 MATH 230 or 374 4 Computer Science courses: One of CS 105, 106, 111, 206 . 4-8 Electives . 6-8 Two of the following: MATH 272, MATH 274 (not if 374 is selected); MATH 145 or 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

MATH 122 4 MATH 123 4 MATH 230 4 MATH 250 3 MATH 314 4 MATH 330 4 MATH 340 3 MATH 350 2 MATH 364 3 MATH 440 3 MATH 550 3 Approved electives (MATH 330 or 340) . 3-4

Statistics Minor Option

MATH 260, 364 or 366 . 4 MATH 362 . 4 MATH 567 or 568 . 2 CS 306 . 2 Approved Elective . 3-4 The elective would normally be selected from the following list of courses: MATH 563, 566, 567 and 568. An approved introductory course in statistics may be substituted for either 260, 364 or 366.

Applied Statistics Minor Option

CS 306 . 2 MATH 366 or equivalent . 4 MATH 567 . 4 Two of MATH 563, 566, 568 . 8

Middle School and Junior High School Teaching Minor Option

Students in a Middle School and Junior High School curriculum must contact a mathematics advisor for information on available mathematics programs.

MATH 150 . 4 MATH 151 . 3 MATH 265 . 4 MATH 452 . 4 MATH 552 . 3 MATH 595 . 2

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 requirements for graduation with Honors in Mathematics are under review with a possible link to the Honors College requirements being considered.

Qualified students may plan a program to graduate with honors in mathematics or statistics. The requirements are:

1. Grade point average of at least 3.7 in mathematics and statistics courses
2. Overall grade point average of at least 3.25
3. Completion of two of the following:
   — an honors seminar (can be the Putnam Seminar)
   — an upper-level theoretical course
   — an approved independent study project leading to a paper or presentation

Honored students should see the associate chair in their junior year or early in their senior year to plan an “honors program”.

Putnam Seminar

The Putnam Seminar is a problem solving seminar offered under the course number
MATH 390. Under the direction of a faculty member students practice techniques for solving very challenging problems. Students in the seminar participate in the William Lowell Putnam national intercollegiate mathematics competition.

Mathematics and Statistics Courses (MATH)

Students who fail to earn a "C" or better 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
2 hrs.
A mastery-based remedial course designed to sharpen computational skills involving whole numbers, fractions, decimals, percents, 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 101, 111, 116, 118, 122, or 200 or equivalent transferable courses. Prerequisite: MATH 109 or satisfactory score on placement test.

MATH 111 Algebra II
3 hrs.
A continuation of MATH 110. Topics include polynomials, fractional and radical equations, logarithmic and exponential functions, complex numbers, quadratic equations, and systems of quadratic equations. Credit for MATH 111 will not be granted to anyone having already received credit with grade of "C" or better in any of MATH 101, 111, 116, 118, 122, 200 or equivalent transferable courses. Prerequisite: MATH 110, or 1 year of high school algebra 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. Students cannot receive full credit for both MATH 101 and 118.

MATH 122 Calculus I
4 hrs.
The first of a two-semester sequence in differential and integral calculus. Functions, limits, continuity, techniques and applications of differentiation, trigonometric, logarithmic, and exponential functions. Prerequisite: MATH 118, or at least 3/5 years of college preparatory mathematics including trigonometry and satisfactory score on placement test. Students 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 Algebras and asymptotic analysis of algorithms. The relationship of these concepts with computer science will be emphasized. Prerequisite: MATH 122, and an introductory programming course.

MATH 150 Structure of Arithmetic
4 hrs.
This course is designed to provide the elementary teacher with a minimum foundation in the structure of arithmetic. Included will be a discussion of sets, relations, and properties of natural numbers, integer, and real numbers, as well as selected topics from number theory and algebra. This course can only be applied to the mathematics requirements of a program leading towards elementary teacher certification. Prerequisite: MATH 110 or adequate performance on placement test.

MATH 151 Geometry for Elementary Teachers
3 hrs.
This course is devoted to an analysis of geometric figures in the plane and space and to an investigation of geometric and topological transformations, their invariants and resulting symmetries, symmetry groups and measurement. Emphasis will be on the active participation of the student in the process of discovering and communicating the mathematical ideas.

MATH 190 Survey of Mathematical Ideas
4 hrs.
A survey of significant, active areas of mathematics with an emphasis on concepts rather than calculations. The historical origin and development of certain mathematical ideas will be included. The areas of mathematics investigated will include topics from set theory, probability theory, number theory, computer mathematics, and graph theory. This course will not satisfy any program requirements in mathematics.

MATH 200 Calculus With Applications
4 hrs.
A terminal one semester course in calculus with emphasis on techniques and applications. Topics include functions, limits, differentiation, integration and applications. This course should not be elected by those students taking courses in the MATH 122-123 sequence. Prerequisite: MATH 111, or 1/2 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, correlation 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 software 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 programming 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; measures of central tendency; binomial, hypergeometric, normal, 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
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 and a course in the use of computers. Cross listed with IE 261.
MATH 262 Probability for Engineers 3 hrs.

MATH 265 Probability and Statistics for Elementary Teachers with Computer Applications 4 hrs.
The topics in this course will include the organization of statistical measures, probability and decision making, testing hypotheses, and correlation. This course 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 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 axiomatic systems. MATH 314 and 145 may not both be used for the same major or minor. 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. Emphasis will be placed 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 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 also 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 cannot receive credit for both 274 and 374, or 230 and 374. Prerequisite: MATH 272.

MATH 390 Undergraduate Seminar 1 hr.
This seminar features student participation covering mathematical topics not normally included in regular major programs. May be repeated for credit. Prerequisite: permission of Department.

MATH 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 project and from interaction 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 proof techniques. Examples of other discrete models may be considered. Prerequisites: MATH 145 or MATH 314 or consent of instructor.

MATH 445 Algorithmic and Applied Combinatorics 3 hrs.
An algorithmic approach to combinatorics including graph theory, enumeration, and applications. Prerequisites: MATH 145 or MATH 314 (CS 111 recommended).

MATH 450 Teaching of Secondary 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 452 Mathematical Problem Solving for Elementary Teachers 4 hrs.
This course will provide experiences in mathematical problem solving for prospective elementary teachers. Students will become familiar with a variety of problem solving strategies such as analyzing patterns, simplifications, etc. The use of computer methods in problem solving will be a major consideration. Prerequisite: MATH 111 or satisfactory score on placement exam, and MATH 265.

MATH 460 Introduction to Mathematical Statistics 3 hrs.
Topics to be included are multivariate probability distributions, asymptotic theory, theory of estimation, and likelihood ratio tests. Prerequisites: MATH 230, 272, 362, and 364.

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 the student to significant topics not ordinarily encountered and to present more variety in his undergraduate program. May be taken more than once with the approval of the student's advisor. Prerequisite: Approval of Department.

MATH 506 Scientific Programming 3 hrs.
An introduction to solving scientific and engineering problems on computers. The topics include root-finding, matrix calculations, 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. Jointly listed with Computer Science.
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. Prerequisite: MATH 230, MATH 272 and MATH 274 or MATH 374 and MATH/CS 506. Cross listed with Computer Science.

MATH 510 Applied Matrix Algebra
3 hrs.
An introduction to the study of methods to solve linear systems of equations, least squares approximation problems, and eigenvalue problems. Topics covered include the algebra of real and complex matrices, particular emphasis on LU-decompositions, QR-decompositions, singular value decompositions, generalized inverses, Hermitian symmetric matrices, positive definite matrices and the Spectral Theorem. Applications from multivariate calculus will be discussed. Prerequisites: either MATH 230 and MATH 272, or MATH 374.

MATH 530 Linear Algebra
3 hrs.
Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 330.

MATH 552 Teaching of Elementary Mathematics
3 hrs.
Consideration is given to curriculum problems and trends in elementary school mathematics and to specific problems of teaching mathematics effectively to elementary school children. Computer terminology and applications of computers in elementary mathematics classrooms will be integral parts of this course. Prerequisite: MATH 265 or consent of department.

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 applied statistics which combines both theory and applications. Topics include: elementary theory of estimation and hypothesis testing; the use of the normal; binomial, chi-square, F and t distributions in statistics problems involving means and variances; simple linear regression and correlation; one-way and fixed effects models. Prerequisite: MATH 560 or 362.

MATH 563 Sample Survey Methods
3 hrs.
This course consists of a broad overview of the techniques of survey data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-state cluster, and two-stage cluster sampling; ratio and regression estimation; subpopulation analyses; problems of nonresponse; surveys of sensitive issues; minimization of survey costs; sample size determination. Real surveys are discussed and actual survey data are analyzed. Prerequisite: An introductory statistics course and consent of Instructor.

MATH 564 Introduction to Statistical Computing
2 hrs.
An introduction to the use of statistical computer software. The emphasis will be on how to use existing software effectively. Statistical packages discussed will include MINITAB, SAS, SPSS, and BMDP. Statistical work treated will include: data entry, editing, statistical analysis of the data and two sample problems, analysis of variance, and regression analysis. Prerequisites: WMU's computer literacy requirement and an introductory statistics course.

MATH 565 Design of Experiments of Quality Improvement
3 hrs.
This course covers statistical methods useful for improving the quality of products and systems in an industrial setting. It provides a comprehensive set of tools to use in building better products and in reducing manufacturing and other costs. The focus will be on solving real engineering problems through case studies. Taguchi methods will be discussed along with modifications from standard statistical practice. Topics will include planning and experiment, experimental strategy, Analysis of Variance concepts, factorial designs, orthogonal arrays, loss functions, signal-to-noise ratios, identifying significant factor effects, graphical methods, parameter design and tolerance design. Prerequisite: An introductory course in statistics.

MATH 566 Nonparametric Statistical Methods
3 hrs.
This course presents a broad overview of statistical methods commonly referred to as nonparametric or distribution-free methods. Topics include: inference for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing based on ranking methods, measures of rank correlation, efficiency. Emphasis will be on the application of nonparametric statistical methods to data from many different applied fields. Prerequisite: An introductory statistics course.

MATH 567 Statistical Design and Analysis of Experiments
4 hrs.
A course in experimental design and the analysis of variance with particular emphasis on industrial experiments. Topics include: complete randomized, randomized complete block; latin square, and split-plot designs; orthogonal contrasts and polynomials; multiple comparisons; factorial arrangement of treatments; confounding; fractional replication. The course is molded around the complete analysis of good applied problems. Prerequisite: An introductory statistics course.

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; stepwise regression; use of indicator variables; non-linear regression. Prerequisite: An introductory statistics course.

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, Stoke's Theorem, analytic functions, Laurent expansions, residues, argument principle, and conformal mapping. Prerequisites: MATH 230, 272 and 274) or (MATH 374).

MATH 574 Advanced Differential Equations
3 hrs.
Series solutions at ordinary and singular points of linear ordinary equations, Bessel and Legendre functions, self-adjoint boundary value problems, Fourier series, solution of partial differential equations by separation of variables. 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 585 Seminar in Elementary Mathematics Education
1-3 hrs.
Current curriculum problems in the area of elementary mathematics education are identified and discussed. Students are required to identify a problem and give both an oral and written report on research in that area. Prerequisite: MATH 552.

MATH 595 Independent Study
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.

MEDIEVAL INSTITUTE PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences.
PHILOSOPHY

Arthur Falk, Chair
Shirley Bach
Kent Balder
John Dilworth
Joseph Ellin
Eugene Grochowski
John Hartline
Janet Pisaneschi
Michael Pritchard
Richard Pulaski
Michael Scriven
Gregory Sheridan
Dale Westphal

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.

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 her/his interests, ability, and intellectual maturity, there are no required courses 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.

1. A minimum of 28 hours in Philosophy
2. ONE of the following (4 credit hours):
   - PHIL 200, 220, 300, 301
3. Two of the following (8 hrs.):
   - PHIL 201, 303, 310, 311, 313, 314, 534
4. 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 coursework 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.

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.

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 identical numbered course previously completed.

Philosophy Courses

(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 Camus.

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 value concepts as liberty, equality, human rights and justice. Topics that might be considered include, but are not necessarily restricted to: the nature and basis of political authority and obligation; civil disobedience, tolerance and dissent, the aims of political institutions; law and morality.

PHIL 312 Philosophy of Art
4 hrs.
An analysis of the nature of art and aesthetic experience, and its significance in human life. The course may cover all forms of art, or concentrate on a few, for instance, literature, drama and music.

PHIL 313 Philosophy of Law
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 as they relate to 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 332 Theory of Knowledge
4 hrs.
An examination of basic problems concerning knowledge and belief, discussing traditional approaches but stressing recent analyses. Possible topics: skepticism and certainty, knowing and believing, perception, memory, "a priori" vs. "a posteriori" knowledge, self-knowledge, knowledge of others.

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, senomechanisms 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 Poincare.

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 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 credits 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 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.
PHYSICS
John Tanis, Chair
Larry Oppinger, Associate Chair
Eugene Bernstein
Sung Chung
Dean Halderson
Gerald Hardie
Laurence Henry
Emanuel Kamber
Dean Kaul
Nora Berrah Maneur
Arthur McGurm
Alvin Rosenthal
Robert Shamu
Michitoshi Soga

The Department of Physics offers three programs of study leading to a major in physics. Two physics major programs in the arts and sciences curriculum (ASC Major and ASC Major with Electrical Engineering Option) prepare students for graduate study or professional employment in physics. The secondary education (SED) physics major program prepares students to teach physics at the high school level. A geophysics major program, sponsored jointly by the Geology and Physics Departments, is also available, enabling students to prepare for a career in an important area of applied physics.

Any student contemplating majoring in physics should contact the Physics Department as early as possible. This is especially true for the transfer students from community colleges in regard to transfer credit and course of study. Students will want to contact the undergraduate advisor in the department regarding courses, employment opportunities, and graduate study in physics.

Any physics major may qualify for departmental honors in physics by fulfilling the following requirements:

1. Complete the courses recommended for students planning to enter graduate school.
2. Attain by the end of the semester preceding graduation an accumulated honor point ratio of at least 3.5 (BA) in his/her physics courses and an accumulated honor point ratio of 3.0 or more in his/her other courses.

Minor programs are also available in the ASC and SED curricula, and there is a Science and Mathematics Teaching Minor for students in the elementary education curriculum. The Physics Department is concerned about the science education of all University students and offers several introductory-level courses approved for General Education credit. The descriptions of such approved courses are italicized in the course listings below. A conference with the department chairperson or the undergraduate advisor will ensure a selection appropriate to the student's interest and experience.

ASC Physics Major
The courses required for the ASC Physics 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 .. 1
PHYS 330 Thermodynamics and Kinetic Theory ... 3
PHYS 342 Electronics .................... 4
PHYS 466 Advanced Laboratory .......... 3

PHYS 520 Analytical Mechanics ............ 3
PHYS 540 Electricity and Magnetism I .... 3
PHYS 561 Quantum Physics ............... 4
PHYS 562 Atomic and Molecular Physics .. 3
PHYS 563 Solid State Physics ............ 3
PHYS 564 Nuclear and Particle Physics ... 3

Baccalaureate Writing Requirement
Students who have chosen the ASC Physics major will satisfy the Baccalaureate Writing Requirement by successfully completing PHYS 466 Advanced Laboratory.

Students planning to work in industry are advised to take PHYS 344 Microprocessor Electronics. It is strongly recommended that students planning to enter graduate school also take PHYS 541 Electricity and Magnetism II. Students should meet with the undergraduate advisor to plan a course of study as soon as possible.

ASC Physics Major with Electrical Engineering Option
The courses required for the ASC Physics major with electrical engineering option program are:

PHYS 206 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 212 Introductory Modern Physics ... 4
PHYS 330 Thermodynamics and Kinetic Theory ... 3
PHYS 466 Advanced Laboratory .......... 3
PHYS 520 Analytical Mechanics ............ 3
PHYS 540 Electricity and Magnetism I .... 3
PHYS 560 Quantum Mechanics ............ 3
PHYS 563 Solid State Physics ............ 3
EE 210 Circuit Analysis .................. 4
EE 221 Electronics ...................... 4
EE 310 Network Analysis ................. 3

In addition to the above courses the student is required to take a minimum of three courses from the following. The courses must include at least four hours of EE and be approved by the advisor.

PHYS 344 Microprocessor Electronics .. 3
PHYS 352 Optics ....................... 4
PHYS 562 Atomic and Molecular Physics 3
PHYS 564 Nuclear and Particle Physics .. 3
EE 320 Electronics ...................... 4
EE 330 Electrical Machinery ............ 4
EE 371 Linear Systems .................. 3
EE 380 Probabilistic Methods of Signal and System Analysis .... 3
EE 420 Power Electronics ............... 4
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

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 466 Advanced Laboratory.

The physics major with electrical engineering option is for those students who wish to pursue a more applied physics degree. Students planning to work in industry are advised to take PHYS 344 Microprocessor Electronics. It is strongly recommended that students planning to enter graduate school also take PHYS 562 and PHYS 564. Students should meet with the undergraduate advisor.
to plan a course of study as soon as possible.

Secondary Education Physics Major

The courses required for the SED Physics major are:

PHYS 104 Introductory Astronomy 3 hrs.
PHYS 103 Astronomy Laboratory 1 hr.
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 212 Introductory Modern Physics 4 hrs.
PHYS 342 Electronics 4 hrs.
PHYS 352 Optics 3 hrs.

Two additional physics courses numbered above 300 are also required. PHYS 308 does not carry credit towards the major but is a required course for those in secondary education. Refer to the College of Education section of the bulletin for additional curriculum requirements for this program.

Baccalaureate Writing Requirement

Students who have chosen the Secondary Education Physics major will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society. Students should meet with the undergraduate advisor to plan a course of study as soon as possible.

Geophysics Major

The required courses for a geophysics major 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 342 Electronics 4 hrs.
PHYS 344 Microprocessor Electronics 3-4 hrs.

One of the following three:

PHYS 330 Thermodynamics and Kinetic Theory 3 hrs.
PHYS 352 Optics 4 hrs.
PHYS 542 Electricity and Magnetism I 3 hrs.

Plus the following:

GEOL 130 Physical Geology 4 hrs.
GEOL 131 Earth History and Evolution 4 hrs.
GEOL 301 Minerals and Rocks 3 hrs.
GEOL 430 Structural Geology 3 hrs.
GEOL 560 Introduction to Geophysics 3 hrs.
CHEM 101 General Chemistry I OR
CHEM 102 General Chemistry I 4 hrs.
MATH 122 Calculus I 4 hrs.
MATH 123 Calculus II 4 hrs.
MATH 272 Vector and Multivariate Calculus 4 hrs.
MATH 374 Linear Algebra and Differential Equations 4 hrs.
CS 306 Introduction to Programming FORTRAN 2 hrs.
MATH 506 Scientific Programming OR
CS 506 Scientific Programming 3 hrs.

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.

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 532 Geomorphology, GEOL 535 Sedimentation and Stratigraphy, or ENGL 305 Practical Writing.

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 212 Introductory Modern Physics 4 hrs.

With the consent of the department, PHYS 113/114 and PHYS 115/116 can be substituted for PHYS 206/208 in this program.

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 212 Introductory Modern Physics 4 hrs.

With the consent of the department, PHYS 113/114 and PHYS 115/116 can be substituted for PHYS 206/208 in this program.

Science and Mathematics Teaching Minor

The Department of Physics participates in the Science and Mathematics Teaching Minor for students in the elementary education curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

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 either a 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.
PHYS 107 Elementary Physics 4 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, on 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 or mathematics are advised to take PHYS 103 also.

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 108 and either PHYS 114 or PHYS 206. Prerequisite: PHYS 107 concurrently.

PHYS 113 General Physics I 4 hrs.
A general college physics course in the principles and practical application of mechanics, sound, and heat. Recommended for students in curricula other than science and students desiring a non-calculus course in physics. 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 114 General Physics I Laboratory 1 hr.
This is a laboratory course which includes exercises related to topics covered in PHYS 113. Normally this course is taken concurrently with PHYS 113. A student may not receive credit for both PHYS 114 and PHYS 206. Prerequisite: PHYS 113 concurrently.

PHYS 115 General Physics II 4 hrs.
This course follows PHYS 113 and consists of studies in electricity, magnetism, light and atomic and nuclear physics. Prerequisite: PHYS 113.

PHYS 116 General Physics II Laboratory 1 hr.
This is a laboratory course which includes exercises related to topics covered in PHYS 115. Normally this course is taken concurrently with PHYS 115. A student may not receive credit for both PHYS 116 and PHYS 206. Prerequisite: PHYS 115 concurrently.
PHYS 130 Social Issues and Physical Science
(see General Studies)

PHYS 205 Mechanics and Heat
4 hrs. Fall, Winter, and Spring
The first use of a sequence of three in general college physics employing calculus with mechanics and heat. It is required of physics majors, engineering students, 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. Fall, Winter, and Spring
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. Fall, Winter, and Summer
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. Fall, Winter, and Summer
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 212 Introductory Modern Physics
4 hrs. Fall, Winter
This course, with PHYS 210 and PHYS 211, completes the sequence making up the introductory course in physics with calculus. Topics include special relativity, quantum physics, and atomic and nuclear structure. The course consists of three lectures and a three-hour laboratory period per week. Prerequisite: PHYS 211 or consent of instructor.

PHYS 214 Mechanics and Heat Problems
1 hr. Fall
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 205. Prerequisites: PHYS 113 General Physics I or equivalent, MATH 123 concurrently, or consent of instructor.

PHYS 215 Electricity and Light Problems
1 hr. Winter
This course is intended for those who have had PHYS 210 and PHYS 211, 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 308 Teaching of Physical Science
3 hrs. Winter
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 selection, 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 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 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 chemistry. Introductory kinetic theory with selected topics is also included, as an introduction to quantum statistics. Prerequisite: PHYS 207.

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 three-hour laboratory per week. 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 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.

PHYS 500 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 540 Electricity and Magnetism I
3 hrs. Winter
This is a theoretical course providing a thorough investigation of electric and magnetic fields. The application of theorems of Stokes and Gauss are emphasized, and Maxwell's equations are developed. Prerequisites: PHYS 207 and either MATH 274 or 374, or consent of instructor.

PHYS 541 Electricity and Magnetism II
3 hrs. Winter
In this course the development of quantum mechanics is traced, and simple applications of the theory are discussed. Topics include cavity radiation, the photoelectric effect, deBroglie waves, the Rutherford-Bohr atom, and the uncertainty principle, the Schrodinger equation with solutions, the coupling of angular moments, and perturbation theory. Prerequisite: PHYS 207 and 520 or consent of instructor.

PHYS 560 Quantum Mechanics
3 hrs. Winter
This course is a continuation of PHYS 540 and is an elective for majors wishing advanced work in field theory. Maxwell's equations and their applications to topics such as time-dependent fields, wave guides, and radiation will form principal topics of the course. Prerequisite: PHYS 540.

PHYS 561 Quantum Physics
4 hrs. Winter
This course is the same as PHYS 560 except that a laboratory is included. Students may not receive credit for both PHYS 560 and PHYS 561. Prerequisite: PHYS 520 or consent of instructor.

PHYS 562 Atomic and Molecular Physics
3 hrs. Fall
This course continues the study of the applications of quantum mechanics. Topics include the helium atom, multielectron atoms, the Hartmann, Zerneman, and Stark effects, stimulated emission, transition rates, selection rules, the diatomic molecule, and molecular physics. Prerequisite: PHYS 560, 561, 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 560, 561, 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 in particle physics. Discussions of experimental methods as well as theoretical treatments using quantum mechanics are included. Prerequisite: PHYS 560, 561 or consent of the instructor.
PHYS 598 Selected Topics
1-4 hrs.
This course affords an opportunity for advanced students with good scholastic records in Physics to pursue independently conservation laws. An introduction to the general theory of relativity will also be given. Prerequisite: Consent of instructor.

POLITICAL SCIENCE
Ernest E. Rossi, Chair
James M. Butterfield
Ralph C. Chandler
Do Young Chang
Kenneth A. Dahlberg
Elizabeth H. Dalton
Suhashini Datta-Sandhu
Richard A. Enos
David G. Houghton
Alan C. Isaak
Robert W. Kaufman
Peter Kobrak
Richard L. McAnaw
James E. Nadolly
Peter G. Renstrom
William A. Rogers
Helenan S. Robin
Chester B. Rogers
Murray Scott Tanner
T. Lyke Thompson
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 activity; (5) develop sound methods of investigation and reflection as well as the ability to evaluate political information critically; (6) understand the role that individuals and organized groups can play in the political process; and (7) appreciate the relationship of the study of government and public affairs to other social sciences. Students who wish to major or minor in political science or public administration should come to the department office as soon as possible to complete the appropriate declaration form and to consult with a departmental advisor.

Programs of study offered by the department include: (1) the standard major and minor in political science; (2) the major in political science with a public law concentration; (3) the major in political science with a public policy concentration; (4) a major and minor in public administration, and (5) 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 Seminar
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 30 hours in the department. The following are required courses for majors:

— 200 National Government
— 250 International Relations
— 340, 341, 342, 343 or 344 Foreign and Comparative Political Systems (choose one)
— 360, 361, 362, 363, 562, or 564 Political Theory (choose one)

Students who may become majors are encouraged to take 100, Introduction to Political Science as their first course in the department during their freshman year.

MINOR
The standard Political Science Minor consists of 20 semester hours in Political Science. It is expected that transfer students will take at least one-half of the minimum required 20 hours in the department. A Political Science minor shall complete PSCI 200 National Government and PSCI 250 International Relations.

Requirements may be waived with the written permission of the chairperson of the department.

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 one of the department's advisors. 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 322 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 326 Environmental Politics ............3
PSCI 350 American Foreign Policy ............4
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
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 34—Political Theory (to be chosen from 360, 361, 362, 363, 562, or 564)

B. Complete PSCI 320 American Judicial Process (4 hrs.).

C. Complete THREE of the following courses (9 hrs.):
   - PSCI 325 Criminal Justice Policy
   - PSCI 520 Constitutional Law
   - PSCI 522 Civil Liberties and Civil Rights
   - PSCI 526 Administrative Law and Public Regulation

D. Complete at least one additional course (minimum of 3 hrs.) from the remaining courses in the Political Science Department to produce a minimum of 30 hours of political science courses. It is recommended that students select one of the political science courses approved for the Baccalaureate Writing Requirement.

E. Complete THREE of the following courses (9 hrs.)
   - These courses cannot be substituted for any of the requirements in A-D above.
   - FCL 340 Legal Environment
   - FCL 360 Criminal Law and Procedure
   - PHIL 313 Philosophy of Law
   - SOC 262 Criminology
   - SOC 462 Criminal Justice Process
   - SOC 566 Advanced Criminology

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. Credits can be obtained in these internships.

All students who elect the public administration programs are to complete a major or minor 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 program in public administration (Curriculum PAP) requires 40 semester credit hours divided between:
   - (1) 34-semester-hour core of required courses; and
   - (2) 6 hours of electives.

MAJOR

Required Core

1. PSCI 200 National Government
   - PSCI 202 State and Local Government
   - PSCI 330 Intro. to Public Admin.
   - PSCI 533 Public Personnel Admin.
   - PSCI 535 Politics of Governmental Budgeting and Finance

2. ECON 201 Principles of Economics
   - ECON 202 Principles of Economics
   - ACTY 201 Accounting Concepts and Application or ACTY 210 Principles of Accounting

In addition, each major must complete both of the following:
   - (a) One approved course in statistics; and
   - (b) One introductory course in computers

Electives

Choose TWO from the following:
   - PSCI 381 Internship Seminar
   - PSCI 404 Making of Public Policy
   - PSCI 405 National Public Policy
   - PSCI 530 Problems in Pub. Admin.
   - PSCI 531 Admin. in Local and Regional Govts.
   - PSCI 534 Administrative Theory
   - PSCI 536 Comparative Pub. Admin.

Majors must choose one directed minor (15-24 hrs.) in consultation with a public administration advisor—contact departmental office for details.

MINOR

The minor in public administration requires 22 hours, including all courses listed in section 1. 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 public administration 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 20 hours in the department. A teaching minor shall complete PSCI 200 National Government, and PSCI 202 State and Local Government.

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 sophomore standing, a better than "B" average, and a willingness to do original and independent work. Students interested in the program should consult the departmental honors advisor, 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 multidimensional. It is organized to serve the professional staff of the Department of Political Science in their varied fields of interest and specialization. It will assist in meeting the needs of the department's student body by extending their educational experiences beyond the confines of the classroom. IGP also reaches out into the larger community, to the university, its immediate environment, the state and national scene, as well as the international arena. In this regard, IGP gives particular attention to the practical applications of political science training. It is therefore charged with the development of relationships between the Department of Political Science and the various colleges, departments, and programs comprising the University.
For further information, see Dr. Lawrence Ziring, Director, Institute of Government and Politics, Friedmann Hall (387-5702).

### Courses By Topic

#### PRINCIPLES
- 100 Introduction to Political Science (3 hrs.)

#### AMERICAN POLITICAL SYSTEM
- 200 National Government (3 hrs.)
- 202 State and Local Government (3 hrs.)
- 210 Citizen Politics (3 hrs.)
- 300 Urban Politics in the United States (3 hrs.)
- 304 Introduction to Public Policy (3 hrs.)
- 306 Environmental Politics (3 hrs.)
- 310 Political Parties and Elections (3 hrs.)
- 314 The Presidency (3 hrs.)
- 315 The Politics of Congress (3 hrs.)
- 320 The American Judicial Process (3 hrs.)
- 325 Criminal Justice Policy (3 hrs.)
- 404 Making of Public Policy in the U.S. (3 hrs.)
- 405 National Public Policy (3 hrs.)
- 506 Problems of American Government (3 hrs.)
- 520 Constitutional Law (3 hrs.)
- 522 Civil Liberties and Civil Rights (3 hrs.)
- 526 Administrative Law and Public Regulation (3 hrs.)

#### PUBLIC ADMINISTRATION
- 330 Introduction to Public Administration (3 hrs.)
- 331 Problems in Public Administration (3 hrs.)
- 531 Administration in Local and Regional Governments (3 hrs.)
- 532 The Bureaucracy (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 (3 hrs.)

#### FOREIGN AND COMPARATIVE POLITICAL SYSTEMS
- 340 West European Political Systems (3 hrs.)
- 341 African Political Systems (3 hrs.)
- 342 The People and Politics of Asia (3 hrs.)
- 343 Latin American Political Systems (3 hrs.)
- 344 Civil and East European Political Systems (3 hrs.)
- 541 Comparative Political Systems (3 hrs.)
- 542 Administration in Developing Countries (3 hrs.)
- 549 Problems of Foreign Political Systems (3 hrs.)

#### INTERNATIONAL RELATIONS
- 250 International Relations (3 hrs.)
- 350 American Foreign Policy (3 hrs.)
- 550 Problems in International Relations (3 hrs.)
- 553 United Nations (3 hrs.)
- 555 International Law (3 hrs.)
- 557 Studies in Foreign Policy (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 Theory of Revolution (3 hrs.)
- 564 Introduction to Political Analysis and Theory (3 hrs.)
- 590 Research Methods (1 hr.)
- 591 Statistics for Political Scientists (1 hr.)

#### SPECIAL STUDIES
- 370 Issues in Contemporary Politics (1-3 hrs.)
- 390 Field Work in Political Science (1-3 hrs.)
- 391 Internship Seminar (1-3 hrs.)
- 490 Political Science Honors Seminar (1-3 hrs.)
- 492 Political Science Honors Research (1-3 hrs.)

#### POLITICAL SCIENCE COURSES (PSCI)

(Courses described in italics are approved for General Education.)

- **PSCI 100 Introduction to Political Science**
  - An introduction to those concepts useful for an understanding of politics. These concepts and their relationship will be examined in the context of contemporary political systems.
  - 3 hrs.

- **PSCI 200 National Government**
  - An introductory survey of American national government. This course introduces the basic principles and theories of American government, explores the political process, describes the structure, and illustrates its functions.
  - 3 hrs.

- **PSCI 202 State and Local Government**
  - 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.
  - 4 hrs.

- **PSCI 210 Citizen Politics**
  - An examination of participatory democracy in the U.S., and the roles of the mass media and interest groups in influencing public opinion and voting behavior and public policy.
  - 3 hrs.

- **PSCI 250 International Relations**
  - 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.
  - 4 hrs.

- **PSCI 270 Political Topics**
  - A specifically focused course dealing with a political topic of general student interest. The topic will be announced in advance, and the course may be repeated for credit with a different topic.
  - 1-3 hrs.

- **PSCI 300 Urban Politics in the United States**
  - 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.
  - 3 hrs.

- **PSCI 304 Introduction to Public Policy**
  - 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.
  - 3 hrs.

- **PSCI 306 Environmental Politics**
  - 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.
  - 3 hrs.

- **PSCI 310 Political Parties and Elections**
  - A study of the nature of politics, the organization and function of political parties and elections, and the elective process in the U.S.
  - 3 hrs.

- **PSCI 314 The Presidency**
  - 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.
  - 3 hrs.

- **PSCI 315 The Politics of Congress**
  - An examination of 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.
  - 3 hrs.

- **PSCI 320 The American Judicial Process**
  - An introduction to the politics of the American judicial process. The course will examine the judicial function generally with particular attention to the decisional processes, process participants, state and federal court structures, recruitment and selection of judges, bases of judicial behavior, policy making, and impact of judicial decisions.
  - 3 hrs.

- **PSCI 325 Criminal Justice Policy**
  - An examination of various judicial, legislative and executive policy decisions which govern the criminal justice processes. The course will include extensive discussion of the political dynamics of the policy making processes.
  - 3 hrs.

- **PSCI 330 Introduction to Public Administration**
  - An introductory course in the administrative process in the public service. Special attention given to the environment and politics of administration, the role of the chief executive and the legislature. Detailed consideration of personnel and financial problems of administration.
  - 3 hrs.

- **PSCI 340 West European Political Systems**
  - Considers the organization, political behavior and decision-making process of the major countries of West Europe, including Britain, France and Germany. Political trends and forces challenging and reshaping democratic institutions are examined.
  - 4 hrs.

- **PSCI 341 African Political Systems**
  - A systematic survey of the social, economic and political characteristics of the area. Political culture, institutions and processes, including both traditional and modern forms, are examined in detail. Major political problems dealing with political development are analyzed.
  - 4 hrs.
As a systematic survey of the social, economic and political characteristics of the area. Political culture, institutions and processes, including both traditional and modern forms, are examined in detail. Major political problems, country differences, and various paths to political development are analyzed.

PSCI 344 Soviet and East European Political Systems 4 hrs.
A systematic survey of the social, economic, and political characteristics of the area. Intra-regional political culture, institutions and processes are examined in detail. 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. Approved application required. Graded on a Credit/No Credit basis.

PSCI 390 Field Work in Political Science 1-12 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. Approved 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 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.
Honor students, with the guidance of a faculty advisor, conduct research and write the Honors Paper on a topic of individual interest. Prerequisite: Membership in the Political Science Department Honors Program and approved application required.

PSCI 494 Seminar in Political Science 3 hrs.
An undergraduate seminar for Political Science and Public Administration majors seeking to fulfill the baccalaureate-level writing requirement. The topic of the seminar varies and will be announced in advance. At least one-third of the final grade will be determined on the basis of writing performance. Restricted to students majoring in Political Science or Public Administration. Prerequisite: membership in political science/public administration majors.

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 520 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 522 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 526 Administrative Law and Public Regulation 3 hrs.
A study of the requirements for, and the limits on, the exercise of administrative powers by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to the extent of governmental regulations and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determination. Prerequisite: PSCI 200 or a course in Economics.

PSCI 530 Problems in Public Administration 3 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 532 The Bureaucracy 3 hrs.
An analysis of the role of public bureaucracies in the decision process of government.

PSCI 533 Public Personnel Administration 3 hrs.
An examination of the components of the public 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 536 The Politics of Governmental Budgeting and Finance 3 hrs.
A study 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 541 Comparative Political Systems
3 hrs.
A study of the principal types of political systems. The course examines, comparatively and theoretically, governmental institutions, political processes, political behavior, and political development.

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 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 557 Studies in Foreign Policy
3 or 4 hrs.
Examines selected topics within the field of foreign policy. Topics will vary and will be announced each semester. Course may be repeated.

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, all with grades of "C" or better.

Transfer students who present appropriate psychology courses will be evaluated and may be admitted on an individual basis directly into the program. Transfer students with no psychology courses will be required to take PSY 100, 160, and 250, and receive a grade of "C" or better in each course. Application forms and additional information can be obtained from the 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 an 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 Methodology of Behavior Analysis
PSY 460 Survey of Behavior Analysis Research

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 3 hrs.
PSY 460 Survey of Behavior Analysis Research 3 hrs.

**Practicum and Laboratory Experience (3-6 hrs.)**
Take one of the 3 hr. practicum courses or one of the 6 hr. lecture-laboratory combinations.

**Practicum courses:**
PSY 347 Practicum: Learning and Self-Management 3 hrs.
PSY 357 Practicum: Special Populations 3 hrs.
PSY 367 Practicum: Child Care/Management 3 hrs.
PSY 377 Practicum: Direct Instruction 3 hrs.
PSY 397 Special Arranged Practicum in Psychology 3 hrs.

**Lecture-Laboratory Combinations**
PSY 362
and
368 Conditioning and Learning 3 hrs.
PSY 372
and
378 Physiological Psychology 3 hrs.
PSY 570
and
578 Mental Retardation 3 hrs.

Effective (9-12 hrs.)
PSY 344 Organizational Psychology 3 hrs.
PSY 464 Systems and Theories 3 hrs.
PSY 374 Toward Experimental Living 3 hrs.
PSY 512 Behavioral Pharmacology and Toxicology 3 hrs.
PSY 513 Animal Behavior 3 hrs.
PSY 517 Psychology of Learning for Teachers 3 hrs.
PSY 518 Research in Stimulus Control and Perceptual Processes 3 hrs.
PSY 524 Human Sexuality 3 hrs.
PSY 526 Human Drug Use and Abuse 3 hrs.
PSY 560 Behavioral Medicine 3 hrs.
PSY 562 Management of Health Related Behaviors 3 hrs.
PSY 574 Experimental Social Psychology 3 hrs.

**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 hrs.
or
PSY 150 Introduction to Human Behavior 3 hrs.
and in addition
PSY 160 Child Psychology 3 hrs.
PSY 250 Abnormal Psychology 3 hrs.


**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, 377, 397, 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)**
(Course described in italics is approved for General Education.)
PSY 100 General Psychology 3 hrs.
PSY 150 Introduction to Human Behavior 3 hrs.

**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.
An introduction to behavior principles in the analysis of complex behavior with an emphasis upon early childhood learning and the techniques for teaching the child at home and at school. Topics include mental retardation and behavioral assessment. Prerequisite: An introductory psychology course.

**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.
An introduction to the description, classification and interpretation of human behavior labeled by society as "abnormal" with an emphasis upon the social variables and environmental conditions related to the acquisition and persistence of such behavior.

**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.
Interpretation and application of descriptive and inferential statistical techniques necessary in the understanding of data presentations in behavioral research. Major topics include measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory and the binomial, hypothesis testing, the t-test, chi square and correlation.

**PSY 330 Methodology of Behavior Analysis**
3 hrs.
An examination of the problems approached and the methodology most 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 330 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. While the course focuses on behavioral applications in the work environment, other theoretical orientations are surveyed. Topics covered...
include personnel management, employee motivation, job satisfaction, the effects of compensation practices on employee behavior, and leadership. Prerequisite: PSY 100.

PSY 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/minor requirements.

PSY 357 Practicum with Special Populations
3 hrs.
Supervised experience in the application of principles of behavior analysis to special populations. The Croyden Avenue School, which is the site of this practicum, provides an 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 habituation, respondent conditioning, operant conditioning, and the control of operant behavior by motivational and emotional variables. An introductory laboratory accompanies the lecture portion of the course. Prerequisites: PSY 100, 160, 250, and 300.

PSY 362 Experimental Analysis of Behavior
3 hrs.
An advanced level coverage of respondent and operant 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 readings 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. Concurrent enrollment in PSY 378 is required.

PSY 374 Toward Experimental Living
3 hrs.
A comparison of complex social structures with an emphasis on 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. Fall, Winter
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 faculty member and coordinated with the Department Honors Program. Prerequisite: Permission of instructor.

PSY 400 Seminar in Research and Analysis
1-3 hrs.
An overview of diverse topics of behavior research analysis and research topics in psychology. Topics include, clinical psychology, child psychology, behavioral medicine, environmental quality, mental retardation, education and geniatrics. Prerequisite: PSY 330 and 360

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, Functionalist, 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.

Open to Advanced Undergraduate and Graduate Students

PSY 510 Advanced General Psychology
3 hrs.
Readings, lecture and discussion designed to introduce non-majors in psychology to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes. Prerequisite: Permission of instructor.

PSY 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. Fall, Winter
Designed to teach the principles of behavior and the application of these principles to teaching. Topic areas 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. (Required for secondary education majors and minors.)

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 in, 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
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 530 Statistics for the Behavioral and Health Sciences 3 hrs. An introduction to statistical procedures, concepts, and reasoning with applications to the behavioral and health sciences. Topics include: measures of central tendency and variability, frequency distributions, and graphic presentations, the normal curve, probability theory, the binomial, hypothesis testing, the t-test, chi square, correlation, regression and an introduction to analysis of variance.

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 542 Human Factors Engineering 3 hrs. A survey of research on the adaptation of equipment, products and environment to human capacities. Cross listed with IEGM 542.

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 578 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. Courses may be repeated for credit although the total number of credits may be limited by the degree program. Students should consult the program advisor. Courses may include the following: Parent Training Supervision in Industrial Psychology Computer Assisted Instruction Theory of Direct Instruction

PSY 598 Special Projects in Psychology 1-5 hrs. This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member. Graduate standing and permission of instructor. May be repeated for credit although the total number of hours in a degree program may not exceed 5 hours.

PSY 599 Practicum in Psychology 2-4 hrs. In depth training in the application of the principles of behavior specific and restricted problem area in the discipline. The practicum application is often identified by the location of the research site or professional service agency published in the Schedule of Classes. Each hour of credit requires 100 clock hours. May be repeated for credit although number of credits may be limited by program requirements. Written permission must be obtained from the department.

PSY 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, students
will become proficient in the administrative
uses of computers and associated software.

PADM 590 Applied Research Methods
3 hrs.
This course will stress the formulation of
applied research questions, the design and
utilization of various survey research
methods and techniques, the essential
distinctions between qualitative and
quantitative research methods, the collection,
manipulation, interpretation, and presentation
of data gathered, and the use of information
thus obtained in the solution of policy
problems confronting professional
administrators.

PADM 581 Statistical Applications in
Administration
3 hrs.
This course is an introduction to statistical
reasoning as employed by professional
administrators in the organizational hierarchy,
testimony, interpretation, and presentation of
data utilized to analyze policy problems. The
purpose is to develop basic statistical
compétence with emphasis upon the use
and interpretation of frequency distributions,
sampling techniques, measures of central
tendency, probability, variability, regression
correlation, and various other applied
quantitative measures.

PADM 598 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 or
problem 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.

PADM 599 Topics in Public Administration
1-4 hrs.
A variable topic course dealing with
particular issues of interest and concern to
students of public affairs and administration.
Since content varies, students are advised to
read course descriptions distributed by the
School. 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 Gründier
Rudolf Siebert
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 200 (Introduction
to Religion), two courses in the field of
Historical Studies, at least one course from
each of the remaining three fields (Comparative
Studies, Methodological Studies, Constructive
Studies), and REL 300. Two of these courses
should be at the 500 level.

A minor in religion consists of a minimum
of 16 hours and includes REL 200
(Introduction to Religion). One course is
recommended in the field of Historical
Studies. The two remaining courses should
be taken in two of the three 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 200 Introduction to Religion;
2. REL 304 African Religions;
3. One course in the Christian, Jewish or
Islamic religions, within the category of
Historical Studies;
4. One course in Comparative Studies;
5. One course in any religion other than
those specified above under (2) and (3),
within the category of Historical Studies,
or one course in Methodological Studies;
6. REL 521 The Teaching of Religion in the
Public School

NOTE: In exceptional cases REL 498,
Independent Studies in Religion, or REL 598,
Readings in Religion, may be substituted
within the stipulated category for any of the
courses specified above except REL 200,
Introduction to Religion.

Students wishing to obtain the teaching
minor are urged to consult with the program
advisor before composing their course
program.

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
300 Historical Studies in Religion

COMPARATIVE STUDIES IN RELIGION
311 Myth and Ritual
313 Religion in America
310 Morphological and Phenomenological
Studies in Religion

METHODOLOGICAL STUDIES IN
RELIGION
320 The Philosophy of Religion
321 Christianity
322 Psychological Elements in Religion
324 Methodological Studies in Religion
520 Constructive 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
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 introduction 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. Does not apply towards major
or minor in Religion.

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 the inquiry, and an examination of the consequences of this inquiry for problems of self-understanding in the context of Western culture in general, and American society in particular.

REL 300 Writing About Religion
3 hrs.
This course enhances writing skills in the context of reading and discussing selected materials on religion. Emphasis is upon the process of writing, with writing assignments in class and outside class. Reading selections focus upon issues of contemporary interest. Required of all religion majors.

REL 302 Religion in the Indian Tradition
4 hrs.
This course draws its materials primarily from the great religious traditions native to India—ie. Brahmanism, Buddhism, Jainism, 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 religious forms 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 define a specific cultural stratum: for example, the religious forms of hunters and food-gathers, 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 cultural structures, 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 most important factors involved in the development of both the Islamic religious tradition and Islamic civilization. The pre-Islamic background, the life of Muhammad, the Qur'anic, geographical expansion of the Muslim community, Islamic law, mysticism, sectarian development, philosophy, and Islam in the 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 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 meanings with which the people of different societies relate themselves to the religious and secular social ethics and the meaning of religion. Myths and rituals are analyzed as a religious structure that is integral to the religious and secular social ethics and the meaning of religion.

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 religious elements in concepts, values, and institutions and relate them to other elements of the socio-cultural fabric. While attention is directed to historical and geographical 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.
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, homosexuality, divorce, guaranteed income, terrorism, and chemical warfare, artificial insemination, euthanasia, and drug addiction. Particular attention will be paid to how different styles of secular ethics relate themselves to the fundamental changes in contemporary marriage and family life as well as in the economic, political, and cultural spheres.

REL 334 Religion in Modern Society
4 hrs.
Whereas a major focus of the systematic study of religion is upon religious traditions, or aspects of them, it is important that attention also be paid to the questions raised by the various contexts in which religion occurs as well as to questions raised by the methods developed in studying religion in such contexts. The specific context of religion to be studied in this course is that of industrial society. For religion to be understood in more 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 the basis for raising questions about the assumptions underlying such methods and about their relationship to the systematic study of religion.

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.

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 Yogas; the Occult Tradition.

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.

SOCIAL SCIENCE MAJOR AND MINORS
See "Interdisciplinary Programs" in the College of Arts and Sciences.

SOCIOLOGY
Lewis Walker, Chair
Milton J. Brawer
Susan Caringella-MacDonald
Susan Caulfield
David Chaplin
Douglas V. Davidson
Paul C. Friday
Ronald C. Kramer
Richard R. MacDonald
Gerald Markle
Ellen Page-Robin
James C. Petersen
Stanley S. Robin
Martin H. Ross
Herbert L. Smith
Subhash R. Sonnad
Sylvie C. Tourigny
Lawrence L. Tyler
Thomas L. Van Valey
Morton O. Wagenfeld
Robert Wait
Paul Wienir

Courses are designed to give students a better understanding of the significant factors and processes of modern life, to provide study useful for particular applied fields, such as social work, criminal justice, market research, opinion polling, city, state, and federal governmental service, and social research; to meet the needs of students preparing to teach in the social science field; and to prepare students for graduate work in sociology or criminal justice.

The Kercher Center for Social Research, as the research arm of the department, provides facilities and services available to students as well as faculty for instructional and research purposes. The center maintains computer and other research facilities that are used in research course instruction. Research conducted through the center has dealt with subjects such as: criminal justice, marital roles, race relations, voting behavior, alcoholism, mental health, demography, and education.

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.
2. Membership in Alpha Kappa Delta, the national sociology honorary society.
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.
average of 3.0 or better, and whose
criminal justice average is at least 3.2.
For transfer students, since any transfer
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 status. 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 assistants receive a moderate
stipend and are assigned to work for a
faculty member or department project.
Applicants for these awards are also
considered for the Kercher Award. For
further information and application forms, see
the department advisor.

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, 362, 363, and 456 are required.
Two (6 hours) of the following are required,
except for students in the social psychology
concentration: SOC 210, 262, 314, 352, 353,
354, 373, 375, 390, and 495. Six hours of
advanced (400-500 level) courses are
required. 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 100-level
course may be included. Minor slips are
required. 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.

Sociology/Anthropology
Major
A combined major in sociology and
anthropology consists of a minimum of 30
hours, with at least 12 hours in each
department. SOC 200, 300, 382, and ANTH
210, 240, and 250 are required. Additional
courses in each 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 (38 hours)
Required Prerequisites
The following courses are required before
taking any of the core courses:
SOC 200 Principles of Sociology
or
SOC 210 Modern Social Problems
SOC 260 Introduction to Criminal Justice
SOC 262 Criminology
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 381 Writing and
Research—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
SOC 464 Sociology of Law Enforcement
SOC 455 Correctional Process and
Techniques
SOC 454 Juvenile Delinquency and the
Community
FCL 360 Criminal Law and Procedure
SOC 466 Advanced Criminology
Research Methods Requirement
One of the following is required:
SOC 382 Methods of Sociological Inquiry
I (3)
SOC 383 Methods of Sociological Inquiry
II (3)
SOC 590 Research Methodology (3)

Special Area of Concentration
Completion of one of the following areas is
required:
CORRECTIONS (6 hours)
SOC 565 Community Corrections
SOC 457 Advanced Institutional
Treatment of Offenders
SOC 458 Non-Institutional Treatment of
Offenders
COURTS (6-8 hours)
PHIL 313 Philosophy of Law (4)
PSCI 320 American Judicial Process (4)
PSCI 325 Criminal Justice Policy
PSCI 330 Introduction to Public
Administration
PSCI 522 Civil Rights and Civil Liberties
SOC 578 Sociology of Law
JUVENILE JUSTICE (6 hours)
SOC 521 Childhood Socialization
SOC 522 Adolescent Socialization
SOC 458 Non-Institutional Treatment of
Offenders
SOC 459 Organizational Perspectives on
Juvenile Justice

LAW ENFORCEMENT ADMINISTRATION (6 hours)
SOC 460 Interviewing/Investigation

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.

Prerequisites include:
1. application during the first semester of
   junior standing;
2. declared sociology major; and
3. minimum of 3.3 GPA overall at time of
   application.

The program requires completion of all
requirements of the Sociology major with
these differences:
1. 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; and
2. SOC 499, Senior Honor Thesis, be
   completed.

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) no
more than one 100-level course may be
included. Minor slips are 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.

Students who are interested in careers in
criminal justice may wish to pursue a
minor in criminal justice or
anthropology. A combined major in
criminology and anthropology is
required.

Some placements require the applicant to
undergo security checks. Applications are
required.
SOC 461 Criminal Justice Administration Issues
SOC 467 Police and Community Dynamics
SOC 468 Police and Crime Prevention

LAWFERENCEMENT CERTIFICATION

Students attend the Police Academy at Kalamazoo Valley Community College (KVCC). Preliminary screening is required. Students are advised to take the courses during the last two semesters at WMU. See the advisor for further information.

Electives
To complete the required total of 36 hours, students may include any classes listed in another special area of concentration (with the exception of the Law Enforcement Certification), or the following:

ACTY 210 Principles of Accounting
BAS 300 Black Experience
FCL 340 Legal Environment
PSCI 202 State and Local Government (4)
PSCI 300 Urban Politics in United States
PSCI 533 Public Personnel Administration
SWRK 433 Dynamics of Race and Culture for Social Work Practice
SWRK 572 Community Agency Resources (3)
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 Criminology Internship (with permission)
SOC 512 Child Abuse
SOC 456 Social Stratification
SOC 560 Corporate and White Collar Crime
SOC 561 Violence and the Violent Offender
SOC 562 Victimology
SOC 598 Directed Independent Study (2-6 hours) with permission.

SOC 468 Police and Crime Prevention
SOC 495 Special Topics (when applicable)
SOC 512 Child Abuse
SOC 561 Violence and the Violent Offender
SOC 562 Victimology
SOC 565 Community Corrections
SOC 596 Independent Study (with permission)

*This course is required by the new Michigan Department of Corrections legislation.

Social Psychology Concentration
Social Psychology is the study of the impact of group life on individual behavior, thought, and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in many applied fields such as social work, counseling, public administration and criminology.

MAJOR REQUIREMENTS
SOC 200, 300, 320, 382, 383 and 456 are required. Three (9 hours) of the following electives are required: SOC 512, 520, 521, 522, 524, 526, and 579. 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 512, 520, 521, 522, 524, 526, and 579. The student may take 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.
Social structures, attitudes, beliefs and values about death, dying and bereavement in contemporary American society as well as in other societies and other time periods will be considered. Medical, legal, religious, and psychological issues in relation to death, dying, and bereavement will be discussed. (Not recommended for persons recently bereaved.)

SOC 171 Social Impacts of Science and Technology 3 hrs.
An analysis of social consequences of major scientific and technological changes, including the actual and potential impact of advances in the physical and natural sciences.

SOC 182 Computer Usage in the Social Sciences 3 hrs.
An introduction to BASIC programming language. This course reviews ethical-professional issues such as privacy, and provides training with software applications in social sciences such as SPSS, SSB, MINITAB, plus introducing students to microcomputers. This course meets the University's computer literacy requirement. Not for sociology or criminal justice major or minor credit.

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 may 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 discretionary authority of officials who are engaged in the decision making roles required to process suspects from arrest to release.

SOC 262 Criminology 3 hrs.
A study of the phenomenon of crime as a social problem. Particularly stressed is an analysis of the relationship between law and society and social structure and crime. Discussion centers around conventional white collar and political crimes. The offender populations are identified and analyzed. Prerequisite: SOC 200 or SOC 210.

SOC 265 Introduction to Corrections 3 hrs.
The course will provide an understanding of the agencies and institutions that have legal authority over custody and supervision of offenders. Major areas will include history and development of corrections, community-based corrections, local, state, and federal correctional institutions and institutional administration. Correctional treatment of female, male, and juvenile offenders will be explored as well as the role of corrections in the total system of criminal justice. This course is one of five which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student
must earn a grade of "C" or better to meet this state requirement.

SOC 266 Client Growth and Development 3 hrs.
Designed to enable students to differentiate various factors that are involved in the development and growth of the criminal. Discussion of biological, environmental, and psychological influences will be included. Specific problems such as sexual, substance abuse and medical disorders will be reviewed. Intervention strategies will also be discussed. This course is one of five which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

SOC 267 Correctional Institutions and Facilities 3 hrs.
Designed to present an overview of correctional institutions and facilities. Topics covered include purpose of prisons and correctional institutions, treatment and rehabilitation programs, management and organization, custodial care, safety and security, and future concerns. This course is one of five which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

SOC 268 Client Relations in Corrections 3 hrs.
Designed to create awareness of effects of culture and discrimination on the attitude formation of individuals and assist students in identifying various professional responses to human behavior. One of five courses which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

SOC 269 Legal Issues in Corrections 3 hrs.
Study of the primary legal issues correctional personnel will be entrusted to enforce and safeguard. Topics covered include overview of U.S. constitutional law, court process from arrest through trial, structure and function of the U.S. and state courts, and prisoner rights. One of five courses which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

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 varied peoples at different levels of development, and in different parts of the world.

SOC 320 Introduction to Social Psychology 3 hrs.
An introduction to social psychological theory and research, covering the interaction of individuals and the relationships of individuals to groups. Includes such topics as social influence, attitudes, socialization, and personality.

SOC 335 Modern Latin American Societies 3 hrs.
An introduction to contemporary Latin American societies focusing on 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 developments in the process of industrialization and urbanization. Examines the impact of these processes on Japanese population, family life, village organization, urban community, class structure, and personality.

SOC 352 Introduction to Social Gerontology 3 hrs.
An exploration of the social, psychological, economic, and physical aspects of aging. Consideration will be given to institutional programming for older people in the United States and other societies.

SOC 353 The City and Society 3 hrs.
An examination of the city and the process of urbanization from earliest times to the present. Focusing upon the United States, emphasis will be placed on the characteristics, problems, and consequences of urban growth and development.

SOC 354 Population and Society 3 hrs.
A sociological investigation into the dynamics and consequences of the world-wide population explosion, and U.S. population problems such as family planning, the baby boom, zero population growth, and ecological issues. Prerequisite: SOC 200.

SOC 361 Writing and Research—Critical Justice 3 hrs.
This is an overview of the various forms of writing expected in criminal justice: essays, term papers, literature reviews, professional reports. Specifically, the course will emphasize style, word usage, organization, and referencing as required in the preparation of police reports, college essays, and other reports. Prerequisite: College level writing requirement.

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, into the labor market. 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. Prerequisite: 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 data, field studies, evaluation procedures, 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 interational 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 454 Juvenile Delinquency and the Community 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, community resource people are invited to participate. Prerequisite: SOC 200.

SOC 455 Correctional Process and Techniques 3 hrs.
An overview of the correctional process as it can operate in probation, prison and parole to affect the criminal behavior patterns of legally defined offenders. A broad perspective is employed based on existing criminological theories and a focus upon the knowledge of the phenomenon of crime and delinquency. Selected techniques for correctional behavior modifications are studied in relation to normative deviancy in terms of both etiology and rehabilitation.

SOC 456 Social Stratification 3 hrs.
An analysis of the causes and consequences 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-Level writing requirement for Sociology majors. Prerequisite: SOC 200.

SOC 457 Institutional Treatment of Offenders 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, institutional administrator, institutional parole officer, correctional officer, training school teacher,
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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, prisonization and leadership roles. This will be applied to all types of correctional institutions (juveniles and adult, men and women, misdemeanants 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, misdemeanants 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 functions of 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 initial interviews and investigating criminal complaints. Topics covered include communication skills, non-verbal communication, interviewing techniques, written confession, interrogation law, and interviewing techniques.

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 administration 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 462 Criminal Justice Process
3 hrs.
An analysis of substantive and procedural criminal law as it relates to each stage of the criminal justice process. The focus will be on the sociological and legal implications of discretion and court decisions from arrest to conviction and sentencing. Prerequisite: SOC 262.

SOC 464 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 organizational 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 262.

SOC 466 Advanced Criminology
3 hrs.
This is the capstone course for the criminology major. The course examines intersection of criminological theory, public policies on crime, and political ideology. A number of important crime control policies are analyzed and students are asked to examine the political processes and theoretical ideas which underlie these policies, the research evidence their effectiveness, and their political implications.

SOC 467 The Police and Community Dynamics
3 hrs.
Study of the role of the police in the community by looking at the public's perceptions, knowledge, and expectations, and the police's responsibilities in community relations. This course stresses the practical application of knowledge to contemporary issues facing police such as the use of deadly force, police performance, neighborhood patrols, 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 analyzed.

SOC 490 Social Context of Sexual Behavior
3 hrs.
This course focuses on a systematic analysis of contemporary sexual codes and behavior in American society. Present-day beliefs and practices are viewed in historical context (especially from 1900 to the present) to gain insight into what is today, with the purpose of projecting what may be in the future. This sociological, historical, social psychological analysis examines current patterns of beliefs and behavior in terms of their intermediate and potential effects and consequences both for individuals and society, and also for society. Prerequisite: SOC 200.

SOC 495 Special Topics in Sociology or Criminal Justice: Variable Topics
3-12 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 on campus and engage in interventions as determined by the court, including interviews with clients, law enforcement personnel, and school authorities. Students make home visits and corollary calls, prepare reports, and attend court. Course is repeatable up to six credit hours. Prerequisite: SOC 564 or SWRK 569 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 sessions by advanced undergraduates. May be repeated for credit with a different topic.

SOC 510 Studies in Social Problems: Variable Topics
3 hrs.
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, schizophrenia, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 210.

SOC 512 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 515 Sociology of Mental Disorder
3 hrs.
This course will be concerned with examining the historical evolution and contemporary meaning of concepts of mental health and mental disorder. The course will also consider the amount and kind of mental disorder in society, the structure of the mental health delivery system, the nature of 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 521 Childhood Socialization
3 hrs.
An investigation of social development of the child from birth to adolescence. The course will focus on the child's interactions with parents and peers as these influence processes of learning, language acquisition, role-playing, the organization of knowledge, and development of self. Prerequisite: SOC 320.

SOC 522 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.
DOMESTIC VIOLENCE, AND WAR WILL BE ANALYZED

MURDER, RAPe, ROBBERY, MASS MURDER,
AND INDIVIDUAL FACTORS THAT INCREASE THE
OF VIOLENCE. IT LOOKS AT THE SOCIAL, CULTURAL,
AND THE STATUS AND ROLES OF THE AGED.

A STUDY OF THE ORIGINS, GROWTH, AND EFFECTS IN CONTEMPORARY SOCIETY OF SOCIAL MOVEMENTS.
SELECTED SOCIAL MOVEMENTS INCLUDING COMMUNISM, FASCISM, THE RADICAL LEFT, THE RADICAL RIGHT, WOMEN'S LIBERATION, ETC., WILL BE ANALYZED. PREREQUISITE: SOC 200 OR EQUIVALENT.

SOC 524 ADULT SOCIALIZATION
3 HRS.

SOC 528 RESEARCH METHODS IN SOCIAL PSYCHOLOGY
3 HRS.
AN EXAMINATION AND COMPARISON OF MAJOR RESEARCH STRATEGIES IN SOCIAL PSYCHOLOGY AS APPLIED TO SEVERAL SELECTED MAJOR TOPICS WITHIN THE FIELD. STUDENTS WILL BE EXPECTED TO REVIEW, CRITIQUE, AND CONDUCT RESEARCH WITHIN A SELECTED AREA. PREREQUISITE: SOC 382 AND 383 OR EQUIVALENT.

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.

SOC 552 SOCIOLOGY OF AGING
3 HRS.

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.

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.

SOC 562 VICTIMIZATION
3 HRS.

SOC 565 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 ISSUES ARE DISCUSSED. PREREQUISITE: SOC 455.

SOC 573 SOCIOLOGY OF POLITICAL BEHAVIOR
3 HRS.
SYSTEMATIC SOCIOLOGICAL THEORY AND RESEARCH APPLIED TO THE STUDY OF POLITICAL ORGANIZATION AND BEHAVIOR IN THE UNITED STATES AND IN SELECTED COUNTRIES ABROAD. SUCH TOPICS AS POLITICAL PARTIES, VOTING, BUREAUCRACY, AND POLITICAL IDEOLOGY WILL BE CONSIDERED. PREREQUISITE: SOC 200.

SOC 578 SOCIOLOGY OF LAW
3 HRS.
AN EXAMINATION OF LEGAL 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 579 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 579.)

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 INFERENCEAL STATISTICS FOR SOCIAL SCIENCES. PREREQUISITE: GRADUATE STANDING OR SOC 382 AND 383.

SOC 590 THE FAMILY AS A SOCIAL INSTITUTION
3 HRS.

SOC 592 FAMILY LIFE EDUCATION AND COUNSELING
3 HRS.
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 contemplates 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.

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.
2. An acceptable overall grade point average (minimum of 2.50).
3. Minimum grade of "C" in the following professional business courses or approved alternatives:
   A. BIS 142, Informational Writing..............3 hrs.
   B. One of the following:.........................3 hrs.
      GSSC 121, Dimensions of Human Behavior;
      PSY 100, General Psychology;
      PSY 344, Organizational Psychology;
      SOC 200, Principles of Sociology
   C. MATH 116, 122 or 200.......................3 hrs.
   D. BIS 102, Intro. to Information Processing........3 hrs.
   E. One of the following:.........................3 hrs.
      ECON 201 and 202, Principles of Economics
   F. ACTY 210 and 211, Principles of Accounting........6 hrs.
   G. MATH 216, Business Statistics..................3 hrs.
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. Actual admission will not be approved until the completion of the pre-business curriculum. Upper division 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.

Transfer students who meet admission requirements will be informed of steps they can take to achieve 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 must realize that they could have difficulty graduating with a BBA degree in a four-year span.

II. Professional BBA Curriculum

In order to graduate from the professional BBA curriculum, a student must have a minimum of 120 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 480 Production and Operations Management.....................3 hrs.
   G. MKTG 370 Marketing....................................................3 hrs.
   H. Advanced Quantitative Analysis..........................................3 hrs.
      (choose one: BIS 464, FCL 420, ECON 400, MGMT 360, MKTG 471)
   I. Advanced Accounting.....................................................3 hrs.
   J. MGMT 499 Management Problems........................................3 hrs.
      (This capstone course must be taken during a student's final semester/ 
      session)
   K. "C" average grade point is required in the upper-level core courses outlined
      above.
   L. Major courses (minimum) ................................................21 hrs.
      A "C" average grade point is required in all courses applied toward a major.
   M. General Education/Electives
      A. General Education Distribution Program Area IV Business Education; 6 hrs.
      B. Electives.................................................................3-6 hrs.
   N. Transfer work towards upper division courses must meet the following criteria:
      A. Approved by the Office of Academic Advising and the department.
      B. Minimum grade of "C"

Baccalaureate Writing Requirement

Students who have chosen to major in any area of business will satisfy the Baccalaureate Writing Requirement by successfully completing BIS 340 Principles of Business Communication.

Advising

For questions regarding BBA curriculum requirements and transfer credit equivalencies, contact the Haworth College of Business Advising Office.

Special Notes

1. A further requirement is that a minimum of 40 percent of the coursework must be taken from areas other than business and upper division economics.

II. Professional BBA Curriculum

In order to graduate from the professional BBA curriculum, a student must have a minimum of 120 non-repeated semester hours. In addition to the University requirements of general education, physical education and the first two years of study as listed in the pre-business curriculum, as this will facilitate entry into the upper level program of the college. Community college students should also be aware of coursework acceptable by transfer on the basis of the university's MACRAO agreement and acceptable validation procedures.

4. Regarding the Mathematics 116 requirement, a 3-hour college algebra course based on a prerequisite of three years of college preparatory mathematics is acceptable as a transfer course.

5. With departmental approval, 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 12 semester hours for a major and 9 for a minor must be taken at WMU).

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..................6

ACTY 310, 311, Financial Accounting..........................6
ACTY 313 Accounting Information Systems...................3
ACTY 322 Managerial Accounting.............................3
ACTY 324 Income Tax Accounting.............................3
ACTY 416 Auditing..................................................3

The additional courses to complete the accountancy major may 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 accountancy 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 411 Advanced Accounting.................................3
ACTY 414 Institutional Accounting..............................3
ACTY 416 Accounting Theory and Problems.....................3
ACTY 421 Cost Accounting: Theory and Practice..............3
ACTY 423 Studies in Tax Accounting.........................3

Option 1 (33 hours)

A student may take the following courses to complete the accountancy major:

Accounting Core..................................................24
Any three of the following:.................................9

ACTY 411 Advanced Accounting
ACTY 414 Institutional Accounting
ACTY 416 Accounting Theory and Problems
ACTY 421 Cost Accounting: Theory and Practice
ACTY 423 Studies in Tax Accounting

Special Notes

1. A further requirement is that a minimum of 40 percent of the coursework must be taken from areas other than business and upper division economics.

II. Professional BBA Curriculum

In order to graduate from the professional BBA curriculum, a student must have a minimum of 120 non-repeated semester hours. In addition to the University requirements of general education, physical education and the first two years of study as
Option 2 (33 hours)
A student may take the following courses to complete the accountancy major:

Accounting Core: 24

One of the following: 3
MGM 464 Production and Control
IE 326 Operations Planning and Control

Both of the following:
IE 328 Quality Assurance and Control 3
ACTY 421 Cost Accounting: Theory and Practice 3

All of the prerequisites for IE 326 and IE 328 must be met.

Option 3 (33-42 hours)
A student may meet the requirements for the accountancy major by completing one of the Business Information System or Computer Science sequences listed below:

Accounting Core: 24

Plus one of the following: 9-18
• A General Option Minor in Computer Science
• 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 accountancy are required to take a minimum of 21 hours. Fifteen of these hours must be in accountancy: ACTY 210, ACTY 211 are required plus 9 additional accounting hours for which the student meets the prerequisites to be selected with the students' professional objectives in mind. The remaining 6 hours must be selected from the following courses: FCL 320 and 380, MGM 300, and MKTG 370.

Qualifications for Accounting Certification
Exams: A graduate from the Hawthorne 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 Accounting, 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 five 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 Programming and Applications with Microcomputers 3
   BIS 386 Advanced Office Systems 3
   BIS 388 Records Management 3
   Plus 6 hours, as advised, from:
   BIS 360 Information Systems Analysis and Design
   BIS 556 Office Management
   BIS 484 Micrographics and Reprographics and
   BIS 486 Corporate Records Centers
   Plus 9 hours, as advised, from:
   CS 111 Computer Programming I
   BIS 261 COBOL Programming
   BIS 264 Report Program Generator
   BIS 343 Report Writing
   BIS 410 Internship in Administrative Systems
   BIS 557 Topics in Administrative Systems
   BIS 596 Independent Study in Administrative Systems
   BIS 598 Readings in Administrative Systems

2. BUSINESS COMMUNICATION (BCM)
   Major Requirements (27 hours)
   BIS 340 Principles of Business Communication 3
   BIS 342 Organizational Communication 3
   BIS 343 Report Writing 3
   BIS 444 Business Communication Problems and Practices 3
   BIS 445 Seminar in Business Communication 3
   BIS 454 Intercultural Business Communication 3
   BIS 480 Communication Technology 3
   Plus 6 hours, as advised, from:
   BIS 360 Information Systems Analysis and Design
   BIS 386 Advanced Office Systems
   BIS 400 Topics in Business Communication
   BIS 456 Office Management
   BIS 483 Business Publications and Presentations

   Minor Requirements (21 hours)
   BIS 340 Principles of Business Communication 3
   BIS 342 Organizational Communication 3
   BIS 343 Report Writing 3
   BIS 444 Business Communication Problems and Practices 3
   BIS 445 Intercultural Business Communication 3
   BIS 480 Communication Technology 3
   BIS 483 Business Publications and Presentations
   Plus 9 hours, as advised, from:
   BIS 344 Business Communication Problems and Practices
   BIS 454 Intercultural Business Communication
   BIS 480 Communication Technology
   BIS 483 Business Publications and Presentations
   BIS 484 Micrographics and Reprographics
   BIS 486 Corporate Records Centers
   9 hours, as advised, from:
   CS 111 Computer Programming I
   BIS 261 COBOL Programming
   BIS 264 Report Program Generator
   BIS 343 Report Writing
   BIS 410 Internship in Administrative Systems
   BIS 557 Topics in Administrative Systems
   BIS 596 Independent Study in Administrative Systems
   BIS 598 Readings in Administrative Systems

3. COMPUTER INFORMATION SYSTEMS (CIS)
   21
   30 hours
   CS 111 Computer Programming I 3
   BIS 260 Programming and Applications with Microcomputers 3
   BIS 261 COBOL Programming 3
   BIS 360 Information Systems Analysis and Design 3
   BIS 362 Advanced COBOL 3
   BIS 462 Applied CIS Development 3
   BIS 494 Decision Support and Expert Systems 3
   BIS 466 Distributed Data Processing 3
   BIS 564 Information Resource Management 3

4. BUSINESS EDUCATION (BED) 30 hours
   Students who complete a prescribed BBA/business education major earn both a teaching major (30 hours) and a teaching minor (20 hours) in business and receive a Michigan Secondary Provisional Certificate for teaching business subjects in grades K through 12.

   In addition to satisfying University and Haworth College of Business requirements, students complete 23 semester hours of professional education courses. The majors must include VE 342 and VE 344 for 6 hours in addition to prescribed business courses. These courses may not be taken by correspondence.

   A. Accounting and Related Business Subjects
   ACTY 210 Principles of Accounting 3
   ACTY 211 Principles of Accountancy 3
   ACTY 310 Financial Accounting I 3
   ACTY 311 Financial Accounting II 3
   ACTY 322 Managerial Accounting 3
   ACTY 324 Income Tax Accounting 3
   CS 111 Computer Programming I 3
   BIS 260 Programming and Applications with Microcomputers 3
   BIS 261 COBOL Programming 3
   BIS 362 Advanced COBOL 3
   BIS 464 Decision Support and Expert Systems 3
   FCL 382 Business Law 3

   B. Business Administration
   BIS 260 Programming and Applications with Microcomputers 3
   BIS 261 COBOL Programming 3
   BIS 264 Report Program Generator 3
   CS 111 Computer Programming I 3
   BIS 360 Information Systems Analysis and Design 3
   BIS 182 Keyboarding 2
   BIS 193 Formatting 2
   BIS 342 Organizational Communication 3
   BIS 344 Business Communication Problems and Practices 3
   BIS 362 Advanced COBOL 3
   BIS 366 Business Management Information Systems 3
   FCL 382 Business Law 3

   Students may also meet the requirements for vocational endorsement by completing an appropriate vocational teaching area of emphasis and appropriate courses in

AREAS OF CONCENTRATION 157
vocational education; 4,000 work hours are required, which may necessitate an internship or work experience program.

**BUSINESS EDUCATION MINOR**

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 12 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

BIS 340 Principles of Business Communication .................. 3

FCL 320 Business Finance ......................................... 3

FCL 382 Business Law .............................................. 3

MKTG 370 Marketing .............................................. 3

MGMT 300 Fundamentals of Management ............................ 3

**B. Accounting and Related Business Subjects Minor**

BIS 102 Introduction to Information Processing ........... 3

ACTY 210 Principles of Accounting .................................. 3

ACTY 211 Principles of Accounting .................................. 3

ACTY 310 Financial Accounting I .................................. 3

ACTY 322 Managerial Accounting .................................... 3

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

CS 111 Computer Programming I ...................................... 3

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**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, 3990 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 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, 12 are required, as shown, and nine additional hours 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. Eighteen of these hours are in finance and 3 are in other departments of the college. The finance minor shall consist of:

- FCL 310 Introduction to Financial Markets .................. 3
- FCL 320 Business Finance ...................................... 3
- FCL 351 Investment Analysis .................................... 3
- ACTY 210 Principles of Accounting ............................ 3

Nine (9) additional hours from ................................ 9

**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 .................. 6
- BIS 340 Business Communications ................................ 3
- FCL 320 Business Finance ...................................... 3
- FCL 380 Legal Environment .................................... 3
- MGMT 300 Fundamentals of Management .......................... 3
- MKTG 370 Marketing .............................................. 3

**Option 3: Insurance Minor (INS)**

Advisors: Kennedy

Students wishing to minor in insurance are required to take 21 hours. Fifteen of these are in insurance courses and 6 are from other disciplines within the Haworth College of Business. The insurance minor consists of the following courses:

- FCL 310 Financial Markets ...................................... 3
- FCL 361 Life and Health Insurance ............................ 3
- FCL 362 Property and Liability Insurance .................... 3

**Option 4: Law Minor (LAW)**

Advisors: Law Area Faculty

Students wishing to minor in law are required to take a minimum of 21 hours. Fifteen of these hours must be in law. FCL 380 Legal Environment and FCL 382 Business Law or FCL 383 Commercial Law are required; 9 additional semester hours of law shall be selected with the student's professional objectives in mind. The remaining 6 hours must be selected from the following courses:

- ACTY 210 Principles of Accounting ............................ 3
- MGMT 300 Fundamentals of Management .......................... 3
- MKTG 370 Marketing .............................................. 3

**Option 5: Real Estate Minor (REA)**

Advisors: Scheu

Students wishing to minor in real estate are required to take 21 hours. Fifteen of these hours are in Finance and Commercial Law courses and six are from other disciplines in the Haworth College of Business. The Real Estate minor consists of the following requirements:

- FCL 310 Introduction to Financial Markets .................. 3
- FCL 320 Business Finance ...................................... 3
- FCL 330 Real Estate Fundamentals .............................. 3
- ACTY 322 Managerial Accounting .................................. 3

Nine (9) additional hours from ................................ 9

**Option 6: Business Administration Minor**

Advisors: Report to department office, 3990 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 business 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, 12 are required, as shown, and an additional nine hours are to be selected in consultation with an advisor.

### 3. BUSINESSES AND RELATED BUSINESS MAJORS

**Option 1: Business Administration Minor**

BIS 102 Introduction to Information Processing ........... 3

MKTG 370 Marketing .............................................. 3

MGMT 300 Fundamentals of Management ............................ 3

FCL 360 Risk and Insurance .................................... 3

FCL 361 Life and Health Insurance ................................ 3

FCL 362 Property and Liability Insurance .................... 3

FCL 480 Tort Law and Liability .................................. 3

**Option 2: General Business Minor (GBS)**

Advisors: Report to department office, 3990 Haworth College of Business, for assignment to an advisor. In addition to the upper class requirements of MGMT 300 and 499, FCL 320 and 380, 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 5.

### 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. Eighteen of these hours are in finance and 3 are in other departments of the college. The finance minor shall consist of:

- FCL 310 Introduction to Financial Markets .................. 3
- FCL 320 Business Finance ...................................... 3
- FCL 351 Investment Analysis .................................... 3
- ACTY 210 Principles of Accounting ............................ 3

Nine (9) additional hours from ................................ 9

**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:
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 15 hours of additional work. Such courses may be drawn from all Department of Management offerings above 302, except 360 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 3
MGMT 301 Management Analysis and Behavior (I) 3
MGMT 302 Management Analysis and Behavior (II) 3
Plus completion of one of the following concentrations 15

Concentration in General Management
In addition to the requirements of the management major, the student must complete 15 hours of departmental electives.

Concentration in Entrepreneurship
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 Personal 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 432 Compensation Administration, MGMT 453 Organizational Behavior, MGMT 454 Managing Employee Relations, 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 462 Production Management and Control, MGMT 470 Production/Operations Simulation or MGMT 480 Materials Management Strategy, and two electives 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 3
MGMT 301 Management Analysis and Behavior (I) 3
MGMT 302 Management Analysis and Behavior (II) 3
Electives from management courses approved by a Departmental advisor 6

Two additional courses selected from among the following:
ACTY 210 Principles of Accounting (required of Non-BBA majors) 3
FCL 320 Business Finance 3
FCL 380 Legal Environment 3
MGKT 370 Marketing 3

Marketing (MKTG)
The Marketing Department offers five major areas of concentration as shown below. The courses are to be taken in the sequence indicated, following the prerequisites as listed after the course descriptions.

1. ADVERTISING (ADV) 27 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising 3
MKTG 377 Retail Promotion 3
MKTG 471 Quantitative Marketing Applications 3
MKTG 472 Media Planning 3
MKTG 474 Advertising Copy and Layout 3
MKTG 477 Consumer Behavior 3
MKTG 487 Advertising Theory and Ethics 3

2. RETAILING (RET) 27 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising 3
MKTG 375 Principles of Retailing 3
MKTG 377 Retail Promotion 3
MKTG 471 Quantitative Marketing Applications 3
MKTG 476 Retail Merchandising 3
MKTG 479 Marketing Internship approved by a Departmental advisor 3
MKTG 480 Problems in Retailing 3

3. INDUSTRIAL MARKETING (IDM) 27 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising 3
MKTG 376 Sales Administration 3
MKTG 470 Industrial Marketing 3
MKTG 471 Quantitative Marketing Applications 3
MKTG 484 Marketing Logistics 3
MKTG 486 Marketing Strategy 3

Optional minor for Industrial Marketing Majors:
Manufacturing Technology (15 hours)
The Manufacturing Technology minor consists of Engineering Technology 142, 150, and 256, and any two of the following courses: Electrical Engineering 100, 101, 250, Industrial Engineering 326, 328; Paper and Printing Science and Engineering 354; Engineering Technology 152, 154, 352.

4. GENERAL MARKETING (MKT) 27 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising 3
MKTG 376 Sales Administration 3
MKTG 470 Industrial Marketing 3
MKTG 471 Quantitative Marketing Applications 3
MKTG 475 International Marketing 3
MKTG 486 Marketing Strategy 3
Elective from Marketing Department 3

5. FOOD MARKETING (FMK) 29 hours
Advisor: Report to Department of Marketing, 3210 Haworth College of Business Building, for assignment to an advisor.

MKTG 335 Food Marketing Coordinated Practices 2-6
MKTG 336 Food Marketing Merchandising 3
MKTG 338 Food Marketing Systems 3
MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising 3
MKTG 437 Food Marketing Issues 3
MKTG 439 Food Marketing Strategy 3
Select one of the following: 3
MKTG 270 Professional Selling
MKTG 337 Food Marketing Retail Operations
MKTG 338 Food Marketing Industry Survey
TKTG 376 Sales Administration 3
MKTG 477 Consumer Behavior 3
MKTG 484 Marketing Logistics

6. MARKETING MINOR (MKT) 21 hours
A marketing minor requires 21 credit hours consisting of the following courses:

MKTG 370 Marketing 3
MKTG 374 Advertising 3
MKTG 376 Sales Administration 3
MKTG 377 Retail Merchandising 3
MKTG 470 Industrial Marketing 3
Electives from the Department of Marketing approved by Department Advisor 6

Two (2) elective courses from the following:

ACTY 210 Principles of Accounting 3
ACTY 211 Principles of Accounting 3
FCL 320 Business Finance 3

Any deviations from the course requirements must have written approval of the departmental advisor or 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 course work 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. PUBLIC ADMINISTRATION (PAB)
Advisor: McCarty

Major Requirements: 24 hours
In addition to the current requirements for all students pursuing the Bachelor of Business Administration Degree, complete 24 hours from the following courses:

Required Course—Select one of the following courses:
FCL 390 Legal Environment 3
FCL 320 Business Finance 3

Elective Courses—Select seven (7) courses (21 hours) from the following list of courses:

ACTY 322 Managerial Accounting
ACTY 324 Income Tax Accounting
ACTY 514 Institutional Accounting
BIS 343 Report Writing
BIS 386 Records Management
BIS 556 Office Management

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MATH 568 Regression Analysis
MGMT 510 Multinational Management
FCL 594 International Business Seminar
FCL 442 International Finance

MGMT 352 Personnel Management
MGMT 451 Administrative Behavior
MKTG 372 Purchasing Management
MKTG 571 Healthcare Marketing

Minor Requirements: 21 hours
PSCI 200 National Government
PSCI 202 State and Local Government
PSCI 330 Introduction to Public Administration
PSCI 526 Administrative Law and Public Relations
PSCI 533 Public Personnel Administration
PSCI 535 The Politics of Governmental Budget and Finance

Plus one of the following:
PSCI 504 Making of Public Policy in U.S.
PSCI 531 Administration in Local and National Governments
PSCI 534 Administrative Theory
PSCI 591 Statistics for Political Science

3. 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 selecting the statistics option must make sure they meet the minimum requirement of 40 percent of their coursework in business and upper division economics courses.
CS 306 Introductory Programming
MATH 122 Calculus I
MATH 123 Calculus II
MATH 230 Elementary Linear Algebra
MATH 272 Vector and Multivariate Calculus
MATH 364 Statistical Methods
MATH 362 Probability
MATH 460 Intro to Mathematical Statistics
MATH 506 Scientific Programming
Two of MATH
MATH 563 Sample Survey Methods
MATH 566 Nonparametric Statistical Methods
MATH 567 Statistical Design and Analysis of Experiments
MATH 568 Regression Analysis
Elective (one upper-level business course emphasizing statistical applications)

Related Minor
1. INTERNATIONAL BUSINESS MINOR (INT) 21 hours
Two courses from the following list...6
FCL 330 Real Estate Fundamentals
FCL 331 Real Estate Finance
FCL 482 Management and Labor Relations/Law
FCL 483 Real Estate Law
FCL 485 Government Regulation of Business
MGMT 352 Personnel Management
MGMT 451 Administrative Behavior
MGMT 452 Management
MGMT 454 Financial Management
MGMT 510 Multinational Management
MKTG 372 Purchasing Management
MKTG 571 Healthcare Management

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.

Hawthorne 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, coordinated by 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 Hawthorne College of Business.

ACCOUNTANCY
Richard L. Hodges, Interim Chair
John D. Sheppard
Charles E. Hines, Jr.
Jerry G. Kreuze
Sheldon A. Langsam
William C. Morris
Gale A. Newell
David Rozelle
F. W. Schauberie
John D. Sheppard
Kathleen E. Sinning
Roger Y. W. 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/cost 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.
TO INDIVIDUALS, PARTNERSHIPS, AND CORPORATIONS.

A STUDY OF THE ACCOUNTING METHODOLOGY AND CONCEPTS THAT HAVE BEEN DEVELOPED TO SERVE MANAGERS IN DECISION-MAKING FOR PLANNING AND CONTROL, INCLUDES BUDGETING, STANDARD COSTING VARIANCE ANALYSIS, INCREMENTAL ANALYSIS, COST AND PROFIT ANALYSIS, RELEVANT COSTING, AND PRODUCT COSTING CONCEPTS AND PRACTICES. PREREQUISITE: 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. 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: ACTY 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. Prerequisites: ACTY 311, ACTY 313 or their equivalents.

ACTY 514 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 522 COST ACCOUNTING—THEORY AND PRACTICE
3 HRS.
A study of the accounting methodology and concepts that have been developed to account for both product 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.

OPEN TO UPPERCLASS AND GRADUATE STUDENTS

ACTY 511 ADVANCED ACCOUNTING
3 HRS.
The study of entities and special transactions not covered in Financial Accounting I and II. 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: ACTY 311 or equivalent.

ACTY 514 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 or written consent of instructor.

ACTY 516 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. Prerequisites: ACTY 311, ACTY 313 or their equivalents.

ACTY 518 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 standing and accounting major.

ACTY 524 COST ACCOUNTING—THEORY AND PRACTICE
3 HRS.
A study of the accounting methodology and concepts that have been developed to account for both product 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: 322.

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

PAMELA S. ROONEY, CHAIR
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The Department of Business Information Systems offers four undergraduate programs of study: (1) Administrative Systems (ADS), (2) Business Education (BED), (3) Business Communication (BCM), and (4) 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.

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 182.
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 communications 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 groups 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 standards for managing and using computerized information systems in business environments for improved productivity. Prerequisite: 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, integration, and management technology and economics 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 system 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 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 managing 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 work 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 388 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 598 Independent Study 1-4 hrs.
A directed independent project in an area of Administrative Systems, Business Communication, or Computer Information Systems. Prerequisite: Approved application required.

BIS 598 Readings 1-4 hrs.
A series of direct readings in an area of Administrative Systems, Business Communication, or Computer Information Systems. Prerequisite: Approved application required.

FINANCE AND COMMERCIAL LAW

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 to 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 analysis, 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 insurance 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, creditor-debtor relationships, and estate planning laws are briefly discussed. Prerequisite: FCL 380.

FCL 383 Commercial Law
3 hrs.
The study of law affecting the organization and operation of business firms. Organizational concerns focus on partnership and corporation laws and regulations affecting the issuing and sale of corporate securities. The agency relationship, 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 PSCI 525 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. Apart from this theoretical framework, the course includes cases covering financial decision-making processes in the areas of financial analysis and forecasting, asset valuation 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, merger, 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. Considers interrelationships of these institutions with savings and loan associations, savings banks, insurance companies, individuals and governmental institutions including government 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
1-5 hrs.
Under the direction of a faculty advisor, students obtain practical experience with industrial, commercial, and financial enterprises (commercial banks, brokerage firms, etc.), with insurance companies or firms with a real estate division, or with a real estate firm or enterprises with a real estate department or division. Students are required to file periodic reports to the advisor. In addition, 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 aiding 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.

FCL 483 Real Estate Law
3 hrs.
The study of land ownership, sales agreements, mortgages, land contracts, leases, zoning, condemnation and urban land development problems. Prerequisite: FCL 380.

FCL 484 International Business Law
3 hrs.
A study of national, regional and international laws which affect the conduct of international business. An examination of the legal regulations which promote or restrain trade or investment by international business firms. Prerequisite: FCL 380.

FCL 485 Governmental Regulations of Business
3 hrs.
Examines the laws, rules and regulations at the federal, state and local levels 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.

FCL 486 Marketing and Sales Law
3 hrs.
The course examines the law as it applies to the sale of goods, warranties affecting such sales and the methods of financing those sales. Legal obligations imposed upon and risks assumed by the seller are emphasized. Prerequisite: FCL 380.

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 under the approved by the Haworth College of Business.

FCL 542 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 553 Securities Analysis**
3 hrs.
An analysis of stocks and bonds as investment vehicles. The course is designed as a sophisticated analysis of valuation techniques with a view towards aiding the student to bridge the gaps between techniques used by the academicians and the practitioner. Prerequisite: FCL 351 or consent.

**FCL 562 Group Insurance and Pensions**
3 hrs.
Basic principles 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.

**FCL 564 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 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 they apply 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 or consent.

**FCL 598 Readings in Finance and Commercial Law**
1-4 hrs.
Directed individual study of legal problems which are not treated in departmental course offerings. Prerequisite: Written consent of the instructor.

**MANAGEMENT**

**Carol Stamm, Chair**
**Raymond E. Alix**
**Henry H. Beamer**
**Thomas A. Carey**
**Selah Deshpande**
**Daniel J. Farrell**
**Darnodar Golhar**
**Katherine Karl**
**J. Michael Keenan**
**Jerry M. Kopf**
**Robert Landeros**
**John R. Rizzo**
**Trudy G. Verser**
**Selvi Vesocci**

**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, models, and techniques central to the practice of management. Historical and contemporary thought are presented in the context of the behavioral, structural, functional, quantitative, and ethical aspects of managing organizations. Cross-cultural aspects of management are also explored. Expected outcomes for the student are: a general familiarity with the management process, and limited situational application of course content. Prerequisite: Junior standing.

**MGMT 301 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 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/operator of a small business will be addressed. It is assumed that students have a basic knowledge of business fundamentals before taking this course. Prerequisites: MGMT 300, MKGT 370.

**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. 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, risk 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 modifications of 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 300, MGMT 352, and MGMT 360.

**MGMT 450 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 476 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. Prerequisite: MGMT 300; MGMT 352.

MGMT 480 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 483 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 484 Production and Operations 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 490 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 are also evaluated. In particular, model development, model validity and statistical analysis issues will be critically examined. Prerequisites: MGMT 360 or equivalent.

MGMT 491 Materials Management Strategy
3 hrs.
Introduces students to a framework for making long-term decisions in operations management, and stresses the importance of developing and executing a production/operations management strategy which is consistent with the business strategy of the organization. An emphasis will also be placed on production/operations capability as a competitive weapon. This course functions as the capstone experience in the Production/Operations Management concentration, and students are expected to have specialized knowledge for analyzing the operating characteristics of organizations. Prerequisites: MGMT 463, MGMT 464, or equivalent.

MGMT 495 Independent Study
1-4 hrs.
Independent research on specialized management topics. Prerequisite: Consent of instructor. (Repeatable)

MGMT 499 Management Problems
3 hrs.
An integrative course intended to give the student opportunity to solve management problems by bringing together the knowledge gained in the study of areas such as finance, accounting, marketing, economics, management. Prerequisites: Senior standing and all core 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.

MGMT 526 Food Marketing Principles
3 hrs.
An introductory course designed to explore key concepts and issues related to the marketing of food. The course includes a survey of the nature of food marketing, marketing organization, and the marketing process for food. Basic principles and practices of the industry will be analyzed.

MGMT 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.

MGMT 300 Survey of Marketing
3 hrs.
An introduction for non-business students to the key concepts and issues underlying marketing. The course includes a survey of the nature of marketing, marketing organization and the marketing process. (Not open to business majors or minors. Validation of MGMT 300 as a substitute for MGMT 370 requires a "C" or better grade in MGMT 371 for students who qualify and elect additional courses.)

MGMT 335 Food Marketing Coordinated Practices
1-3 hrs.
The student will be employed in a full time trainee position for an entire semester under the supervision of the University and the participating company. Written reports will be required, and a performance appraisal of the trainee will be made by the employer. Prerequisite: Approval of instructor. (Food Marketing majors only.)

MGMT 336 Food Marketing Merchandising
3 hrs.
A course designed to acquaint the students with various merchandising principles unique to food marketing. Emphasis will focus on new product developments, changing store formats, purchasing and pricing practices, and promotional methods for increasing and maintaining sales. Prerequisite: MGMT 370.

MGMT 370 Food Marketing Retail Operations
3 hrs.
A course designed to acquaint the student with the principles and methods used in the operation of a retail food establishment. The course will focus on the analysis of operating ratios and data vital to a profitable operation. The course includes the use of a computerized mathematical simulation to provide reinforcement to the learning process. Prerequisite: MGMT 370.
MKTG 338 Food Marketing Systems
3 hrs.
This computer based course is designed to acquaint students with the latest technological advancements unique to the marketing function. Like training. Students will be introduced to systems which analyze price and cost controls, assist in sales forecasting, merchandising and the interpretation of various performance ratios. Prerequisite: MKTG 336, 370.

MKTG 339 Food Marketing Industry Survey
3 hrs.
A survey course of food marketing businesses and processors designed to observe such functions as production, packaging, distribution, research, technology development and marketing practices. Industry executives lecture to the class daily during their visits. Written reports are to be made of the visits, and a fee for transportation and housing is required. Prerequisite: Approval of instructor.

MKTG 370 Marketing
3 hrs.
Functions, institutions, and problems of marketing 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 relationships to the economy, society, and the system of mass communication. Prerequisite: MKTG 370.

MKTG 375 Principles of Retailing
3 hrs.
Considers the activities necessary in performing the management of a retail establishment. Changes in consumer demographics, life-style and the decision making process. Sources and uses of funds, inventory planning and control, merchandise resources, promotion, customer services, building layout, and expense analysis are special areas of study. 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 compensation; territories and quotas; motivation, measuring selling effectiveness. Prerequisite: MKTG 370.

MKTG 377 Retail Promotion
3 hrs.
Study of techniques used in identifying and appealing to retail consumer needs through the use of various store and departmental promotions, newspapers, radio, T.V., direct mail, and point-of-purchase advertising.

Ethical considerations of all retail promotion explored. Prerequisite: MKTG 370.

MKTG 437 Food Marketing Issues
3 hrs.
A wide ranging study of current issues affecting the food industry today. Issues which impact the agriculture, manufacture, wholesale distribution, transportation, sales and retail segments of the food industry will be explored. Prerequisite: MKTG 370, senior standing.

MKTG 439 Food Marketing Strategy
3 hrs.
An integrating course using an analytical approach to diagnose food marketing strategies. This course will focus on strategies related to market segmentation, pricing, location merchandising, sales promotion, operations, personnel, and wholesale distribution. A case study approach to problem solving will be utilized in the course. Prerequisite: MKTG 370, 371, senior standing.

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 quantitative methods is required. Prerequisite: MKTG 370, 371.

MKTG 472 Advertising Media and Campaigns
3 hrs.
Examines theory and practice of media research, use of Audit Bureau of Circulation data, broadcasting ratings, copy testing, development of media plans and scheduling as required for advertising campaigns. Prerequisites: MKTG 374 and MKTG 474; 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, electronic media, telephone, and catalog advertising; student projects required. Prerequisite: MKTG 370, 374. Advertising majors only.

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, and newspaper copy. Prerequisites: MKTG 370, 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 Merchandising
3 hrs.
The planning, "buying", and controlling of merchandise for resale through retail outlets; fashion, mass merchandise, specialty, boutique, department, and food stores. Students will develop buying plans for various products, such as fashion merchandise, sporting goods, wearing apparel, household goods, and others. Prerequisites: MKTG 370, 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 478 Marketing Decisions in Publicity and Public Relations
3 hrs.
Analysis of principles and practices of publicity and public relations as these areas relate to the firm's overall promotional strategies; stress on application through case studies and term project. Prerequisite: MKTG 370.

MKTG 479 Marketing Internship
1-6 hrs.
Cooperative internship training for the 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 3 hrs. Term reports required; evaluations completed by executives of firms in which training takes place. Prerequisites: Marketing major; permission of the instructor.

MKTG 480 Problems in Retailing
3 hrs.
Designed to analyze current retailing problems; market segmentation, inventory planning and control, vendor evaluation, store services, traffic patterns, and warehousing. Report required. Prerequisite: Permission of the instructor and senior level.

MKTG 484 Marketing Logistics
3 hrs.
An analysis of problems relating to the movement, handling and storage of industrial products. Attention will also be given to changing market conditions and industrial structure as they affect the physical distribution of industrial goods. Prerequisite: MKTG 370.

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 on 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 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 571 Healthcare Marketing
3 hrs.
An analysis of the field of marketing and its application in the healthcare industry.
Emphasis will be on the role and utilization of marketing by a range of healthcare providers from hospitals to agency and medical group services.

MKTG 598 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. Prepare 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 self-contained classrooms in grades kindergarten through eighth grade and major/minor subjects in departmentalized classrooms in grades six through eight) OR the Michigan Secondary Provisional Certificate, (valid for major and minor subjects in grades seven through twelve).

The following undergraduate curricula lead to certification and are offered in the College of Education: Elementary Education, Secondary Education, Special Education, and Physical Education. Students seeking admission to these curricula must contact the Office of Admissions and Advising, 2504 Sangren Hall.

Students seeking admission to one of the following curricula must see the appropriate college or department advisor as well as the Office of Admissions and Advising:

- Art (see Department of Art advisor)
- Music (see School of Music for audition)
- Business Education (see Haworth College of Business advisor)
- Special Education (see Department of Special Education advisor)
- Speech Pathology and Audiology (see Department of Speech Pathology and Audiology advisor)

Teaching certificates are granted only to those students who satisfactorily complete an approved teacher education program with an overall grade point average of 2.5 and a bachelor's degree. Students in Speech Pathology and Audiology must complete a master's degree.

Office of Admissions and Advising
2504 Sangren Hall
387-3474

Advisors:
Joyce DeRight, Director
Wendy Asmus
Pat Smith

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.

ADMISSION/ADVISEMENT

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 undergraduate students declaring a preference for a curriculum leading to a teaching certificate will be assigned a pre-education designator (PED) at the time of admission to the University. Students wishing to enter Professional Education (i.e., upper-division coursework) must meet the following requirements:

- Completion of at least 35 credit hours of lower-division coursework which meet requirements in General Education and/or serve as prerequisites to majors and minors approved for teacher certification.
- Completion of all Intellectual Skills requirements including a college-level writing course.
- Completion of ED 250, Human Development, or an approved equivalent course, with a grade of "C" or better.
- Achievement of a cumulative grade point average (GPA) of 2.5 or better.
Achievement of passing scores on the state-mandated basic skills test.
2. Completion of a formal application for admission to Professional Education. Students designated as PED will not be permitted to enter upper-division professional education coursework until all admission requirements have been met.

TEACHER TESTING
Beginning September 1, 1991, the State Board of Education shall issue a teaching certificate only to persons who have passed both a basic skills examination and each appropriate subject area examination for each subject area in which they are to be certified. Michigan state law requires that these examinations be passed prior to enrollment in student teaching.

Effective Spring Semester, 1992, all students entering a teacher education curriculum will be required to pass the state-mandated basic skills test prior to admission to Professional Education. Effective Spring Semester, 1992, all students admitted to student teaching must pass the required subject area examinations prior to enrollment.

Information regarding required teacher testing may be obtained from the Office of Admissions and Advising, 2504 Sangren Hall.

Certification Office
Diane Pelc, Certification Officer
Cindy De Ryke, Administrative Assistant
2206 Sangren Hall
387-3473

The University Certification Office processes all recommendations for certification and advises post-baccalaureate students seeking teacher certification. Further information about available certifications can be found under Types of Michigan Certificates elsewhere in this bulletin.

Office of Directed Teaching
Robert Kotecki, Director
2104 Sangren Hall
387-3466

The Office of Directed Teaching is responsible for the coordination and oversight of all field experiences and directed or student teaching associated with teacher education curricula.

STUDENT TEACHING
The following criteria must be met prior to 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/or minor with a minimum grade of "C"

Students must contact the Office of Directed Teaching at least one semester 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 enroll in other coursework during student teaching.

APPEALS
A student aggrieved by an action taken within the College of Education has the right to appeal such action by filing an appeal form in the Office of Admission and Advising within twenty-one (21) days of the aggrieved action. Appeals may be reviewed by the Academic and Professional Standards Committee. Information about the appeal procedure is available in the Office of Admission and Advising.

HEALTH AND LIABILITY INSURANCE
Students engaged in field experiences or directed teaching must give evidence of having health insurance at the time of course enrollment. Liability insurance coverage will be provided by the University through a fee assessed at the time of enrollment in courses requiring field 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. Additional information may be obtained from the Office of Admissions and Advising, 2504 Sangren Hall.

Minimum hours required for this curriculum: 130 hours

Program Requirements:
General Education Distribution: 40 hours
General Education Requirement: 35 hours required for University 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. Students' General Education Distribution requirements will be met by options within the professional education program and the approved minors. (Courses listed in the elementary education program description with an * are approved for General Education credit. Two courses at the 300-400 level are required.)

Minors/Majors Approved for Elementary Education

Students selecting the elementary education curriculum are required to complete three minors; the Elementary Education Minor (EDD, 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 (ECE), 20 hrs.

French (FRE), 20 hrs.

German (GER), 20 hrs.

Group Social Sciences (GSS), 24 hrs.

Integrated Creative Arts (CRA), 24 hrs.

English Elementary Education (ENG), 20 hrs.

Music major** (63 hrs.) with 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 /Elementary major** (34 hrs.). Contact Department of Special Education to determine acceptable minors and desired level of preparation.

Notes: ** Special Education majors require admission to Special Education Curriculum. Music majors require admission to College of Fine Arts.

*** Speech Pathology and Audiology majors are certified upon successful completion of 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.

General Education Foundations

*ENGL 282 Children's Literature . . . .4 hrs.
One course from the following:
*ENGL 105 Thought and Writing . . . .4 hrs.
*BIS 142 Informational Writing . . . .3 hrs.

One course from the following:
*GEOG 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.

*GHUM 315 Human Communications . . . .4 hrs.

SPPA majors may substitute "LING 105, The Nature of Language (4 hrs.)

One course from the following:
*WMS 200 Women: Past, Present, and Future . . . .3 hrs.

*WMS 410 Female and Male: Psychological Perspectives . . . .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.
- GSSC 123 Human 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, 29 hours
An overall grade point average of 2.5 and no grade lower than a "C" in any Professional Education course are required.

Pre-Professional Foundations: 3 hrs.
ED 250 Human Development ........... 3 hrs.
ED 300 Educational Psychology of Early Childhood .......... 3 hrs.
(Pre-requisite: ED 250, admission to professional program in education)

ED 310 Educational Psychology of Childhood .......... 3 hrs.
Pre-requisite: ED 250, admission to professional program in education

ED 347 Technology in Learning .......... 1 hr.
Pre-requisite: ED 309 OR ED 310 (may be taken concurrently with ED 309 or ED 310)

SPED 527 Educational Provisions for Exceptional Learners/Regular Elementary Programs .. 3 hrs.

ED 369 Classroom Organization and Management: Young Children .......... 3 hrs.
Pre-requisite: ED 309, SPED 527

ED 371 Elementary Classroom Organization and Management .......... 3 hrs.
Pre-requisites: ED 310, SPED 527

ED 369 School and Society .......... 3 hrs.
** Not required for students majoring in SPPA and SPED; Physical Education majors may substitute either PEPR 320 or PEPR 520.

Professional Practicum .......... 12 hrs.
ED 410 Seminar in Education .......... 2 hrs.
ED 470 Directed Teaching: Early Childhood .......... 5 hrs.
and/or
ED 471 Directed Teaching: Primary Grades .......... 5/10 hrs.
and/or
ED 472 Directed Teaching: Upper Elementary/Middle School .......... 5/10 hrs.

Other Requirements
University Intellectual Skills requirements in Reading, Mathematics, Writing, and Computer Literacy must be met.
The Intellectual Skills Writing Literacy requirement may be met by selecting BIS 142 or ENGL 105 which are also approved for General Education credit. The Computer Literacy requirement is met through the science and Mathematics Teaching Minor courses: MATH 151, MATH 265, and MATH 552. Students not electing the Science and Mathematics Teaching Minor must select CS 105 or BIS 102. The baccalaureate writing requirement is met through ED 395.

Baccalaureate Writing Requirement
Students who have chosen the Elementary Education Curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society.

Elementary Education Minors
These 28 hour interdepartmental programs are designed to prepare students to assume teaching responsibilities in a general education classroom in grades K-8.

Prior to entering the minors, students must complete: (a) 12-16 hours of specified General Education coursework in addition to the hours required as part of the Professional Education sequence and (b) 7-10 hours of prerequisites to required courses in the minor.

v Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of Integrated Language Arts
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.
- *GSCI 131 Physical Science in Elementary Education .......... 4 hrs.

Required courses—to be taken in this sequence:
MATH 150 Structure of Arithmetic .......... 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 200.

* 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

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.
- *GSCI 131 Physical Science in Elementary Education .......... 4 hrs.

Required courses—to be taken in this sequence:
MATH 150 Structure of Arithmetic .......... 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 200.

* Approved for General Education credit.
See advisor in English for third minor.

CURRICULA 171
Elementary Education minor requirements

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.
- *GEOSCI 131 Physical Science in Elementary Education .... 4 hrs.

**Elementary Education minor requirements with a major of Art, Music, or Physical Education**

(Continued on next page)
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 the winter semester.

Program
This 24-hour interdepartmental minor for elementary education students consists of the following:

Entry Courses—must be taken concurrently:

Intermediate Courses:
ILAM/ENGL 375 Acquisition of Literacy and the Early Elementary Child .... 4 hrs. ILAM/ENGL 376 Acquisition of Literacy and theLater 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.

A. REQUIRED SCIENCE (Select one course from each area. Courses approved for general education are marked with an *.)

- Biological
  *BIOS 107 Biological Science .... 4
  *BIOS 234 Outdoor Science .... 4

- Earth Science
  GEOG 130 Physical Geography .... 4
  GEOG 105 Physical Geography (section for elementary education minors) .... 4

- Physical Science
  CHEM 200 Chemical Science in Elementary Education .... 4
  GSCI 231 Physical Science in Elementary Education II .... 4 (Prerequisite: GSCI 131)

B. REQUIRED MATHEMATICS

- MATH 151 Geometry for Elementary Teachers (Prerequisite: MATH 150) .... 3
- MATH 265 Probability and Statistics for Elementary Teachers (Prerequisite: MATH 150) .... 3

C. REQUIRED PRACTICA AND SEMINAR

- MATH 552 Teaching of Elementary Mathematics .... 3
- Prerequisites: MATH 151, MATH 265
- ED 401 Teaching Elementary School Science .... 3
- Prerequisites: ED 310 (ED 309 Early Childhood) and all science courses. Be taken concurrently with ED 402.
- ED 402 Practicum in Science and Mathematics Teaching .... 2
- Prerequisites: MATH 452 and ED 401. (ED 401 may be taken concurrently.)
- MATH 552 and completion of all science courses are prerequisites for ED 401 and ED 402. ED 401 and ED 402 may be taken concurrently.

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 Education. 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. Students will have a split directed teaching assignment, which will be done in the Kalamazoo area, where early childhood faculty are available. Students with an Early Childhood Minor or Emphasis should satisfactorily complete the Elementary Education Curriculum requirements, with the following additional courses or substitutions:

ED 350 Young Children, Their Families, and Their Society .... 3 hrs.
ED 351 Reading and Related Communications Skills for Early Childhood .... 3 hrs.
ED 300 Educational Psychology: Early Childhood .... 3 hrs.
ED 389 Classroom Organization and Management: Early Childhood .... 3 hrs.
ED 410 Seminar in Education: Early Childhood Emphasis .... 2 hrs.
ED 465 Administration of Child Development Centers * .... 2 hrs.
ED 470 Direct Instruction (Early Childhood)** .... 5 hrs.

NOTE: COM 366, when taken as part of the Elementary Education Minor, may, with approval of the advisor, also count toward the minor or emphasis.

* 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.

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
36 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 Education Certification Option
1. Two minors or group minors (20-28 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.
Bachelor of Science Degree Elementary Music Curriculum

Elementary Education Music

Grants certification to teach in elementary grade room (K-3) 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
Basic Music 261 ............. 2
Music History and Literature 270-271 .. 6
Conducting 215 ............. 1
Keyboard Musicanship 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 entrance in 220 must complete 120 and/or 121 as a deficiency. Students who test out of Advanced Keyboard Musicanship (321) are urged to consider taking Basic Music (260); American Music (350); NonWestern Music (352); Voice (200); or courses not taken in the Choral or instrumental elective areas.

Voice Class ................. 4
Four semesters of voice, including one of Vocal Techniques for Music Educators (117) and one at 100- or 200-level Voice. Only one voice class is to be counted per semester.
Choral Ensemble 107, 108, or 112 .... 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 ............. 2
Select one of the following: Choral Conducting and Literature (330); Choral Techniques (339); Choral Methods (340) Instrument Elective ............. 2
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 (365) .... 2

Elementary Education Minor ....... 28 hrs.
Select one course from the following:
GEOG 105 .................. 4
GSCI 131 .................. 4
รองRequired Courses (to be taken in this sequence):
MATH 150 .................. 4
ED 312 .................. 4
ED 351 .................. 3
ED 352 .................. 3
ED 407 .................. 3

Select one course from the following:
ENGL 369 .................. 4
ENGL 373 .................. 4

Required courses:
COM 365 .................. 4

Professional Education Program ........... 17 hrs.
ED 348 ................. 1
ED 395 ................. 3

Professional Practicum ........... 12
ED 410 .................. 2
ED 471, or 472 .......... 5-10

Physical Education ........... 2
Physical Education for Elementary Teacher (PEPR 340) will satisfy one hour of this requirement.

Baccalaureate Writing Requirement

Students who have chosen the Elementary Music Curriculum major will satisfy the Baccalaureate Writing Requirement by successfully completing ED 395 School and Society.

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 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 courses until admission requirements are met and application is approved.

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, science, or social studies areas (non-professional courses only).

General Physical Education
2 semester hours minimum; 8 semester hours maximum. Two of these may be general physical education, distributed over at least two “activity” courses are required.

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 sequence.
Secondary Education for students with majors in the College of Arts and Sciences.
ED 250 ........................ Human Development .... 3
ED 300 ........................ The Adolescent and School Learning .... 3
ED 301 ........................ Teaching of Reading (Secondary) .... 3

Prerequisite: ED 250, must be at least a sophomore
ED 302 ........................ Teaching and Learning .... 4
Prerequisite: ED 250, ED 301; must be at least a junior
ED 303 ........................ Classroom Organization and Management .... 3
Prerequisite: ED 302 or may be taken concurrently with ED 300.
ED 395 ........................ School and Society .... 3
Prerequisite: 70 earned hours
A "methods of teaching" course in either the major or minor (both, if required by the respective major and minor departments.)...3
ED 475 Directed Teaching
(Secondary).............10
Prerequisite: All of the above and successful completion of all coursework.
ED 410 Seminar in Education ...........2
(Must be taken concurrently with ED 475)
Note: ED 475 and ED 410 comprise the "directed
teaching semester."

Secondary Education for students majoring in
Art, Business, Health, Industrial Education,
Music, Physical Education, Vocational
Education, or those who declared Secondary
Education prior to Fall 1990
ED 250 Human Development ...........3
(Must be at least a sophomore)
ED 301 Teaching of Reading .........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 the
major or minor (both, if required by the respective
major and minor departments.)...3
ED 475 Directed Teaching
(Secondary).............10
Prerequisite: All of the above and successful completion of all coursework.
ED 410 Seminar in Education ...........2
(Must be taken concurrently with ED 475)
Note: ED 475 and ED 410 comprise the "directed
teaching semester."

Baccalaureate Writing Requirement
Students who have chosen the Secondary
Curriculum will satisfy the Baccalaureate Writing Requirement by successfully
completing ED 395 School and Society.

Major/Minor Requirements
A minimum of one major (at least 30 semester hours or 36 for a group major) plus
a minimum of one minor (at least 20 semester hours or 24 for a group minor)
must be selected from the appropriate lists
of acceptable majors and minors listed below.

Electives
Elective credit may be used as needed to
complete minimum graduation requirements and/or credits that do not qualify in
the above categories. The candidate must satisfy
the requirements for the B.A. or B.S. degree.

Approved majors and minors for the
Secondary Education Curriculum. (Only
programs listed below are acceptable for
secondary education).

majors
(A at least 30 semester hours.)
(Choose one.)
Anthropology (ANT) (Social Science Minor)
*Art Education (ATE)
Biology (BIO) (Science Minor)
*Business Education (BED) (General
Business Minor)
Chemistry (CHM)
Computer Science (CPS)
Earth Science (EAR)

Economics (ECO) (Social Science Minor)
English (ENG)
Geography (GEG) (Social Science Minor)
*Health Education (HED)
History (HIS) (Social Science Minor)
*Industrial Education:
Drafting (DRA)
General Industrial Ed. (GIA)
Graphic Arts (GRA)
Metal Working (MKW)
Power-Auto Mechanics (POW)
Woodworking (WDK)
Language Department Majors:
French (FREN)
German (GER)
Latin (LAT)
Spanish (SPA)
Linguistics (LIN) (used only as second
major)
Mathematics (MAT)
*Music Education (MUE) (includes vocal or
instrumental minor)
*Physical Education/Teacher-Coach (PYE)
Physics (PHY)
Political Science (POL) (Social Science
Minor)
Psychology (PSY) (only as second major
Sociology (SOC) (Social Science Minor)
Theatre Education (THN) (only as second
major)
Vocational/Technical:
Drafting (DRA)
Graphic Arts (GRA)
*Home Economics (HEE) (includes vocal or
instrumental minor)
Industrial Education:
General Business (GBS) (non-vocational)
Geography (GEG)
Health Education (HED)
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)
Russian (RUS)
Language and Film Department
French (FREN)
German (GER)
Latin (LAT)
Spanish (SPA)
Linguistics (LIN) (only as second minor)
Mathematics (MAT)
Occupational Foods (OCE) (with Home
Economics major only)
Physical Education (PES)
Physical Education/Exceptional Child (PEC)
(only with PYE or SPED major)
Physics (PHY)
Political Science (POL)
Psychology (PSY)
Religions, Academic Study of (ASR)
Science (SCI) (with Biology major only)

Social Science (SOS) (with approved major
only)
Sociology (SOC)
Vocational/Technical:
Drafting (DRA)
Graphic Arts (GRA)
Metalworking (MKW)
Secondary Education in Marketing (SEM)
Power/Auto Mechanics (POW)
Woodworking (WDK)

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.

Pre-Education Curriculum
Students must complete the pre-education
curriculum and departmental entry
requirements to begin the professional
sequence in Special Education.

Endorsement —
Elementary Emotionally
Impaired
For the preparation of teachers of elementary
level emotionally impaired students.
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 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 ....................31 hrs.
ART 150 Art Education Workshop ......3
COM 170 Interpersonal Communication
OR
COM 104 Public Speaking ...........3
ED 250 Human Development .........3
ED 312 The Foundation of Reading
Instruction ..............3
ED 351 Reading and Related
Communication Skills for Early
Childhood ...........3
ED 395 School and Society ...........3
ED 471 Directed Teaching:
Elementary ..........10
ENGL 282 Children's Literature .....4*
MATH 150 Structure of Arithmetic .4
MUS 141 Music in Special Education
OR
MUS 140 Music for the Classroom
Teacher ...........3
PEPR 340 Physical Education for
the Elementary Classroom
Teacher ...........2
PSY 100 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 Emotionally Impaired Major —
Elementary ........................................ 37 hrs.
NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons 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.

ED 530 Education of Exceptional Persons .................. 3
SPED 531 Classroom Practicum in Special Education ................. 1
ED 533 Classroom Management .................................... 3
SPED 535 Introduction to Emotionally Disturbed ................. 2
SPED 571 Program Practicum in Special Education: EI .......... 1
SPED 572 Program Practicum in Special Education: ELI ....... 2
SPED 573 Consultation and Communication in Special Education .......... 3
SPED 575 Education of Emotionally Disturbed Persons .......... 2
SPED 576 Teaching Practicum in Special Education: EI ........ 1
SPED 534 Curriculum and Instruction in Special Education: Elementary .......... 3
SPPA 200 Communication Disorders .............................. 3
SPED 474 Directed Teaching in Special Education: Elementary Level EI Students .................................. 10
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 —
Elementary Mentally Impaired

For the preparation of teachers of elementary level Mentally Impaired.

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 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 "Curriculum Requirements" under Degree and Curriculum listed earlier in this catalog).

Curriculum Requirements ............................. 31 hrs.
ART 150 Art Education Workshop ................................ 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking .................................... 3
ED 250 Human Development ................................... 3
ED 312 The Foundation of Reading Instruction ................... 3
ED 351 Reading and Related Communication Skills for Early Childhood .. 3
ED 395 Speech and Social Skills ................................ 3
ED 471 Directed Teaching: Elementary ......................... 10
ENGL 282 Children's Literature ............................... 4*
MATH 150 Structure of Arithmetic .............................. 4
MUS 141 Music in Special Education ............................. 3
MUS 140 Music for the Classroom Teacher ....................... 3
PSY 100 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 ........................................... 37 hrs.
NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons 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.

ED 312 The Foundation of Reading Instruction ................... 3
ED 351 Reading and Related Communication Skills for Early Childhood .. 3
ED 395 Speech and Social Skills ................................ 3
ED 471 Directed Teaching: Elementary ......................... 10
ENGL 282 Children's Literature ............................... 4*
MATH 150 Structure of Arithmetic .............................. 4
MUS 141 Music in Special Education ............................. 3
MUS 140 Music for the Classroom Teacher ....................... 3
PSY 100 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 Physically and Otherwise Health Impaired Major —
Elementary ........................................... 37 hrs.
NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons 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.

ED 312 The Foundation of Reading Instruction ................... 3
ED 351 Reading and Related Communication Skills for Early Childhood .. 3
ED 395 Speech and Social Skills ................................ 3
ED 471 Directed Teaching: Elementary ......................... 10
ENGL 282 Children's Literature ............................... 4*
MATH 150 Structure of Arithmetic .............................. 4
MUS 141 Music in Special Education ............................. 3
MUS 140 Music for the Classroom Teacher ....................... 3
PSY 100 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 Physically and Otherwise Health Impaired Major —
Elementary ........................................... 37 hrs.
NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons 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.

ED 312 The Foundation of Reading Instruction ................... 3
ED 351 Reading and Related Communication Skills for Early Childhood .. 3
ED 395 Speech and Social Skills ................................ 3
ED 471 Directed Teaching: Elementary ......................... 10
ENGL 282 Children's Literature ............................... 4*
MATH 150 Structure of Arithmetic .............................. 4
MUS 141 Music in Special Education ............................. 3
MUS 140 Music for the Classroom Teacher ....................... 3
PSY 100 General Psychology .................................. 3*
Endorsement — Elementary Visually Impaired

For the preparation of teachers of elementary level Visually Impaired students.

Minimum Hours Required for this Curriculum

Course Requirements
A minimum grade of "C" must be earned in all courses included 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 ........................31 hrs.
ART 150 Art Education Workshop ................ 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking ........................ 3
ED 250 Human Development ........................ 3
ED 312 The Foundation of Reading Instruction ........................ 3
ED 351 Reading and Related Communication Skills for Early Childhood ................ 3
ED 360 School and Society ........................ 3
ED 471 Directed Teaching: Elementary ................ 3
ENGL 282 Children's Literature ........................ 4*
MATH 150 Structure of Arithmetic ................ 4
MUS 140 Music in Special Education or MUS 140 Music for the Classroom Teacher ................ 3
PEPR 340 Physical Education for the Elementary Classroom Teacher ................ 2
PSY 100 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 Visually Impaired Major — Elementary ........................ 40 hrs.

NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons 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 530 Education of Exceptional Persons ................ 3
SPED 531 Classroom Practicum in Special Education ................ 1
SPED 537 Technology in Special Education ................ 3
SPED 591 Braille and Other Communication Methods ................ 2
SPED 593 Methods and Techniques of Teaching Braille and Other Areas of Communication ................ 3
SPED 533 Assessment and Prescription in Special Education ................ 3
SPED 534 Curriculum and Instruction in Special Education: Elementary ................ 3
SPED 538 Consultation and Communication in Special Education ................ 3
BLRH 590 Physiology and Function of the Eye ................ 2
BLRH 592 Education of the Blind and Partially Sighted ................ 2
BLRH 594 Principles of Orientation and Mobility ................ 3
SPED 474 Directed Teaching in Special Education: Elementary Level VI Students ................ 10
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 Emotionally Impaired students.

Minimum Hours Required for this Curriculum ..................................130 hrs.

Course Requirements
A minimum grade of "C" must be earned in all courses included 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 ........................31 hrs.
ART 150 Art Education Workshop ................ 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking ........................ 3
ED 250 Human Development ........................ 3
ED 312 The Foundation of Reading Instruction ........................ 3
ED 352 Reading and Related Communication Skills for Middle and Upper Grades ................ 3
ED 395 School and Society ........................ 3
ED 472 Directed Teaching: Upper Elementary/Middle School: 10
ENGL 282 Children's Literature ........................ 4*
MATH 150 Structure of Arithmetic ................ 4
MUS 141 Music in Special Education or MUS 140 Music for the Classroom Teacher ................ 3
PEPR 340 Physical Education for the Elementary Classroom Teacher ................ 2
PSY 100 General Psychology ................ 3*

Academic Minor — 20-24 hrs.

To be selected from minors 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 ........................31 hrs.
ART 150 Art Education Workshop ................ 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking ........................ 3
ED 250 Human Development ........................ 3
ED 312 The Foundation of Reading Instruction ........................ 3
ED 352 Reading and Related Communication Skills for Middle and Upper Grades ................ 3
ED 395 School and Society ........................ 3
ED 472 Directed Teaching: Upper Elementary/Middle School: 10
ENGL 282 Children's Literature ........................ 4*
MATH 150 Structure of Arithmetic ................ 4
MUS 141 Music in Special Education or MUS 140 Music for the Classroom Teacher ................ 3

NOTE: Students must see a department advisor regarding the sequence in which the courses must be completed.

SPED 530 Education of Exceptional Persons ................ 3
SPED 531 Classroom Practicum in Special Education ................ 1
SPED 537 Technology in Special Education ................ 3
SPED 538 Classroom Management ................ 3
SPED 570 Introduction to Emotionally Disturbed ................ 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 576 Teaching Practicum in Special Education: EI ................ 1
SPED 536 Curriculum and Instruction in Special Education: Secondary ................ 3
SPPA 200 Curriculum and Instruction in Special Education: Emotionally Disturbed ................ 2
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 Mentally Impaired

For the preparation of teachers of secondary level Mentally Impaired students.

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 ........................31 hrs.
ART 150 Art Education Workshop ................ 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking ........................ 3
ED 250 Human Development ........................ 3
ED 312 The Foundation of Reading Instruction ........................ 3
ED 352 Reading and Related Communication Skills for Middle and Upper Grades ................ 3
ED 395 School and Society ........................ 3
ED 472 Directed Teaching: Upper Elementary/Middle School: 10
ENGL 282 Children's Literature ........................ 4*
MATH 150 Structure of Arithmetic ................ 4
MUS 141 Music in Special Education or MUS 140 Music for the Classroom Teacher ................ 3
PEPR 340 Physical Education for the Elementary Classroom Teacher ................ 2
PSY 100 General Psychology ................ 3*

Academic Minor — 20-24 hrs.

To be selected from minors approved for Secondary Education certification. See Secondary Minors section of this catalog.

Courses in Emotionally Impaired Major — Secondary ........................ 37 hrs.

NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons for 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.

Courses in Emotionally Impaired Major — Secondary ........................ 37 hrs.

NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons for 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.
Endorsement — Secondary Physically and Otherwise Health Impaired

For the preparation of teachers of secondary level Physically and Otherwise Health Impaired students.

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 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:

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 31 hrs.

General Education Requirement 35 hrs.

Endorsement — Secondary Visually Impaired

For the preparation of teachers of secondary level Visually Impaired students.

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 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).
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.

See Education and Professional Development course listings for reading courses offered.

**Education College Course (ED)**

ED 399 Field Experience (Community Participation) 2-8 hrs.

A program of independent study combining academic and work experiences 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, Interim Chair
Max E. Benne
Paul A. Boozen
Connie Edlund
Margie J. Geasler
Gail A. Havens
Jack T. Humbert
Rebecca S. Marvin
Colleen Molenar
Mary J. Peterson
Maya Petersen
Nancy H. Steinhans
Darrell B. Thomas
Donna R. VanWestrienen
Patricia B. Viard
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
Textiles and Apparel Technology
Vocational Education Teaching

Minors offered in the department include:

Family Life Education (Teaching)
Food Occupations (Teaching)
Occupational Child Care

**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 in Vocational Home Economics, Vocational Technical Education (Drafting, Graphic Arts, Metal Working, Power/Automotive, 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

A student completing a Bachelor of Science degree in Dietetics is eligible to apply for an internship in a hospital, food clinic, or industrial food service as approved by the American Dietetics Association.

After the internship, the dietician is eligible for positions in hospitals such as food administrator, therapeutic dietician, or teaching dietician; for positions in commercial food establishments such as restaurants, hotels, airlines, food service in the armed forces, industrial facilities, and school cafeterias; and community nutrition positions. The Student Dietetic Association of Southwest Michigan provides additional involvement of students with dietetic professionals.

**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 1
CRT 165 Food Science Principles 3
CRT 290 Nutrition 3
CRT 368 Quantity Foods 4
CRT 460 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
JE 102 Technical Communications 3
ELECTIVES—23

- CRT 225 Computers in Distribution ...
- COM 170* Interpersonal Communications I ...
- PSY 100* General Psychology ...
- SOC 200* Principles of Sociology ...
- ECON 201* Principles of Economics ...
- ANTH 220* Cultural Anthropology ...
- PSY 517 Psychology of Learning for Teachers ...
- MGMT 300E Fundamentals of Management ...
- GSCI 434* Biomedical Ethics and Society ...

SCIENCE COURSES—25 hours
Minimum "C" grade required
- CHEM 101*
- CHEM 102* General Chemistry I ...
- BIOS 112* Introduction to Biomedical Sciences ...
- CHEM 120 General Chemistry II ...
- BIOS 230* Microbiology and Man ...
- BIOS 240 Human Physiology ...
- CHEM 385 Introduction to Organic Chemistry ...
- CHEM 450 Introduction to Biochemistry ...

GENERAL EDUCATION—35 hours total
- Area I Humanities (6 hr. minimum)
- Area II Social and Behavioral Sciences (6 hr. minimum)
- Area III Natural Sciences and Math (6 hr. minimum)
- Area IV Non Western World (3 hr. minimum)
- Area V Optional Elective (no minimum)

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 large department stores, specialty shops, and boutiques. 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.

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.

REQURed CRT COURSES—43 hours minimum
- CRT 100 Career Seminar ...
- CRT 128 The Fashion Industry ...
- CRT 155 Design Principles ...
- CRT 202 Field Experience ...

Food Service Administration
Bachelor of Science Degree

The food service administration curriculum is scientifically oriented for indepth study of foods in relation to the business field. Students may pursue supervisory/managerial careers in commercial food institutions in the equipment field, food research, public utility companies, mass media productions, and government food agencies. Student Food Service Association (FOOSA) activities provide additional professional experiences.

BACCALAUREATE WRITING REQUIREMENT
Students who have chosen the Food Service Administration major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 468 Advanced and Experimental Foods.

Requirements
Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

REQURed CRT COURSES—33 hours
- CRT 220 Textiles I ...
- CRT 221 Fashion Analysis ...
- CRT 226 Fashion/Retail Buying ...
- CRT 228 Non textile Products ...
- CRT 229 Menswear ...
- CRT 320 Visual Merchandising ...
- CRT 326 History of Costume I ...
- CRT 327 History of Costume II ...
- CRT 329 Promotion and Coordination ...

Choose 6 hours minimum from this group:
- CRT 124 Clothing Construction ...
- CRT 205 Topics in CRT ...
- CRT 305 Preparing for Employment ...
- CRT 429 Internship ...
- CRT 430 Mass Merchandising ...

REQURED RELATED COURSES—30 hours
- CRT 225 Computers in Distribution ...

REQURED RELATED COURSES—24 hours
- BIO 101* Animal Biology
- BIOL 112* Biomedical Sciences ...
- BIOS 112* Biomedical Sciences ...
- BIOS 201* Principles of Economics ...
- BIOS 202* Principles of Economics ...
- MATH 110 Algebra ...
- MATH 116* Finite Math ...
- MGMT 352 Personnel Management ...

REQURED RELATED COURSES—49 hours
- ACTY 210 Principles of Accounting ...
- ACTY 211 Principles of Accounting ...
- BIS 340 Business Communications ...
- MGMT 300 Fundamentals of Management ...
- MGMT 352 Personnel Management ...

PHYSICAL EDUCATION REQUIREMENTS—2 hours

ELECTIVES—10-16 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 Relationship 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.

REQURED CRT COURSES—24 hours
- CRT 209 Consumer Education ...
- CRT 210 Human Sexuality ...

SELECT 6 HOURS FROM:

REQURED RELATED COURSES—49 hours
- MGMT 200 Business Statistics ...
- ACTY 210 Principles of Accounting ...
- ACTY 211 Principles of Accounting ...
- BIS 340 Business Communications ...
- MGMT 300 Fundamentals of Management ...

FCL 350 Business Finance ...
- FCL 350 Legal Environment ...
- FCL 352 Business Law ...
- MKTG 370 Marketing ...

GENERAL EDUCATION—40 hours. Courses with "A" above fulfill 29/28 hours of this requirement.

PHYSICAL EDUCATION—2 hours

ELECTIVES—26 hours

- CRT 468 Advanced and Experimental Foods ...
- CRT 590 Projects/Problems in CRT ...

- CRT 160 Intro to Agriculture ...
- CRT 209 Consumer Education ...
- MGMT 210 Small Business Management ...
- CRT 225 Computers in Distribution ...

- ANTH 220* Cultural Anthropology ...
- BIOL 142* Informational Writing ...
- BIOL 101* Animal Biology
- BIOS 112* Biomedical Sciences ...
- BIOS 201* Principles of Economics ...
- BIOS 202* Principles of Economics ...
- MATH 110 Algebra ...
- MATH 116* Finite Math ...
- MGMT 352 Personnel Management ...
- IE 402 Supervision/Indus. Oper ...
- PSY 100* General Psychology ...

- MGMT 200 Business Statistics ...
- ACTY 210 Principles of Accounting ...
- ACTY 211 Principles of Accounting ...
- BIS 340 Business Communications ...
- MGMT 300 Fundamentals of Management ...

- FCL 350 Business Finance ...
- FCL 350 Legal Environment ...
- FCL 352 Business Law ...
- MKTG 370 Marketing ...

GENERAL EDUCATION—40 hours. Courses with "A" above fulfill 29/28 hours of this requirement.
CONSUMER RESOURCES AND TECHNOLOGY 181

CURRICULUM

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 542 and VE 344.

1. Minimum hours required for this curriculum: 122 hrs.

2. General Education Requirements: 40 hrs. 3 semester hours of written communications and MATH 110, 111, and 101 or equivalent are required.

3. Technical major in one of the following areas: 30 hrs.
   - General Industrial Arts
   - Drafting
   - Graphic Arts
   - Metalworking
   - Power-Energy
   - Woodworking

4. A student may select any one 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
   - ED 395 School and Society

ED 475 Directed Teaching (Secondary) 10 hrs.

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.

BACCALAUREATE 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.

Requirements
Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

REQUISITE CRT COURSES—48 hours

CRT 150 Intro to Interior Design
CRT 155 Design Principles
CRT 202 Field Experience
CRT 220 Textiles I
CRT 251 Period Interiors I
CRT 252 Period Interiors II
CRT 254 Interior Design Materials
CRT 255 Lighting for Interiors
CRT 256 Sketching for Interior Designers
CRT 350 Textiles for Interiors
CRT 351 Contract Design I
CRT 352 Professional Practices
CRT 359 Visual Design Techniques
CRT 450 Residential Design
CRT 451 Contract Design II

REQUISITE RELATED COURSES—39 hours

ET 131 Intro to Building Practices
ET 149 Intro to Technical Drawing
ET 349 Interior Design Graphics I
ET 350 Wood/Materials/Interior Design
ET 225 Computers in Distribution
ET 105* Introduction to Computers
ET 201* Principles of Economics
ART 220* History of Art
ART 221* History of Art
MKTG 270 Professional Selling
COM 104* Public Speaking
IE 102* Technical Communications
MGMT 210 Small Business Management
ACT 210 Principles of Accounting

GENERAL EDUCATION/LIBERAL ARTS—40 hours total
Courses with * above apply toward General Education; courses with ** count toward Liberal Arts.

PHYSICAL EDUCATION—2 hours

ELECTIVES—Number of hours needed for 122 total

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.

BACCALAUREATE WRITING REQUIREMENT

Students who have chosen the Textile and Apparel Technology major will satisfy the Baccalaureate Writing Requirement by successfully completing CRT 525 Socio-psychological Aspects of Clothing.

Requirements
Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours.

REQUISITE CRT COURSES—36 hours

CRT 124 Clothing Construction
CRT 155 Design Principles
CRT 220 Textiles I
CRT 222 Flat Pattern Design I
CRT 224 Experimental Clothing
CRT 326 History of Costume I
CRT 327 History of Costume II
CRT 428 Textiles II
CRT 524 Soc./Psy. Aspects of Cloth

PLUS 10 HOURS FROM THE FOLLOWING LIST:

CRT 100 Career Seminar
CRT 202 Field Experience
CRT 205 Topics in CRT

* = Above apply toward General Education; courses with ** count toward Liberal Arts.
OPTIONS FOR CAREER DIRECTION—
18-23 hours
Must be planned and structured with advisor

REQUIRED RELATED—22 hours

CS 105* Introduction to Computers
OR

CRT 225 Computers in Distribution .3

IE 102* Technical Communications .3

ECON 201* Principles of Economics .3

CHEM 107* Chemistry, Textiles/Design .4

CAS 170* Interpersonal Communications .3

PSY 100* General Psychology .3

SOC 200* Principles of Sociology .3

GENERAL EDUCATION—40 hours
Courses with * above apply toward this requirement. Two 300-500 level courses must be included.

PHYSICAL EDUCATION REQUIREMENT—
2 hours

ELECTIVES—21-26 hours
Due to General Education courses included in “Required Related” area and depending on “Career Direction” area courses.

Minors
Requirements
Students should consult with the department advisor to plan one of the following minors.

Family Life Education
( Teaching)

REQUIRED COURSES—18 hours
CRT 210 Introduction to Human Sexuality .3
CRT 214 Human Growth and Development .3
CRT 215 Transitions to Adulthood .3
CRT 318 Mate Selection and Marriage .3
CRT 410 Teaching of Sex Education in the School. .3
CRT 415 Effective Parenting .3

ELECTIVES—6 hours
Choose six hours from the following. Courses with * apply toward General Education credit.
ANTH 201 Cultural Anthropology*.3
BIOS 101 Animal Biology*.3
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

GHUM 316 Mass Media: Messages and Manipulation .3
PSY 160 Child Psychology .3
PSY 102 General Psychology*.3
SOC 122 Death, Dying and Bereavement .3
SOC 190 Men and Women in Contemporary Society*.3
SOC 200 Principles of Sociology .3
SOC 210 Modern Social Problems .3
SOC 320 Introduction to Social Psychology .3

Food Occupations
(Teaching)

REQUIRED COURSES—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 598 Independent Study in Consumer Resources and Technology .3
VE 542 Occupational Education (Foods) .2
VE 543 Coordination Techniques in Cooperative Education .3

Elective courses, if needed, to complete the 24 semester hours:
ACTY 201 Accounting Concepts and Application .3
MGMT 352 Personnel Management .3
ECON 201 Principles of Economics .3
PSY 194 General Psychology .3
SOC 200 Principles of Sociology .3
VE 512 Principles of Vocational Education .3

Additional requirements:
Completion of two years (4000 clock hours) of relevant work experience in food service industry. 2000 of these hours may be completed in an equivalent directed supervised program. (See CRT 202 above.)

Occupational Child Care

REQUIRED COURSES—23-24 hours
CRT 210 Introduction to Human Sexuality .3
CRT 214 Human Growth and Development .3
PEPR 276 Outdoor Education .3
PEPR 170 Introduction to Recreation .2/3
CRT 266 Food and Society .3
ED 350 Young Children, Family and Society .3
CRT 415 Effective Parenting .3
ED 509 Parent Education for Teachers of Young Children .3
CRT 575 Administration of Child Development Centers .3
CRT 202 Field Experience/Occupational Lab Experience (4000 hours work experience required for a vocational endorsement).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.

Industrial Education Teaching Curriculum (IET) differs slightly in professional education course requirements as noted in the Industrial Education Teaching Curriculum requirements located earlier in this Department of Consumer Resources and Technology section.

Vocational Advising

The advisor is available to assist in individual program planning, recommended electives appropriate to the career objective of a vocational teacher, discuss employment opportunities, and help find teaching positions. Substitutions and transfer credit must be approved by the departmental vocational advisor.

Majors
Secondary Education in Marketing
Home Economics
Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)

Minors
Occupational Child Care
Occupational Foods
Secondary Education in Marketing
Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)

Vocational Certification in Business
Information about vocational certification to teach business or business education courses may be obtained by contacting a Haworth College of Business advisor at 383-3862.

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—33 hours

(4,000 work hours required; may necessitate internship or work experience)

ECON 201 Principles of Economics (Micro) .3

ACTY 210 Principles of Accounting .3

MKTG 270 Professional Selling .3

CRT 305 Preparation for Employment .3
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**VOCATIONAL TECHNICAL—20 hours**

<table>
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**ELECTIVES—Based on major sequence requirements**

**H. PHYSICAL EDUCATION—2 hours**

**I. BACCALAUREATE WRITING REQUIREMENT**

Students who have chosen the Vocational Education major will satisfy the Baccalaureate Writing Requirement by successfully completing VE 342 Course Planning and Evaluation.

**Vocational Minors**

**SECONDARY EDUCATION IN MARKETING—24 hours**

(4,000 work hours required; may necessitate an internship or work experience.)

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**FOOD OCCUPATIONS—24 hours** See 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/automotives, and woodworking.

Majors in non-vocational teacher preparation programs may earn vocational certification by completing one of the following courses (CRT)

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**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).

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<td>CRT 161 Animal Industry</td>
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**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**

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CRT 225 Computers in Distribution 3 hrs. Fall, Winter, Spring  
A course intended to develop the awareness of the use of computers in areas of distribution such as agriculture, fashion, petroleum, food, and vocational teachers' 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 cannot 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. Material covered will emphasize the practicalities of appropriate fixture location and specification, blueprint reading and budgets. Prerequisites: CRT 254, ET 131, ET 349.

CRT 256 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 155.

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 262 Principles of Horticulture (4-0) 4 hrs. Fall, Winter  
Basic principles of modern horticulture including the study of fruits, vegetables, flowers, ornamental trees, turf management, plant propagation, and nursery culture.

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 accessibility, contacts, and questions and kinetics in the job interview. Prerequisite: Junior standing.

CRT 318 Mate Selection and Marriage (3-0) 3 hrs. Fall, Winter, Spring  
Exploration of research, literature, and practical issues related to courtship, mate selection, and marriage, marital communication, conflict resolution, and family relationships included.

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, store planning, point of purchase, exhibits, showrooms, and special promotion. Prerequisite: CRT 155.

CRT 322 Flat Pattern Design II (5-0) 3 hrs. Winter, Even Years  
A study of advanced drafting techniques, including computer-aided designing, employed in the flat pattern method for designing clothing. Prerequisite: CRT 222.

CRT 324 Dressmaker 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 people 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 255, CRT 350, CRT 352 and ET 349 (CRT 350 and CRT 352 may be taken concurrently with CRT 351).

CRT 352 Professional Practices 3 hrs.  
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 254.

CRT 359 Visual Design Techniques (2-3) 3 hrs. Fall, 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, ET 131, ET 149.

CRT 360 Feeding and Animal Nutrition (4-0) 4 hrs. Winter  
The science of feeding, caring for, and managing livestock, including the formulation of rations for beef, dairy, sheep, swine, poultry, and horses.

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. Prerequisite: 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 Farm Organizations and Management (4-0) 4 hrs. Winter  
The farm as a business and efficient use of all resources. Basic principles of production, management, farm accounting and related fields of agriculture science and the various organizations serving agriculture.

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)
2 hrs. Winter-Odd Years
Preparation for parenthood. Study of the process of parental development, the role of the family, and family relationships. Special attention to the systems theory as it applies to the family.

CRT 420 Textiles II (2-0)
2 hrs. Winter-Odd 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, Summer
Off-campus, full-time supervised management level merchandising experience. Prerequisite: Department junior or senior.

CRT 430 Mass Merchandising (3-0)
3 hrs. Fall, Winter
Mass merchandising competencies of profit economics, merchandising, space allocation, supervision pricing inventory control, advertising, sales ratio, and merchandise security developed through performance objectives. Prerequisite: Junior standing.

CRT 450 Residential Design (1-6)
3 hrs. Winter
Creation of artistic home interiors with materials of interior design, including the preparation of renderings and purchasing data for residential work. Prerequisites: CRT 155, CRT 251, CRT 252, CRT 255, CRT 350, ET 131, ET 349.

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
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, dietetic 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 463 Agriculture Marketing (3-0)
3 hrs. Fall
A study of the cash and futures markets and marketing strategies for grain, livestock, and other agricultural products.

CRT 465 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, dietetic major or consent of instructor.

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 467 Agriculture Finance (3-0)
3 hrs. Winter
A study of the methods and institutions involved in the financing of agricultural enterprises.

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 Textiles/Apparel (1-3 hrs)
A study of the current issues impacting the textile/apparel industry. Students may elect up to 6 hours if topics vary. Topics to be announced. Prerequisite: CRT 220 or permission of instructor, and Junior Standing.

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 curriculum 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 other wise 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. Prerequisite: Vocational certification or consent.

VE 542 Occupational Education (2-0)
2 hrs. Summer
Planning for wage earning programs at the secondary and adult levels.
The Department of Counselor Education and Counseling Psychology offers professional education in the fields of counselor education, community agency counseling, counselor education and supervision, student personnel services in higher education in the fields of counseling education, and school counseling and supervision. Graduate students only, but the following courses are open to qualified undergraduates. Most of the courses are open to graduate students only, but the following course is open to qualified undergraduates.

Counselor Education and Counseling Psychology (CECP)

CECP 593 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

ED 103 Critical and Creative Reading (ED)

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 to maturity. Consideration is given to those factors which facilitate or inhibit normal growth in the areas of physical, emotional, social, intellectual and moral development. Attention is also given to the development of the self-concept for the purpose of helping students to become more aware of themselves, and 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 cognitive development viewed in a 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 263.)

ED 300 The Adolescent and School Learning

3 hrs.

Course includes adolescent psychology and development; cultural differences; the exceptional learner; introduction to cognitive psychology; motivating 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. May be taken concurrently with ED 300. Prerequisite: ED 250; 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 apply it to real-world situations. Students will have opportunities to select, plan for, and produce audiovisual media for interactive and independent modes of learning. Prerequisites: ED 369 or ED 370, or may be taken concurrently with ED 369 or ED 370.

ED 348 Technology for Teachers 1 hr.

An introduction to the selection, design, organization, and use of technological resources in teaching young learners. Students will have opportunities to select, plan for, and produce audiovisual media for interactive and independent modes of learning. Prerequisites: ED 369 or ED 370, or may be taken concurrently with ED 369 or ED 370.

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 constellation, 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 the young child's verbal and nonverbal language and how he/she records and interprets language. An awareness of the relationship of experience to language development and of the many approaches to reading. Emphasis will be placed on the implications of current research as it effects 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.

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 how these youngsters record and interpret language. Emphasis will be placed on the implications of current research as it effects 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.

ED 369 Early Childhood Classroom Organization and Management 3 hrs.

Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task, appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Emphasis will be placed on organization and management in early childhood classrooms and on appropriate learning experiences for young children. Requires a minimum of one (1) day per week participation in a classroom. Concurrent enrollment with ED 348 is encouraged. Prerequisites: ED 309, admission to the Early Childhood Emphasis.

ED 371 Elementary Classroom Organization and Management 3 hrs.

Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task, appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro-teaching experiences and a supervised teaching practicum will give each student the opportunity to apply research on effective teaching and to become an effective classroom manager. Requires a minimum of one (1) day per week participation in a classroom. Concurrent enrollment with ED 348 is encouraged. Prerequisites: ED 309 or ED 310.

ED 395 School and Society 3 hrs.

This course is concerned with the nature and direction of American Education in its changing social context. The course focuses on major issues affecting the advancement of education in a cultural and democratic society. Course content includes inquiry as to how social, historical, political, philosophical, economic, and legal factors influence educational policy and practice. The role of individuals in the change process in education is examined. An interdisciplinary approach is used. Prerequisite: Minimum of 70 earned semester credits. This course satisfies the University's baccalaureate level writing requirement.

ED 398 Special Studies in Education 1-6 hrs.

With variable topics and variable credit, this course is designed for undergraduates who, by virtue of their special interest or concerns, find it desirable to pursue in greater depth topics or problems related to children's educational development. The course will be offered under the following conditions: (1) that a written outline of the offering be approved by the Department Chairperson, and (2) that prior arrangement be made with a faculty member or faculty members. The course offers variable credit from one through six semester hours. Students may repeat the course so long as topics differ. Each offering of 398, Special Studies in Education, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 398 may be applied toward meeting professional program requirements.

ED 401 Teaching Elementary School Science 3 hrs.

Designed to introduce students to a sampling of the elementary school science program. Emphasis will be given to the exploration of science programs, techniques, philosophies, and teaching strategies that are currently being used in the elementary
school science classroom. May be taken concurrently with ED 402. Prerequisite: ED 309 or ED 310 and all science courses.

ED 402 Practicum in Science and Mathematics Teaching 2 hrs.

This capstone course required of all students in the Science and Mathematics Teaching Minor will afford the student classroom teaching and observation experiences on a regular basis. In addition to the required classroom observation of two half-days per week, the student will meet periodically in a seminar with the supervising faculty from science, mathematics, and education. Prerequisite: ED 401 may be taken concurrently. Credit/no credit only.

ED 407 Teaching Elementary Social Studies 3 hrs.

This course is designed to help students understand the role of social studies in the elementary school; gain insight into important considerations in the selection of content, skills, and abilities; and discover how to guide the learning and teaching of children in this field. Planning social studies experiences and ways of working with individuals, groups, and the total class will be emphasized. Multicultural and non-continent content and strategies will be emphasized. Prerequisites: ED 309 or ED 310, ED 312, GEOG 102 or HIST 211 or FSCI 200; minimum of 75 earned credit hours.

ED 410 Seminar in Education 2 hrs.

The seminar will be directly related to the student's classroom experiences; it will further the student's practical understanding of responsive teaching and effective school help to refine his/her techniques of effective classroom management and curriculum design, and enhance the student's sense of his/her own teaching style. The seminar will build the student's self-image as a professional as he/she is encouraged to take professional responsibilities and to practice professional ethics. It is in the seminar that the ongoing Teaching Portfolio will be completed and reviewed by a faculty committee. Must be taken concurrently with ED 470, 471, and/or 472, and 475.

ED 430 Creativity in the Elementary School 4 hrs.

A synthesis of the principles developed in the Integrated Creative Arts Minor as applied to teaching and learning at the elementary school level. Emphasis is placed on the integration of creative processes in elementary school curriculum and instruction, on the teacher as problem solver, and on the creation of structures which accommodate individualization of instruction and creative problem solving in children. Prerequisite: Completion of all other courses in minor.

ED 460 Integrated Language Arts Seminar 4 hrs.

This course will focus on synthesizing theories, concepts, and classroom approaches from previous work in the Integrated Language Arts Minor. Students will practice restructuring curriculum objectives, classroom organization, and teaching strategies in order to achieve the maximum integration of the language processes in the elementary school. Students will pursue individualized programs culminating in a guided field experience through which students will demonstrate identified program competencies. Student-and faculty-led seminars will be scheduled periodically throughout the course. (This course is required in the Integrated Language Arts Minor.)

ED 470 Directed Teaching: Early Childhood 5 hrs.

Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. To be taken concurrently with ED 410. Prerequisites: All courses and program requirements except Directed Teaching and ED 410 must be completed prior to Directed Teaching. Credit/no credit only.

ED 471 Directed Teaching: Primary Grades 5 or 10 hrs.

Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. To be taken concurrently with ED 410. Prerequisites: All courses 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 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: All courses and program requirements except Directed Teaching and 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 a focus of evidence of successful field experience with children or young people prior to beginning a 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. Prerequisites: Admission to teacher education and successful completion of ED 250, ED 300, ED 301, ED 302, ED 303, ED 385, specialty area assignment in major and minor, and major and minor coursework or their equivalents prior to beginning 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 to graduate programs within the Department of Education and Professional Development. Topics included in a department program must be approved in advance of registration by the program advisor. Available only for graduate credit. Credit/no credit only.

ED 502 Curriculum Workshop 1-6 hrs.

Opportunity provided for teachers, supervisors, and administrators to study 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 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 transcripts. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 502 may be applied toward a Master's degree. Available only for graduate credit.

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 stressors. 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 learning capabilities, abilities, approach to, and speed of learning will be considered. 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 provide teachers with a knowledge of special situations incurred in the teaching of adults. Included also are techniques of interpersonal communication with adults, as well as a practical exercise in the designing of learning experiences for adults. Extensive use will be made of audiovisual media, experts in the field, and field observation in adult learning activities. The course should be helpful to administrative and in-service programs for their own staff.

ED 508 Seminar in Parent Education 2 hrs.

Emphasis will be placed on cooperative problem-solving between parents and teachers of school-age children and youth. Problems considered will include such topics as grief and loss through death, divorce, or separation; special needs and contributions of multicultural parents; parents as resource persons and paraprofessionals in the schools; and problems identified by
members of the seminar. Members of the seminar will report on the current literature available through libraries and community resources and work toward potential solutions of problems.

ED 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 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 550 Photography Workshop
1-3 hrs.
Intended to sharpen visual perception while improving technical skills, this laboratory course emphasizes photography as a creative and expressive medium of visual communication. Each student is expected to produce new photographs each week and to submit one or more mounted enlargements for group critique at each class meeting. Each student must have the use of appropriate equipment and should expect to spend $50 or more for supplies. Although no prerequisite is required, it is helpful to have had some experience with basic darkroom processes. May be repeated up to a total of six credits. Limited to 15 students.

ED 597 Reading and Related Language Experiences
3 hrs.
This course involves a study of the current research and aspects of language which are involved in the process of effective reading. It is intended to provide students with a thorough understanding of the research in language and its application to the reading process. It also is intended to help students understand more fully the place of reading in a total language arts program and to give students an opportunity to make application to practical classroom situations.

ED 598 Selected Reading in Education
1-4 hrs.
Designed for highly qualified students who wish to study in-depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental advisor and instructor.
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 35 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 396 School and Society.

**COURSE REQUIREMENTS**

Hrs.

General Education

40

Community emphasis

35

Physical Education

2

Required Cognates

10

OR

PSY 100 General Psychology

3

OR

PSY 150 Introduction to Human Behavior

3

SOC 200 Principles of Sociology

3

BIOS 107 Biological Science

4

OR

BIOS 101 Animal Biology

4

OR

BIOS 112 Introduction to Biomedical Sciences

3

Required Courses

28-37

PEPR 155 Foundations of Health Education

3
**PROFESSIONAL HEALTH, PHYSICAL EDUCATION AND RECREATION**

**HOURS REQUIRED**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Emphasis Requirements</th>
<th>K-12 State Provisional Certificate</th>
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<tbody>
<tr>
<td>350</td>
<td>230</td>
<td>Required Cognates:</td>
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<tr>
<td>40</td>
<td>35</td>
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<td>211</td>
<td>3</td>
<td>BIOS 112 Introduction to biomedical Sciences</td>
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<td>240</td>
<td>4</td>
<td>BIOS 211 Human Anatomy</td>
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<td>100</td>
<td>4</td>
<td>BIOS 240 Human Physiology</td>
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<td>101</td>
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<td>BIOS 320 Physical Education for the Exceptional Child</td>
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**Professional Core Requirements**

- **PEPR 101** Basic Exercise Concepts
- **PEPR 150** Foundations of HPER
- **PEPR 181** First Aid
- **PEPR 295** Biomechanical Analysis of Activity
- **PEPR 320** Physical Education for the Exceptional Child

**Theory Emphasis Requirements**

- **PEPR 380** Foundation of Sports Injuries
- **PEPR 490** Adult Exercise Prescription
- **PEPR 450** Field Experience/Internship in HPER

**Activity Emphasis Requirements**

- **PEPR 105** Baseball/Softball/Volleyball
- **PEPR 110** Aqua-Cross/Basketball
- **PEPR 115** Tumbling/Apparatus
- **PEPR 200** Football/Wrestling
- **PEPR 205** Cross Country Skiing
- **PEGN 107** Canoeing
- **PEGN 255** Synchronized Swimming
- **PEGN 256** Speed Swimming
- **PEGR 500** Studies in HPER—Business Procedures

**Elective Courses**

- **PEPR 470** Recreational Facilities and Areas
- **PEPR 400** Internship in Recreation

**Bachelor of Arts Degree**

- **ACCT 201** Accounting
- **COM 232** Discussion

**Bachelor of Science Degree**

- **MUS 281** Music Therapy Actk/Child
- **PEPR 106** Recreational Dance
- **COM 549** Public Relations/Development
- **GEOG 204** National Park Lands
- **GEOG 350** Conservation/Environmental Management
- **BIS 388** Records Management
- **BIS 566** Office Management
- **BIS 242** Business Communications
- **BIS 102** Intro to Information Processing

**Required Teaching Assistant**

- **N/C**

**THEA 100** Intro to Theatre

**MUS 141** Music in Special Education

**MUS 140** Music for the Classroom Teacher

**Music and Drama Area**

- **PEGN 108/208** Backpacking
- **PEGN 110** Cross-Country Ski Camp
- **PEGN 113** Outdoor Education
- **PEGN 143** Cross Country Skiing
- **PEGN 167** Winter Camping
- **PEGR 172** Camp Leadership
- **PEGR 276** Outdoor Education
- **BIS 234** Outdoor Science
- **BIS 105** Envr. Biology

**Group II: Administrative Skills**

- **PEPR 368** Organization and Administration of Intramurals
- **COM 104** Public Speaking
- **COM 335** Leadership
- **COM 549** Public Relations/Organizations
- **COM 550** Public Relations/Development
- **GEOG 204** National Park Lands
- **BIS 388** Records Management
- **BIS 566** Office Management
- **BIS 242** Business Communications
- **BIS 102** Intro to Information Processing

**Group III: Community Organization Skills**

- **ACCT 201** Accounting
- **GEOG 312** Geology of National Parks and Monuments
- **GEOG 544** Environmental Geology
- **ECON 319** Environmental Economics
- **CRT 363** Landscape Design
- **GEOG 556** Studies in Urban/Regional Management

**Group IV: Art, Science, Mathematics**

- **ART 201** Drawing
- **ART 206** Ceramics
- **ART 207** Jewelry
- **ART 240** Painting

**Group V: Physical Education**

- **PEPR 326** Introduction to Coaching
- **PEPR 337** Coaching and Adv. Techniques (2 courses)
- **PEPR 380** Foundation of Sports Injuries
- **PEPR 400** Field Experience/Internship in HPER

**Required Teaching Assistant**

- **N/C**

**THEA 100** Intro to Theatre

**MUS 141** Music in Special Education

**MUS 140** Music for the Classroom Teacher

**Music and Drama Area**

- **PEGN 108/208** Backpacking
- **PEGN 110** Cross-Country Ski Camp
- **PEGN 113** Outdoor Education
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- **PEGN 167** Winter Camping
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- **BIS 105** Envr. Biology

**Group II: Administrative Skills**

- **PEPR 368** Organization and Administration of Intramurals
- **COM 104** Public Speaking
- **COM 335** Leadership
- **COM 549** Public Relations/Organizations
- **COM 550** Public Relations/Development
- **GEOG 204** National Park Lands
- **BIS 388** Records Management
- **BIS 566** Office Management
- **BIS 242** Business Communications
- **BIS 102** Intro to Information Processing

**Group III: Community Organization Skills**

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- **GEOG 312** Geology of National Parks and Monuments
- **GEOG 544** Environmental Geology
- **ECON 319** Environmental Economics
- **CRT 363** Landscape Design
- **GEOG 556** Studies in Urban/Regional Management

**Group IV: Art, Science, Mathematics**

- **ART 201** Drawing
- **ART 206** Ceramics
- **ART 207** Jewelry
- **ART 240** Painting
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 are certified to teach health education in grades, K-12. The community emphasis prepares students to provide health instruction in community and private agencies.

Cognates .............................................. 18

BIOS 101 Animal Biology
OR
BIOS 107 Biological Science ............. 4
OR
BIOS 112 Introduction to Biomedical Sciences ............. 3

BIOS 211 Human Anatomy ............. 4
BIOS 240 Human Physiology ............. 4

PSY 100 General Psychology
OR
PSY 150 Introduction to Human Behavior ............. 3

SOC 200 Principles of Sociology ............. 3

Hours required for this minor 25

PEPR 155 Foundations of Health Education ............. 3
PEPR 181 First Aid ........................................ 2
PEPR 220 Basic Health Concepts I ............. 3
PEPR 221 Basic Health Concepts II ............. 3

CRJ 260 Nutrition ............. 3

PEPR 392 Measurement and Evaluation ............. 2
PEPR 393 Community Health I ............. 3
PEPR 430 Community Health II ............. 3
PEPR 316 Issues in Health Education ............. 2

PEPR 312 Admin. and Dev. of Instructional Systems ............. 2

PEPR 412 Teaching Skills and Strategies ............. 2

PEPR 400 Field Experience ................................... 1

Not required for School Health Education emphasis

*Not required for Community Health Education emphasis

Elementary Physical Education Minor

(Must be taken as part of Elementary Group Minor. Provides Elementary Physical Education Certificate K-8 in Michigan)

Cognates .............................................. 12

BIOS 107 Biological Science ............. 4
OR

BIOS 112 Introduction to Biomedical Sciences ............. 3

BIOS 211 Human Anatomy ............. 4

ED 230 The Nature of Creativity ............. 3

*Applicable to total General Education requirement.

Hours Required for this minor 22

Required Professional Courses: Academic 12

PEPR 101 Basic Exercise Concepts ............. 1
PEPR 276 Out-of-School Education ............. 2
PEPR 295 Biomechanical Analysis of Activity ............. 2

PEPR 329 Physical Education for the Exceptional Child ............. 3

PEPR 444 Administration and Development of Instructional Systems ............. 2

PEPR 445 Physical Education: Teaching Skills and Strategies ............. 2

Required Activity: 6

PEPR 115 Tumbling: Apparatus ............. 1
PEPR 310 Track and Field ............. 1
PEPR 106 Recreational Dance ............. 1

DANC 230 Dance in the Elementary School ............. 3

Elective Courses: 4

Elect from the following courses and/or other PEPR/PEGN courses with permission of advisor.

PEPR 105 Softball/Volleyball ............. 1
PEPR 110 Soccer/Basketball ............. 1
PEPR 181 First Aid ............. 2
PEPR 210 Racket Sports ............. 1
PEGN 139 Relaxation ............. 1
PEGN 165 Yoga ............. 1
PEGN 350 W.S.I ............. 2

Required Teaching Assistant

Secondary Physical Education Minor

(Provides Secondary Physical Education Certificate 7-12 in Michigan)

23 credit hours

*Applicable to total General Education requirement.

Cognates .............................................. 12

BIOS 101 Animal biology ............. 4

BIOS 112 Introduction to Biomedical Sciences ............. 3

BIOS 211 Human Anatomy ............. 4

BIOS 240 Human Physiology ............. 4

Required Core: 13

PEPR 101 Basic Exercise Concepts ............. 1

PEGN 139 Relaxation ............. 1

PEPR 310 Track and Field ............. 1

PEPR 325 Swimming for the Exceptional Child ............. 1

PEPR 444 Administration and Development of Instructional Systems ............. 2

PEPR 445 Physical Education: Teaching Skills and Strategies ............. 2

B. Background Courses in Special Education

16-21 credit hours

Required Cognates: BIOS 112 Introduction to Biomedical Sciences ............. 3

BIOS 211 Human Anatomy ............. 4

BIOS 240 Human Physiology ............. 4

Required Core: 23

PEPR 181 First Aid ............. 2

(If not required in major or minor.)

PEPR 380 Foundations Spts. Injuries ............. 2

(CRT 260 Nutrition ............. 3

PEPR 400 Field Experience At. Tm. ............. 2

Special Physical Education Courses

9

PEPR 320 Physical Education for the Exceptional Child ............. 3

PEPR 321 Therapeutic Physical Activities ............. 3

PEPR 420 Testing and Developmental Programs ............. 3

PEPR 400 Professional Field Experience/Internship ............. 4

A. Background Courses in Physical Education

10

PEPR 101 Basic Exercise Concepts ............. 1

PEGN 139 Relaxation ............. 1

PEPR 310 Track and Field ............. 1

PEPR 325 Swimming for the Exceptional Child ............. 1

PEPR 444 Administration and Development of Instructional Systems ............. 2

PEPR 445 Physical Education: Teaching Skills and Strategies ............. 2

B. Background Courses in Special Education

9

SPED 530 Education of Exceptional Persons ............. 3

SPED 536 Curriculum and Instruction in Special Education: Secondary 3

SPED 588 Introduction to Classroom Management ............. 3

Athletic Training Minor (Non-Teaching)

16-21 credit hours

Required Cognates:

BIOS 112 Introduction to Biomedical Sciences ............. 3

BIOS 211 Human Anatomy ............. 4

BIOS 240 Human Physiology ............. 4

Required Core: 13

PEPR 181 First Aid ............. 2

(If not required in major or minor.)

PEPR 380 Foundations Spts. Injuries ............. 2

(CRT 260 Nutrition ............. 3

PEPR 400 Field Experience At. Tm. ............. 2

Electives: ................................................................. 3-6

1. Basic Sciences
CHEM 101 or 102 Gen. Chemistry 4
GSCI 133 Issues in Social Biology 4
PHYS 106 Elementary Physics 4

2. Behavioral Sciences
COM 170 Interpersonal Communication I 3
SOC 200 Principles Sociology 3
SWRK 210 Social Work Stud. and Prof. Role 3
ED 350 Young Child, Fam. and Society 3

3. Health Education Aspects of Man and His Environment

1. Basic Sciences
ED 555 Alcohol Education 2

Eighthundred (800) clock hours of clinical coaching

Minor
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 Courses
BIOS 112 Introduction to Biomedical Sciences 3
BIOS 240 Human Physiology 4

Required Cognates
ART 201 (104) Drawing 3
ART 206 Ceramics 3
ART 207 Jewelry 3
ART 208 Graphic Design 3
ART 240 Painting 3

Courses By Topic

INDIVIDUAL
Gymnastics .................................................... 2
Tennis .................................................................. 2
Track and Field .................................................. 2

PEPR 236 Officiating—Select two of the following officiating courses to complete the 11 hrs. of Professional Electives 2
Basketball .......................................................... 1
Gymnastics ........................................................ 1
Baseball ............................................................ 1
Volleyball .......................................................... 1
Softball ............................................................. 1
Football ........................................................... 1

PEPR 105-310 professional activity courses 3

Recreation Minor
(Non-Teaching)

24 credit hours

This 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 phase of recreation.

Required Professional Courses .......................... 14
(A. Please note in course descriptions when courses are offered and the suggested sequence of course work.)

PEPR 170 Introduction to Recreation .................... 3
PEPR 270 Recreational Leadership (Pereq. 170) .... 2
PEPR 372 Recreational Programming (Pereq. 270) .. 3
PEPR 370 Recreation Practicum (Pereq. 170, 270, 370) 3
PEPR 375 Organization and Administration of Recreation (Pereq. 170, 270, 372, 370) 3

Elective Courses (From not more than two groups) 10

Group I: Program Skills
Aquatics Area (Not more than 4 courses)
PEGR 349 Lifeguard Training 2
PEGR 350 Water Safety Instructors 2
PEGR 106 Canoeing 1
PEGR 141 Sailing 1
Sports Area (Not more than 8 courses)
PEGR 236 Sports Officiating (Not more than 4—no repeats) 4

Group II: Administrative Skills
PEGR 337 Adv. Techniques and Coaching (Not more than 2) 4

Arts and Crafts Area
ART 201 (104) Drawing 3
ART 206 Ceramics 3
ART 207 Jewelry 3
ART 240 Painting 3

Music and Drama Area
MUS 140 Music for the Classroom Teacher ........ 3
MUS 281 Music Therapy Actk/Child 3
PEPR 106 Recreational Dance 1
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

PEGR 172 Camp Leadership 3
PEGR 276 Outdoor Education 2
BIOS 234 Outdoor Science 4
BIOS 105 Envir Biology 4

Group II: Community Organization Skills
(Not more than four courses)

PEGR 516 Issues in Health Education 2
COM 232 Discussion 3
COM 581 Communication in Organizations 2
SWRK 572 Community Agency Resources 3
SWRK 562 Community Organizations in Urban Areas 3
SOC 210 Modern Social Problems 3
SWRK 464 Problem Solving in Gerontology 3
PEGR 572 Recreation for the Aging 2
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 2
105 Baseball/Softball: Volleyball 3
110 Soccer: Basketball 2
115 Tumbling: Apparatus 2
200 Football: Wrestling 3
205 Cross Country Ski: Weight Training 3
210 Racquet Sports 3
215 Aerobic Conditioning 3
305 Golf: Archery: Bowing 2
310 Track and Field 3

HEALTH EDUCATION ACADEMIC COURSES (PEPR)
100 Health for Better Living 3
155 Foundations of Health Education 3
181 First Aid 3
220 Basic Health Concepts I 3
221 Basic Health Concepts II 3
312 Administration and Development of Instructional Systems 3
316 Issues in Health Education 3
330 Community Health I 4
400 Field Experience in Health 3
412 Teaching Skills and Strategies in Health Education 4
430 Community Health II 4
510 Modern Health for Teachers and Health Professionals 4
512 Principles, Practices, and Methods in Health Education 4
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. This is the first course in the Health Education Curriculum.

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, Winter
Investigation of folklore, square, and social forms of dance with a concentration on overlapping dance skills.

PEPR 110 Soccer: Basketball
1 hr. Fall

PEPR 115 Tumbling: Apparatus
1 hr. Winter

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
This course will provide students with the philosophical background in the development of health education. Topics include: history and philosophy of health education/health promotion, professional competencies, ethics, organizations and future issues.

PEPR 170 Introduction to 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 only
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
1 hr. Winter

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

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 the community. 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 physical education and sport activities. Prerequisite: BIOS 211.
PEPR 300 Seminar Series
1-4 hrs. Fall, Winter
Designed to provide an opportunity for qualified students to examine and discuss a subject area in a field of common interest. Enrollment by written permission of the instructor.

PEPR 305 Golf : Archery : Bowling
1 hr. Fall

PEPR 310 Track and Field
1 hr. Fall

PEPR 312 Administration and Development of Instructional Systems
2 hrs. Fall
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, 155, 220, 221, and CRT 260

PEPR 316 Issues in Health Education
2 hrs. Fall, Winter
The 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
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 Techniques
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 appropriate elementary physical education movement activities in the areas of basic skills, stunts and tumbling, simple games and sports, rhythms and classroom correlated activities. This course is not 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 368 Administration and Organization of Intramural Sports
2 hrs. Fall only
The problems, policies, finances, eligibility, awards, officiating, publicity, and procedures related to the intramural program.

PEPR 370 Recreation Practicum
3 hrs. Fall, Winter, Spring
The practical field experiences in recreation for the normal and handicapped. 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 scheduling activities to meet goals will be emphasized. Prerequisite: PEPR 270.

PEPR 375 Organization and Administration of Recreation
3 hrs. Fall odd years
The study of methods of organization in recreation programs and agencies at local, state and federal levels with emphasis on administrative procedures concerning personnel, facilities-areas, legalities, financing, and supervision. Prerequisite: PEPR 370.

PEPR 380 Foundations of Sports Injuries
2 hrs. Fall, Winter
Basic first aid and emergency concepts, sports injury prevention, recognition, initial and follow-up care and studied. Principles/techniques are presented in a lecture and laboratory instructional format. Prerequisite: BIOS 211, PEPR 181.

PEPR 390 Field Experience/Internship in HPER
2-8 hrs. Fall, Winter, Spring, Summer
This course will provide in-depth experiences 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. Winter
Designed to provide information and experiences that enable students to implement effective health education curriculum 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, 598.

PEPR 430 Community Health II
3 hrs. Winter (odd)
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 370/302 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 curriculum 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
2 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
The initiation, formulation, administration, and supervision of adult fitness programs will be
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 illness of children and adolescents. This course is not open to health education majors and minors who have had 100.

PEGR 512 Principles, Practices, and Methods in Health Education
3 hrs.
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 314, or 315. 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: PEPR 314/315 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. Subsequent course Bio Feedback AIDS and Other Sexually Transmitted Diseases Stress Release Cardiovascular Health Parenting Patient Education Health Careers Consumer Health

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 in programs for retirees, nursing homes, senior citizens housing units and clubs. Suggested Prerequisite: SOC 352.

PEGR 580 Studies in Athletic Training
1-2 hrs.
Listed with various topics. A lecture/demonstration course concerned with the prevention, diagnosis, and treatment of sports type injuries. Prerequisites: BIOS 211, 240, PEPR 380.

PEGR 590 Exercise Physiology
2 hrs.
The mechanisms 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 athletes. Prerequisites: BIOS 211, 240. Open to graduate students only.

PEGR 591 Evaluation in Health, Physical Education, and Recreation
2 hrs.
Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests. Open to graduate students only.

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 classes 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.
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 of residence at Western and thereafter each semester 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 limitation. 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 Health Center, Office #1 Oakland Gymnasium or the Main Office, Gary Physical Education Center.
6. A varsity team member may receive up to 2 credits in general physical education by enrolling in the appropriate course in the PEGN 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 PEGN 100 listing.)

8. ROTC Cadets are to enroll in PEGN 132 Military Fitness I to fulfill the general physical education 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 Military Fitness, 175 Ice Dance, etc.

4. One of the following DANCE courses may be used:
   - PEGN 101 Beginning Ballet I (1 hr.)
   - PEGN 102 Beginning Jazz Dance I (1 hr.)
   - PEGN 103 Beginning Modern I (1 hr.)
   - PEGN 104 Beginning Tap I (1 hr.)
   - PEGN 105 Bowling (1 hr.)
   - PEGN 107 Canoeing (1 hr.)
   - PEGN 108 Backpacking (1 hr.)
   - PEGN 109 Cycling (1 hr.)
   - PEGN 110 Cross Country Ski Camp (1 hr.)
   - PEGN 112 Beginning Jazz Dance II (1 hr.)
   - PEGN 114 Beginning Tap II (1 hr.)
   - PEGN 116 Weight Training (1 hr.)
   - PEGN 118 Beginning Field Hockey (1 hr.)
   - PEGN 120 Fencing (1 hr.)
   - PEGN 121 Field Hockey (1 hr.)
   - PEGN 123 Gymnastics—Apparatus (1 hr.)
   - PEGN 124 Gymnastics—Tumbling (1 hr.)
   - PEGN 125 Relaxation (1 hr.)
   - PEGN 126 Rock Climbing (1 hr.)
   - PEGN 127 Ice Climbing (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 133 Outdoor Challenge (1 hr.)
   - PEGN 134 Physical Fitness (1 hr.)
   - PEGN 135 Physical Fitness (1 hr.)
   - PEGN 136 Physical Fitness (1 hr.)
   - PEGN 137 Racketball (1 hr.)
   - PEGN 138 Rock Climbing (1 hr.)
   - PEGN 139 Relaxation (1 hr.)
   - PEGN 140 Riflery (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 145 Skiing—Cross Country (1 hr.)
   - PEGN 146 Soccer (1 hr.)
   - PEGN 147 Softball (1 hr.)
   - PEGN 148 Swimming—Unable to swim in deep water (1 hr.)

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.
This 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 121 Field Hockey
1 hr.
PEGN 123 Gymnastics—Apparatus
1 hr.
PEGN 124 Gymnastics—Tumbling
1 hr.
PEGN 125 Relaxation
1 hr.
PEGN 126 Rock Climbing
1 hr.
PEGN 127 Ice Climbing
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 133 Outdoor Challenge
1 hr.
PEGN 134 Physical Fitness
1 hr.
PEGN 135 Physical Fitness
1 hr.
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 Riflery
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 145 Skiing—Cross Country
1 hr.
PEGN 146 Soccer
1 hr.
PEGN 147 Softball
1 hr.
PEGN 148 Swimming—Unable to swim in deep water
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 164 Wrestling
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., Winter Surfing, Kayaking, Military Sports
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 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 206 Intermediate Backpacking
1 hr.
PEGN 220 Fencing—Intermediate
1 hr.
PEGN 222 Golf II
1 hr.
PEGN 229 Ice Hockey
1 hr.
PEGN 231 Karate
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 250 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 I
1 hr.
PEGN 260 Tennis II
1 hr.
PEGN 263 Volleyball Intermediate
1 hr.
PEGN 349 Lifeguard Training
2 hrs.
To provide the necessary minimum skills training for a person to serve as a non-surf lifeguard. Prerequisite: PEGN 251 or equal skills.

PEGN 350 Water Safety Instructor
2 hrs.
American Red Cross revised course (1989) will prepare the student to be able to instruct all progressive levels of swimming, infant/preschool aquatics and emergency water safety. This course will not qualify a participant to be a lifeguard. Prerequisite: PEGN 251 or equal skills. PEGN 350 W.S.I.—Current Life Saving Certificate required 2 hrs.

PEGN 351 Lifeguard Training Instructor (LGI)
2 hrs.
American Red Cross Revised (1989) will prepare the student already certified as a lifeguard to instruct Basic Water Safety, Emergency Water Safety and Lifeguard Training. Prerequisite: PEGN 350

PEGN 360 Tennis—Intermediate
1 hr.

VARIETY ATHLETICS
PEGN 400 Baseball
1 hr.
PEGN 401 Basketball
1 hr.
PEGN 403 Cross Country
1 hr.
PEGN 405 Football
1 hr.
PEGN 406 Golf
1 hr.
PEGN 407 Gymnastics
1 hr.
PEGN 408 Ice Hockey
1 hr.
PEGN 409 Soccer
1 hr.
PEGN 410 Softball
1 hr.
PEGN 413 Tennis
1 hr.
PEGN 414 Track/Field
1 hr.
PEGN 415 Volleyball
1 hr.

SPECIAL EDUCATION
Alonzo E. Hannaford, Chair
Christine M. Bahr
Virginia Bauhof
Donna G. Scibone
Elizabeth Lawrence-Patterson
Barbara L. Loss Harris
George Haus
Abraham W. Nicolaou

The Department of Special Education offers undergraduate programs for the preparation of teachers in the areas of emotionally impaired, mentally impaired, physically or otherwise impaired, and visually impaired. Students in undergraduate programs are awarded elementary provisional teaching certificates with a major in one of the above fields. Students must elect to teach at either the elementary or secondary level in their major area. The curricula in special education represent balanced programs of general, specialized, and professional education and are designed to meet state requirements for approval of teachers in the respective fields. Students must complete the pre-education curriculum and meet departmental entry requirements to enter the special education professional sequence. Students officially admitted to, and enrolled in, undergraduate curricula in special education, are expected to consult with departmental advisors early in their college career. Questions regarding course substitutions, or practicum placements, should be referred to the students’ advisors. Advisors will also provide important information regarding the sequence in which department courses must be completed.

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 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. Prerequisites: 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, M, PMI, VI — at the elementary or secondary level. It is intended to provide the student with an awareness of the nature and needs of these handicapped students 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 handicapped learners. 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 mildly and moderately handicapped elementary and preadolescent students. 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 535 Adapting Teaching Strategies for Exceptional Persons
3 hrs.
This course consists of a combination of classroom and field based experiences designed to integrate the philosophy and techniques of inquiry teaching into the Clinical Teaching Model. Students are provided content and resources in science and mathematics for use with handicapped learners.
The major focus of this course is the application of the Clinical Teaching Model to the education of mildly and moderately handicapped adolescents and young adults. 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 handicapped learners. 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 the mentally retarded, 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 the retarded. 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 emotionally disturbed 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 the Severely Impaired 3 hrs. This course is designed to provide basic knowledge about the severely impaired, including medical, physical, emotional, and sensory impairments. The problem 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 the Severely Impaired 3 hrs. This course develops specific skills in the assessment, prescription, implementation, and evaluation of educational programs for the severely impaired. 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 546 Teaching Practicum in Special Education: MR 1 hr. This course will provide the student with a structured assignment working with a retarded pupil. 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 mentally retarded pupil. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 545.

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 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 556 Teaching Practicum in Special Education: POHI 1 hr. This course will provide the student with a structured assignment working with a physically and/or multiply handicapped pupil. 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 physically and/or multiply impaired pupil. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 555.

SPED 570 Introduction to the Emotionally Disturbed 2 hrs. This course is designed 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 the Clinical Teaching Model to instruction in order to assure maximal learning by students with emotional impairment. Prerequisite: Consent of department.

SPED 576 Teaching Practicum in Special Education: EI 1 hr. This course will provide the student with a structured assignment working with an emotionally disturbed pupil. 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 emotionally impaired pupil. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 575.

SPED 578 Braille and Other Communication Methods 2 hrs. This course 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. Prerequisite: Consent of department.

SPED 591 Braille and Other Communication Methods—Teaching Braille and Other Areas of Communication 3 hrs. This course explores various methods and techniques of teaching essential communication skills—reading, writing, social communication, handwriting, abacus computation, the use of electronic devices and other media to the visually impaired. Opportunity for supervised practical application of methods are afforded to the student. Prerequisite: Consent of department.

SPED 593 Methods and Techniques of Teaching Braille and Other Areas of Communication 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.
COLLEGE OF ENGINEERING AND APPLIED SCIENCES

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 solid mechanics, machines and structures, fluid mechanics, and material behavior. The AMI includes a large capacity, hydraulically operated, computer controlled, combined axial torsional universal test machine, a large capacity axial load test machine, environmental chambers, a solid mechanics laboratory, and metallurgical evaluation and analysis facilities. Services are available under contract.

COMPUTER AIDED ENGINEERING CENTER
Thomas Gabrielle, Director, Academic Computer Center

Serving both WMU faculty and students as well as regional business and industry is the Computer Aided Engineering Center. The Center employs state-of-the-art CAD/CAM (Computer Aided Design/Computer Aided Manufacturing) equipment that enhances technical educational programs and provides training for regional industrial personnel.

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 (MIIE) is a facility for research and
for academic and industrial collaboration in materials including metals, polymers, ceramics and composites 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 materials and for industries interested in exploiting advanced materials technologies emerging from the laboratory stage. MIE offers testing services, design and development, training, research, and prototype parts manufacturing. Testing and research services are available under contract.

PAPER AND PRINTING PILOT PLANTS
Carl F. Shuster, Director

The Department of Paper and Printing Science and Engineering offers laboratory and classroom facilities to support testing and research services, design and development, training, small web printing operations as well as aqueous coater, a recycling plant, cylinder arrangement. Extensive testing and research facilities are available for industrial use through the pilot plant. Specific equipment available includes a fourdriner paper machine, an aqueous coater, a supercalender, a non-aqueous coater, a recycling plant, cylinder former and continuous digester. The papermaking process can be studied at all stages beginning with the tree or waste paper through the finished product. Testing of paper and paper products and process research and development are available under contract.

The Printing Center houses cut sheet and sheet fed printing operations as well as major web-fed flexographic, rotogravure, and offset presses. The Center serves as a resource for the paper-making, printing, packaging, and publishing industries.

SERVICE QUALITY INSTITUTE
Linda M. Delene, Director
David M. Lyth, Andrew A. Brogowicz, Assistants Directors

The Service Quality Institute involves faculty from both the College of Engineering and Applied Sciences and the Haworth College of Business. It provides for the exchange of service quality ideas and information between university faculty and service industries on both a formal and informal basis. The institute also conducts and facilitates research in the field of service quality by providing resources necessary to investigate problems in the service environment.

Academic Advising
Sandra F. Blanchard, Director
Audrey L. Mayfield, Director of Freshman Programs in Engineering

A central advising office is maintained for the convenience of College of Engineering and Applied Sciences students. Because prerequisites are strictly enforced and it is essential to follow the program plans that appear in the curriculum descriptions, students must contact their academic advisor in the first semester of enrollment at Western Michigan University. Failure to meet with the advisor on a regular basis may result in difficulty receiving requested class schedules and/or delayed graduation.

Advisors are available to assist in program planning, to recommend electives appropriate to the student's educational objectives, to discuss employment opportunities, and to help with general academic problems. Transfer credit and all course substitutions must be recommended by the advisor and approved by the appropriate department curriculum committee.

Prerequisites
Prerequisites are designed to both increase the probabilities of successful completion of the course and to indicate 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.

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 slips with 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 university, 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, 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 any one of the 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)
Automotive Engineering (AME)
Computer Systems Engineering (CSE)
Electrical Engineering (EE)
Industrial Engineering (IEN)
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.

Additional Courses Required by Curricula

Aeronautical Engineering (CSE)
Chem 101 or 102 (3-4 cr. hr.)
EE 210; IE 102; ME 256; PHYS 205 and 206; PHYS 207 and PHYS 208; and PHYS 342 or CHEM 120. See the Department of Aeronautical and Automotive Engineering for complete Aeronautical Engineering curriculum requirements.

Automotive Engineering (AEER)
Chem 106; EE 210; IE 102; ME 256; PHYS 205 and 206; PHYS 207 and PHYS 208; and PHYS 342 or CHEM 120. See the Department of Aeronautical and Automotive Engineering for complete Automotive Engineering curriculum requirements.

Computer Systems Engineering (CSE)
Chem 111; EE 210; EE 250; IE 102; PHYS 205 and PHYS 206; PHYS 207 and PHYS 208; and PHYS 212. See the Department of Electrical Engineering for complete Computer Systems Engineering curriculum requirements.

Electrical Engineering (EE)
Chem 306; EE 210; IE 102; ME 256; PHYS 205 and 206; PHYS 207 and PHYS 208; and PHYS 212. See the Department of Electrical Engineering for complete Electrical Engineering curriculum requirements.

Industrial Engineering (IE)
Chem 210; IE 102; IE 206; IE 261; ME 253; and PHYS 205 and PHYS 206; PHYS 207 and PHYS 208. See the Department of Industrial Engineering for complete Industrial Engineering curriculum requirements.

Mechanical Engineering (ME)
Chem 106; IE 102; BIS 142 or ENGL 105; ME 232; ME 256; PHYS 205 and 206; PHYS 207 and PHYS 208; and PHYS 342 or CHEM 120. See the Department of Mechanical Engineering for complete Mechanical Engineering curriculum requirements.

Paper Engineering (PAE)
Chem 120; CS 106; IE 102; ME 253; PHYS 205; PHYS 207; and PAPP 204. See the Department of Paper and Printing Science and Engineering for complete Paper Engineering curriculum requirements.

ADMISSION TO AN ENGINEERING CURRICULUM

The student seeking a baccalaureate degree in Aeronautical Engineering (AER), Automotive Engineering (AME), Computer Systems Engineering (CSE), Electrical Engineering (EE), Industrial Engineering (IEN), Mechanical Engineering (ME), or Paper Engineering (PAE) may apply for formal admission to one of these engineering curricula after successfully completing the pre-engineering curriculum requirements. Only students who have demonstrated the potential for success will be admitted to an engineering curriculum.

1. All Students seeking admission to a degree-granting engineering curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. The College of Engineering and Applied Sciences processes admission applications to engineering curricula and makes admission decisions to these programs.

2. Admission to an engineering curriculum is dependent upon successful completion of all required courses or approved alternatives in the PE curriculum with a grade of at least "C." Only students in good academic standing as defined by the University are eligible for consideration for admission to an engineering curriculum.

3. Students in an engineering curriculum will be advised by a faculty advisor from that curriculum area.

4. There are no established enrollment limits for admission to engineering curricula.

Off Campus Degree Programs

The College of Engineering and Applied Sciences offers complete undergraduate (described below) and graduate (described in The Graduate College bulletin) degree programs off campus.

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 Kalamazoo campus. Additional information can be obtained by contacting the Director of Engineering and Technical Programs at 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 120.

The entering student is expected to have taken a total of six courses in each of 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.

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 requirements must be completed in addition to meeting other University requirements applicable to transfer students:

- Industrial Engineering (18 hours)
- IEN 305 Work Analysis ............... 3
- IEN 316 Report Preparation .......... 3
- IEN 320 Engineering Cost Analysis ... 3

Additional Courses Required by Curricula

Aeronautical Engineering (AES)
Chem 106; EE 210; IE 102; ME 256; PHYS 205 and 206; PHYS 207 and 208; and PHYS 342 OR CHEM 120. See the Department of Aeronautical and Automotive Engineering for complete Aeronautical Engineering curriculum requirements.

Automotive Engineering (AES)
Chem 106; EE 210; IE 102; ME 256; PHYS 205 and 206; PHYS 207 and PHYS 208; and PHYS 342 OR CHEM 120. See the Department of Aeronautical and Automotive Engineering for complete Automotive Engineering curriculum requirements.

Computer Systems Engineering (CSE)
Chem 111; EE 210; EE 250; IE 102; PHYS 205 and PHYS 206; PHYS 207 and PHYS 208; and PHYS 212. See the Department of Electrical Engineering for complete Computer Systems Engineering curriculum requirements.

Electrical Engineering (EE)
Chem 306; EE 210; IE 102; ME 256; PHYS 205 and 206; PHYS 207 and PHYS 208; and PHYS 212. See the Department of Electrical Engineering for complete Electrical Engineering curriculum requirements.

Industrial Engineering (IE)
Chem 210; IE 102; IE 206; IE 261; ME 253; and PHYS 205 and PHYS 206; PHYS 207 and PHYS 208. See the Department of Industrial Engineering for complete Industrial Engineering curriculum requirements.

Mechanical Engineering (ME)
Chem 106; IE 102; BIS 142 or ENGL 105; ME 232; ME 256; PHYS 205 and 206; PHYS 207 and PHYS 208; and PHYS 342 or CHEM 120. See the Department of Mechanical Engineering for complete Mechanical Engineering curriculum requirements.

Paper Engineering (PAE)
Chem 120; CS 106; IE 102; ME 253; PHYS 205; PHYS 207; and PAPP 204. See the Department of Paper and Printing Science and Engineering for complete Paper Engineering curriculum requirements.

ADMISSION TO AN ENGINEERING CURRICULUM

The student seeking a baccalaureate degree in Aeronautical Engineering (AES), Automotive Engineering (AME), Computer Systems Engineering (CSE), Electrical Engineering (EE), Industrial Engineering (IEN), Mechanical Engineering (ME), or Paper Engineering (PAE) may apply for formal admission to one of these engineering curricula after successfully completing the pre-engineering curriculum requirements. Only students who have demonstrated the potential for success will be admitted to an engineering curriculum.

1. All Students seeking admission to a degree-granting engineering curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. The College of Engineering and Applied Sciences processes admission applications to engineering curricula and makes admission decisions to these programs.

2. Admission to an engineering curriculum is dependent upon successful completion of all required courses or approved alternatives in the PE curriculum with a grade of at least "C." Only students in good academic standing as defined by the University are eligible for consideration for admission to an engineering curriculum.

3. Students in an engineering curriculum will be advised by a faculty advisor from that curriculum area.

4. There are no established enrollment limits for admission to engineering curricula.
Technology program will satisfy the 300-400 level. 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) 4-15

* 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 1-2
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 487 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

AERONAUTICAL AND AUTOMOTIVE ENGINEERING

Jerry H. Hamelink, Chair
Richard B. Hathaway
Arthur W. Hoodley
Parviz Merati
Curtis N. Swanson

The Department of Aeronautical and Automotive Engineering offers programs leading to the degree of Bachelor of Science in Engineering (Aeronautical or Automotive). The program is designed to provide engineering expertise appropriate to the aerospace industry and to the automotive industry in product development, product design, and other related areas requiring an appropriate engineering background. These programs include mathematics, general education subjects, the basic sciences, the engineering sciences, product design and an integrated computer experience. The engineering science courses and design experiences specifically emphasize applications to the aerospace and automotive fields in such areas as vehicle design, vehicle performance, internal combustion engines and vehicle structures. Up to thirty (30) credit hours may be specialized to aeronautical or automotive engineering. Graduates of the program find opportunities in the aerospace and automotive industries in other engineering areas capitalizing on their strong applied engineering background.

Academic Advising
Students should contact their advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the advisor, the curriculum committee, and the department chairman. The academic advisor is located in Room 2038, Kohrman Hall, phone (616) 387-4033. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

Additional 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.

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 of major companies, as well as any type of automotive or aeronautical engineering activity.
Electives
All electives must be approved by the departmental academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide three × three 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 advisor office.

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...
- AAE 363 Internal Combustion Engines I...
- AAE 480 Engineering Design Project...

Students who have chosen the Automotive Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing one of the following:
- AAE 266 Vehicle Systems...
- AAE 363 Internal Combustion Engines I...
- AAE 480 Engineering Design Project...

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, 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 AAE, 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 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 italic print.

Automotive Engineering Degree Program
Candidates for the Bachelor of Science in Engineering (Automotive 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, 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 AAE, 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 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 italic print.
AERONAUTICAL AND AUTOMOTIVE ENGINEERING

Aeronautical and Automotive 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 warning 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. Carburetion, fuel injection, injection carburetion, emission reduction, manifold design, and volumetric and thermal efficiencies as applied to naturally aspirated and supercharged gasoline and diesel engines, as well as gas turbine engines. Prerequisites: AAE 261 or AAE 264, CS 106, MATH 123.

AAE 264 Vehicle Systems and Power (2-2)*
3 hrs.
Introduction to automotive vehicles and engines. This study includes chassis 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 367 Instrumentation Systems and Design (3-3)
4 hrs.
Analysis and design of instrumentation systems, including microprocessor based instrumentation systems, electronic interfacing, signal conditioning, statistical analysis of data, and control of actuators. Laboratory assignments include calibration of instruments, obtaining data, and interpretation of data. Computer applications of computer based instrumentation systems. Prerequisite: EE 210.

AAE 461 Engineering Design Concepts (2-2)*
2 hrs.
An introduction to the design process including problem definition and project planning with social, ethical, aesthetic and technical consideration. Preliminary planning will be accomplished for the major design project. Prerequisite: Consent of advisor.

AAE 463 Aircraft Structural Design (3-0)
3 hrs.
Structural design of aircraft emphasizing structural integrity under imposed static and dynamic loading conditions. 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 487 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 wave guides. Prerequisites: AAE 361, AAE 362.

AAE 495 Topics in Aeronautical and Automotive Engineering (1-6)
1-4 hrs.
A specialized course dealing with a particular area of aeronautical 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.

AEE 499 Independent Study (1-6)
1-8 hrs.
An independent study assignment available only by special arrangement with an instructor and approved by the department curriculum committee. A written report will be required and filed with the department on completion. May be repeated for up to a total of six hours. Prerequisite: Departmental consent.
ELECTRICAL ENGINEERING

Thomas F. Piatkowski, Chair
Eltaeyb Abuleyman
Charles A. Davis
Sami Esmail
Raghvendra Gego
John W. Gesink
Dean Johnson
Joseph Kelemen
Yumzi Li
John L. Mason
S. H. Mousavinezhad
Frank Severance
Lagart R. VanderKooi
Ece Yaprak

The Department of Electrical Engineering offers curricula designed primarily to prepare personnel for professional careers in electrical engineering or computer engineering.

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 electrical engineers and computer 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 chairman. The academic advisor is located in Room 2038, Kohrman 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 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 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 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 and EE 482.

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 (one each 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 seven semesters, beginning with fall. Pre-engineering requirements are in darker italics.

**First Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>EE 200</td>
<td>Digital Logic</td>
<td>3</td>
</tr>
<tr>
<td>IE 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
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**Second Semester—17 hours**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat</td>
<td>4</td>
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<tr>
<td>PHYS 206</td>
<td>Physics I Lab</td>
<td>1</td>
</tr>
<tr>
<td>CS 111</td>
<td>Computer Programming I</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
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</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
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**Third Semester—17 hours**

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<thead>
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<th>Course</th>
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</thead>
<tbody>
<tr>
<td>MATH 272</td>
<td>Vector &amp; Multivariate Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Electricity &amp; Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 250</td>
<td>Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td>CS</td>
<td>Computer Programming II</td>
<td>3</td>
</tr>
<tr>
<td>CS 201</td>
<td>Programming in FORTRAN</td>
<td>2</td>
</tr>
<tr>
<td>AREA II</td>
<td>General Education</td>
<td>3</td>
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</tbody>
</table>

**Fourth Semester—16 hours**

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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Alg. and Diff. Equation</td>
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</tr>
</tbody>
</table>

**Fifth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 145</td>
<td>Discrete Mathematical Structures</td>
<td>3</td>
</tr>
<tr>
<td>EE 210</td>
<td>Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>EE 251</td>
<td>Digital Systems I</td>
<td>4</td>
</tr>
</tbody>
</table>

**Sixth Semester—16 hours**

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<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>EE 350</td>
<td>Digital Electronics</td>
<td>4</td>
</tr>
<tr>
<td>EE 357</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>EE 371</td>
<td>Linear Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 380</td>
<td>Probabilistic Methods in Signal and Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CS 331</td>
<td>Design and Analysis of Algorithms and Data Structures</td>
<td>3</td>
</tr>
</tbody>
</table>

**Seventh Semester—17 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EE 481</td>
<td>Electrical Engineering Design I</td>
<td>4</td>
</tr>
<tr>
<td>CS 554</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 485</td>
<td>Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>AREA II</td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>IE 562</td>
<td>Electrical Engineering Design II</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective (Humanities, Fine Arts, Social Science or Behavioral Science)**</td>
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<td></td>
</tr>
<tr>
<td>AREA IV</td>
<td>General Education</td>
<td>4</td>
</tr>
</tbody>
</table>

*At least two of these courses must be at the 300-400 level. Item "I" above must also be satisfied.

**See Departmental Advisor for a list of approved electives.

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 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 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 seven semesters, beginning with fall. Pre-engineering requirements are in darker italics.

**First Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>EE 200</td>
<td>Digital Logic</td>
<td>3</td>
</tr>
<tr>
<td>IE 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
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</table>

**Second Semester—17 hours**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
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</tr>
<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Physics I Lab</td>
<td>1</td>
</tr>
<tr>
<td>CS 111</td>
<td>Computer Programming I</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
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**Third Semester—17 hours**

<table>
<thead>
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<th>Course</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 272</td>
<td>Vector &amp; Multivariate Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Electricity &amp; Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 250</td>
<td>Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td>CS</td>
<td>Computer Programming II</td>
<td>3</td>
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<tr>
<td>CS 201</td>
<td>Programming in FORTRAN</td>
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<tr>
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<td>General Education</td>
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**Fourth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Alg. and Diff. Equation</td>
<td>4</td>
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</tbody>
</table>

**Fifth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 145</td>
<td>Discrete Mathematical Structures</td>
<td>3</td>
</tr>
<tr>
<td>EE 210</td>
<td>Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>EE 251</td>
<td>Digital Systems I</td>
<td>4</td>
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**Sixth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EE 350</td>
<td>Digital Electronics</td>
<td>4</td>
</tr>
<tr>
<td>EE 357</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>EE 371</td>
<td>Linear Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 380</td>
<td>Probabilistic Methods in Signal and Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CS 331</td>
<td>Design and Analysis of Algorithms and Data Structures</td>
<td>3</td>
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**Seventh Semester—17 hours**

<table>
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<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>EE 481</td>
<td>Electrical Engineering Design I</td>
<td>4</td>
</tr>
<tr>
<td>CS 554</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 485</td>
<td>Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>AREA II</td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>IE 562</td>
<td>Electrical Engineering Design II</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective (Humanities, Fine Arts, Social Science or Behavioral Science)**</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AREA IV</td>
<td>General Education</td>
<td>4</td>
</tr>
</tbody>
</table>

*At least two of these courses must be at the 300-400 level. Item "I" above must also be satisfied.

**See Departmental Advisor for a list of approved electives.

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 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 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.
Electrical Engineering Courses (EE)

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).

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. Prerequisites: 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 100.

EE 210 Circuit Analysis (3-3) 4 hrs.
Analysis of linear electric circuits using methods based on Kirchhoff’s laws and network theorems. Simple RL and RC transients. Sinusoidal steady state analysis. Prerequisites: PHYS 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. May not be used as prerequisite for other EE courses. Prerequisites: EE 221.

EE 250. Power Electronics (3-0) 3 hrs.
Analysis and design of electronic circuits and diode circuits, transistor biasing and stabilization, small and large signal models. Computer-aided analysis and design of multi-stage circuits. Prerequisites: EE 211, EE 320.

EE 251 Digital Systems I (3-3) 4 hrs.
Introduction to digital electronics methods, logic gates, multivibrators, operational amplifiers, frequency response analysis and photodevices. Prerequisites: EE 221, EE 310.

EE 310 Network Analysis (3-0) 3 hrs.
Analysis and design of circuits and systems, waveforms. Fourier series and Fourier transforms. Frequency response. Prerequisites: EE 210, CS 111 or CS 306, MATH 374, PHYS 207.

EE 320 Digital Electronics (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 470 Feedback Systems (3-0)
3 hrs.
Design principles of linear and non-linear feedback systems in both the frequency and time domain. Prerequisites: EE 371.

EE 481 Electrical Engineering Design I (1-3)
2 hrs.
First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design is expected at the conclusion of this course. Prerequisite: Consent of department chairperson.

EE 482 Electrical Engineering Design II (0-6)
3 hrs.
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.

EE 490 Independent Research and Development
1-4 hrs.
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.

EE 495 Topics in Electrical Engineering
1-4 hrs.
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.

EE 498 Readings in Electrical Engineering
1-4 hrs.
A course in which advanced students may elect to pursue a program of readings in areas of special interest. Prerequisite: Permission of the instructor with whom the student wishes to work.

EE 499 Studies in Electrical Engineering
1-4 hrs.
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.

EE 501 Introductory Power Systems (3-0)
3 hrs.
An introduction to electrical power systems for non-electrical engineering students. Prerequisites: EE 211, MATH 374.

EE 520 Solid-state Devices (3-0)
3 hrs.
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 361 and EE 221.

EE 530 Power System Analysis I (3-0)
3 hrs.
Modern systems, control, optimization, network theories, matrix language, computer methods, steady state. Prerequisite: EE 430.

EE 550 Introduction to VLSI Design (3-1)
4 hrs.
Gate array, standard cell and full custom integrated circuit design. Prerequisite: EE 350.

EE 555 Advanced Digital Signal Processing (3-0)
3 hrs.
Discrete-time signals and systems, time and frequency domain representations. Structures of discrete-time systems and digital filters. DFT and FFT methods of special analysis and estimation. Discrete Hilbert Transforms and multidimensional signal processing. Prerequisite: EE 455 or equivalent.

EE 560 Time-varying Fields (3-0)
3 hrs.
Electrodynamics, Maxwell's equations, Boundary value problems and solutions of Helmholtz Equation in different coordinate systems, Green's functions, transmission lines and wave guides. Introduction to pertubational and variational methods. Engineering EM background needed for more advanced topics. Prerequisite: EE 361.

EE 561 Data Communications (3-0)
3 hrs.
Overview of digital communications systems and networks; analysis of current standards, design techniques, routing procedures, and protocols. Prerequisites: EE 355 and EE 380.

EE 570 Digital Control Systems (3-0)
3 hrs.
State variable technique, controllability and observability, digital control system design with state or output feedback, maximum principle, optimal linear regulator-deterministic, and stochastic state observers. Prerequisite: EE 455.

EE 595 Introduction to Advanced Topics (3-0)
3 hrs.
To introduce students to advanced topics in electrical engineering not included in other course offerings. May be taken more than once up to six hours.

ENGINEERING TECHNOLOGY

Harley Behm, Chair
Fred Sitkins, Interim Chairman
Robert Aardema
Dulcy Mary Abraham
Michael Akins
Patrick Benton
Andy Blystra
Thomas Deckard
Paul Engelsmann
Daniel Peacock
Ralph Rabiej
Ronald Sackett
Murari Shah
George Stegman
Ralph Tanner
Roger Urich
James VanDePolder
John Walker
Larry Williams
Charles Woodward
Leard Wylie

Adjunct Faculty
Richard Baker
Rex Bell
Roscoc Douglas
Stuart Eddy
Patrick Hughes
David P. Krueger

Thomas Lannon
Ronald Quising
Dave Shannon
Norman Smith
Arnold Varner

The Department of Engineering Technology offers the following curricula:

- Aircraft Maintenance Engineering Technology—B.S. degree
- Automotive Technology and Management—B.S. degree
- Construction Science and Management—B.S. degree
- Engineering Graphics—B.S. degree
- Engineering Metallurgy—B.S. degree
- Manufacturing Engineering Technology—B.S. degree

These programs are designed to provide graduates with the background necessary to successfully assume a variety of positions in engineering technology, manufacturing, construction, and service industries. The combination of specialized and general education is intended to allow employment flexibility, although most graduates are placed in industries closely related to their field of study.

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 not attending courses, for whatever reason, are responsible for processing drop slips with the Registration Office if fees are to be refunded.

Satisfactory completion ("C" or better) of basic writing, mathematics, and science courses is required before enrollment in upper level Engineering Technology (300-400) courses. Students should contact their academic advisor for the list of required courses that applies to their curriculum.
These basic courses are shown in darker italic print in curriculum displays.

Enrollment in flight courses is subject to a waiting list which is maintained at the aviation building and administered according to departmental policy. Students will be prompted to enroll in advanced flight courses on the basis of results of the department's Pilot Profile Analysis program. Participation in this program is required of all flight students.

Academic Advising

Students should contact their advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the advisor, the curriculum committee, and the department chairman. The academic advisor is located in Room 2038, Kohrman Hall, phone (616) 387-4033. Because of pre-registration and course offering times, students must consult with an academic advisor for proper course sequence.

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.

Aviation students, who are not in the Aircraft Maintenance Engineering Technology curriculum, may qualify for the F.A.A. Airframe and Powerplant License with some additional coursework. A specially approved curriculum must be completed prior to taking the F.A.A. examination. Qualified students will be admitted to the program by departmental advisors. Credit by examination may be allowed with appropriate evidence of preparation, experience, or certification. Credit by examination will not be granted for ET 402, Multi-Engine Flight.

Additional Costs

Special lab fees are in effect for flight courses to cover the cost of airplane operation. The fee is subject to change without notice and currently varies from $800 to $2,000, depending on the course. Students are required to have their own tools for flight courses required for the Airframe and Powerplant License. A basic set of required tools may be purchased for about $100. 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 their education with hands-on experience. Students may work in such areas as manufacturing, product development, quality control, and maintenance management of major companies, as well as other types of automotive or aircraft engineering support activity.

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 advisor office.

Airway Science Management Recognition

A special program sponsored and approved by the Federal Aviation Administration (F.A.A.) in Airway Science Management is available for aviation students who are enrolled in either Option A (Technical Management) or Option B (Professional Pilot) of the Aviation Technology and Operations curriculum. This is part of the F.A.A. National Airway Science program. Students should contact an aviation advisor for the specific requirements of this program.

Aircraft Maintenance Engineering Technology

Bachelor of Science Degree

The aircraft 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 licensing examination 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 EE, ET, IE, or ME prefix.
2. No more than two grades of "D" or "DC" in courses present 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 a spring and summer session. Courses listed in darker italic print must be completed at least a "C" prior to enrolling in upper level Engineering Technology courses.

First Semester—17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 110</td>
<td>Aeroscience</td>
<td>3</td>
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Second Semester—18 hours

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 116</td>
<td>Aircraft Structures</td>
<td>3</td>
</tr>
<tr>
<td>CH 109</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 110</td>
<td>Pre-Calculus Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 105</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 116</td>
<td>General Physics II Lab</td>
<td>1</td>
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<tr>
<td>PEGN 116</td>
<td>Physical Education</td>
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Third Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ET 117</td>
<td>Aircraft Reciprocating Powerplants</td>
<td>4</td>
</tr>
<tr>
<td>MATH 118</td>
<td>Pre-Calculus Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 113</td>
<td>General Physics I</td>
<td>4</td>
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<tr>
<td>PHYS 114</td>
<td>General Physics II Lab</td>
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<td>PEGN 116</td>
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Fourth Semester—18 hours

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<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EE 213</td>
<td>Airframe Hydraulic, Pneumatic and Auxiliary Systems</td>
<td>4</td>
</tr>
<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 150</td>
<td>Intercultural Communication</td>
<td>3</td>
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<tr>
<td>ET 101</td>
<td>Fundamentals of Electronics and Machines</td>
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Fifth Semester—16 hours

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ET 216</td>
<td>Aircraft Structural Repair</td>
<td>3</td>
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<tr>
<td>ET 222</td>
<td>Fuels and Lubricants</td>
<td>3</td>
</tr>
<tr>
<td>ET 313</td>
<td>Aircraft Electrical Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 201</td>
<td>Principles of Economics</td>
<td>3</td>
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<tr>
<td>MATH 260</td>
<td>Elementary Statistics</td>
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Sixth Semester—16 hours

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</thead>
<tbody>
<tr>
<td>ET 116</td>
<td>Aircraft Propellers</td>
<td>2</td>
</tr>
<tr>
<td>ET 311</td>
<td>Powerplant Systems Evaluation and Testing</td>
<td>4</td>
</tr>
<tr>
<td>ET 316</td>
<td>Avionics Systems</td>
<td>3</td>
</tr>
<tr>
<td>ET 381</td>
<td>Thermo-Fluid Dynamics</td>
<td>4</td>
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<tr>
<td>AREA II</td>
<td>Social/Behavioral Science</td>
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Spring/Summer—10 hours

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<tbody>
<tr>
<td>ET 312</td>
<td>Powerplant Service and Management</td>
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</tr>
<tr>
<td>ET 318</td>
<td>Aircraft Service and Management</td>
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Seventh Semester—15 hours

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<th>Hours</th>
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<tbody>
<tr>
<td>ET 315</td>
<td>Propulsion System Performance</td>
<td>3</td>
</tr>
<tr>
<td>ET 415</td>
<td>Aircraft Turbine Powerplants</td>
<td>4</td>
</tr>
<tr>
<td>ET 416</td>
<td>Maintenance Regulations</td>
<td>2</td>
</tr>
<tr>
<td>ET 376</td>
<td>Experimental Stress Analysis</td>
<td>3</td>
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<tr>
<td>AREA IV</td>
<td>Non-Western World</td>
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Eighth Semester—15 hours

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<tbody>
<tr>
<td>ET 418</td>
<td>Systems Reliability and Maintainability</td>
<td>3</td>
</tr>
<tr>
<td>ET 419</td>
<td>Advanced Maintenance Systems</td>
<td>3</td>
</tr>
<tr>
<td>ET 422</td>
<td>Conference Leadership</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts</td>
<td>3</td>
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</tbody>
</table>

* At least two of these courses must be at the 300-400 level.

Automotive Technology and Management

Bachelor of Science Degree

The automotive technology and management curriculum prepares students for positions in supervision or management, sales, and
The aviation technology and operations curriculum provides preparation for a variety of positions in operations management or technical support in the aviation industry. The technical management 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 must 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 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 the Bachelor of Science Degree in Aviation Technology and Operations:

### 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 in 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 must satisfy the Baccalaureate Writing Requirement by successfully completing ET 313 Aircraft Electrical Systems and ET 415 Aircraft Turbine Powerplants.

### Seventh Semester—15 hours
- **ET 222** Automotive Chassis 3
- **ET 150** Introduction to Manufacturing 3
- **MATH 116** Precalculus Mathematics 3
- **ET 102** Technical Communication 3
- **CS 105** Introduction to Computers 3

### Second Semester—16 hours
- **ET 124** Automotive Engines 3
- **ET 142** Engineering Graphics 3
- **MATH 200** Calculus with Applications 4
- **PHYS 113** General Physics I 4
- **PHYS 114** General Physics I Lab 1
- **PEN 1** Physical Education 1

### Third Semester—17 hours
- **ET 222** Fuels and Lubricants 3
- **ECON 201** Principles of Economics 3
- **EE 100** Fundamentals of Circuits and Electronics 3
- **PHYS 115** General Physics II 4
- **PHYS 116** General Physics II Lab 1
- **CHEM 103** General Chemistry I 4

### Fourth Semester—16 hours
- **ET 221** Automatic Transmissions 3
- **ET 281** Statics and Strength of Materials 3
- **EE 101** Fundamentals of Electronics and Machines 3
- **ACT 210** Principles of Accounting 3
- **AREA I** Humanities/Fine Arts* 3

### Fifth Semester—16 hours
- **ET 224** Automotive Fuel and Electrical Systems 3
- **ET 256** Properties of Materials 3
- **ACT 211** Principles of Accounting 3
- **COM 104** Public Speaking 3
- **BUS 242** Business Communication 3

### Sixth Semester—16 hours
- **ET 381** Thermo-Fluid Dynamics 4
- **ET 300** Fundamentals of Management 3
- **ET 216** Business Statistics 3
- **AREA II** Social/Behavioral Science* 3
- **Approved Elective** 3

### A. TECHNICAL MANAGEMENT OPTION—128 hours

#### First Semester—16 hours
- **ET 110** Aeroscience 3
- **PHYS 107** Elementary Physics 4
- **MATH 108** Elementary Physics Lab 1
- **MATH 200** Calculus with Applications 4
- **ET 102** Technical Communication 3
- **PEN 1** Physical Education 1

#### Second Semester—16 hours
- **ET 118** Aircraft Structures 3
- **ET 142** Engineering Graphics 3
- **ET 103** General Chemistry I 4
- **AREA I** Humanities/Fine Arts* 3

### B. PROFESSIONAL PILOT OPTION—128 hours

Enrollment in flight courses is usually 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 before registering for these courses.

#### First Semester—16 hours
- **ET 110** Aeroscience 3
- **PHYS 107** Elementary Physics 4
- **MATH 108** Elementary Physics Lab 1
- **MATH 200** Calculus with Applications 4
- **ET 102** Technical Communication 3
- **PEN 1** Physical Education 1

#### Second Semester—17 hours
- **ET 117** Aircraft Reciprocating Powerplants 4
- **ET 103** General Chemistry I 4
- **GEOG 105** Our Physical Environment 4
### Engineering Technology 211

<table>
<thead>
<tr>
<th>Semester</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester—16 hours</strong></td>
<td></td>
</tr>
<tr>
<td>ET 280</td>
<td>Transportation in the U.S.</td>
</tr>
<tr>
<td>EE 256</td>
<td>Properties of Materials</td>
</tr>
<tr>
<td>ACTY 201</td>
<td>Accounting Concepts and Applications</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Economics</td>
</tr>
<tr>
<td><strong>Fourth Semester—16 hours</strong></td>
<td></td>
</tr>
<tr>
<td>ET 216</td>
<td>Aircraft Structural Repair</td>
</tr>
<tr>
<td>ET 311</td>
<td>Powerplant Systems Evaluation and Testing</td>
</tr>
<tr>
<td>ET 313</td>
<td>Aircraft Electrical Systems</td>
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<td>AREA I</td>
<td>Humanities/Fine Arts</td>
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<td><strong>Sixth Semester—15 hours</strong></td>
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</tr>
<tr>
<td>ET 316</td>
<td>Avionics Systems</td>
</tr>
<tr>
<td>ET 319</td>
<td>Aircraft Transportation</td>
</tr>
<tr>
<td>COM 104</td>
<td>Public Speaking</td>
</tr>
<tr>
<td>FCL 340</td>
<td>Legal Environment</td>
</tr>
<tr>
<td>MGMT 300</td>
<td>Fundamentals of Management</td>
</tr>
<tr>
<td><strong>Spring/Summer—10 hours</strong></td>
<td></td>
</tr>
<tr>
<td>ET 312</td>
<td>Powerplant Service and Management</td>
</tr>
<tr>
<td>ET 318</td>
<td>Aircraft Service and Management</td>
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<tr>
<td><strong>Seventh Semester—14 hours</strong></td>
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<tr>
<td>ET 315</td>
<td>Propulsion Systems</td>
</tr>
<tr>
<td>ET 416</td>
<td>Maintenance Regulations</td>
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<tr>
<td>ET 340</td>
<td>Business Communication</td>
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<tr>
<td>ET 370</td>
<td>Marketing</td>
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<td>AREA IV</td>
<td>Non-Western World</td>
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<tr>
<td><strong>Eighth Semester—14 hours</strong></td>
<td></td>
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<tr>
<td>ET 415</td>
<td>Aircraft Turbine Powerplants</td>
</tr>
<tr>
<td>ET 418</td>
<td>Systems Reliability and Maintainability</td>
</tr>
<tr>
<td>AREA V</td>
<td>Optional Elective</td>
</tr>
<tr>
<td><strong>Construction Science and Management</strong></td>
<td>Bachelor of Science Degree</td>
</tr>
</tbody>
</table>

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 433 Specification and Estimating and ET 439 Scheduling and Project Management.

**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. A "C" average or better must be earned in required courses with an EE, ET, or IE, prefix.

1. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

2. Complete the following program of 29 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, with two spring and/or summer sessions. 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 131 | Introduction to Building Practices  |
| 149 | Introduction to Architectural Drawing  |
| 105 | Introduction to Computers  |
| CHM 103 | General Chemistry I  |
| IE 102 | Technical Communication  |

**Second Semester—15 hours**

MAT 118 | Precalculus Mathematics  |
| PHYS 107 | General Physics I  |
| PHYS 108 | General Physics I Lab  |
| COM 104 | Public Speaking  |
| AREA I | Humanities/Fine Arts  |
| PEGN | Physical Education  |

**Third Semester—15 hours**

ET 233 | Building Codes  |
| ET 235 | Structural Framing  |
| MATH 209 | Calculus with Applications  |
| GEOG 100 | Physical Geology  |
| PEGN | Physical Education  |

**Fourth Semester—14 hours**

ET 256 | Properties of Materials  |
| ET 281 | Statics and Strength of Materials  |
| ACTY 210 | Principles of Accounting  |
| ECON 201 | Principles of Economics  |

**Spring Session—6 hours**

ET 236 | Construction Measurements and Layout  |
| ET 237 | Concrete Construction and Masonry  |

**Fifth Semester—15 hours**

ET 335 | Soil Mechanics and Foundations  |
| ET 337 | Heating, Ventilation, and Air Conditioning  |
| ACTY 211 | Principles of Accounting  |
| ECON 340 | Business Communication  |
| AREA II | Social/Behavioral Science  |

**Sixth Semester—15 hours**

ET 339 | Plumbing and Electrical Practices  |
| ET 382 | Structural Theory and Design  |
| MATH 216 | Business Statistics  |
| MKTG 370 | Marketing  |
| FCL 330 | Real Estate Fundamentals  |
| AREA IV | Non-Western World  |

**Spring/Summer—1 hour**

ET 399 | Field Experience  |

**Seventh Semester—15 hours**

ET 349 | Residential Architectural Design  |
| ET 433 | Specifications and Estimating  |
| FCL 340 | Legal Environment  |
| MGMT 300 | Fundamentals of Management  |
| Approved Elective  |
College of Engineering and Applied Sciences

**Eighth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ET 435</td>
<td>Commercial Construction Methods</td>
<td>3</td>
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<tr>
<td>ET 437</td>
<td>Advanced Estimating and Bidding</td>
<td>3</td>
</tr>
<tr>
<td>ET 439</td>
<td>Scheduling and Project Management</td>
<td>3</td>
</tr>
<tr>
<td>LG 320</td>
<td>Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts*</td>
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</tr>
</tbody>
</table>

* 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, industrial processes, and materials. Selection of approved electives allows tailoring the thrust of the program toward business, supervision, or technical areas such as cast metal, plastics, or computers.

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 Design 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, 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 100</td>
<td>Fundamentals of Circuits and Electronics</td>
<td>3</td>
</tr>
<tr>
<td>ET 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>ET 248</td>
<td>Drafting/Design Management</td>
<td>3</td>
</tr>
<tr>
<td>ET 483</td>
<td>Programming for Computer</td>
<td>1</td>
</tr>
<tr>
<td>ET 485</td>
<td>Project Design and Control</td>
<td>1</td>
</tr>
<tr>
<td>ET 422</td>
<td>Conference Leadership</td>
<td>1</td>
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<tr>
<td>AREA I</td>
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**Second Semester—18 hours**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ET 101</td>
<td>Fundamentals of Electronics and Machines</td>
<td>3</td>
</tr>
<tr>
<td>ET 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>Physical Metallurgy I</td>
<td>3</td>
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<tr>
<td>PHYS 105</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 405</td>
<td>and 206 Mechanics and Heat with Lab</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
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<tr>
<td>PHYS 113</td>
<td>General Physics I with Lab</td>
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**Third Semester—18 hours**

<table>
<thead>
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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ET 103</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>ET 200</td>
<td>Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
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</tr>
<tr>
<td>EE 100</td>
<td>Fundamentals of Circuits and Electronics</td>
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<td>IE 105</td>
<td>Principles of Economics</td>
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<tr>
<td>MATH 200</td>
<td>Calculus with Applications</td>
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<tr>
<td>PHYS 114</td>
<td>General Physics I</td>
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<tr>
<td>PHYS 115</td>
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<tr>
<td>PHYS 116</td>
<td>General Physics II Lab</td>
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**Fourth Semester—17 hours**

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<th>Course Code</th>
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<tbody>
<tr>
<td>ET 104</td>
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<td>3</td>
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<tr>
<td>PEGN 104</td>
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<tr>
<td>MATH 124</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>CHEM 102</td>
<td>General Chemistry I</td>
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<td>PEGN 106</td>
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**Fifth Semester—16 hours**

<table>
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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ET 481</td>
<td>Metrology</td>
<td>3</td>
</tr>
<tr>
<td>MATH 260</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>CS 306</td>
<td>Introductory Programming</td>
<td>2</td>
</tr>
<tr>
<td>ET 101</td>
<td>Fundamentals of Electronics and Machines</td>
<td>3</td>
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<td>AREA I</td>
<td>Humanities/Fine Arts*</td>
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**Sixth Semester—15 hours**

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<tbody>
<tr>
<td>ET 346</td>
<td>Programming for Computer</td>
<td>3</td>
</tr>
<tr>
<td>ET 381</td>
<td>Thermo-Fluid Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>Approved Electives</td>
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<tr>
<td>AREA IV</td>
<td>Non-Western World*</td>
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**Seventh Semester—16 hours**

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<tr>
<td>ET 342</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>
<td>IE 422</td>
<td>Conference Leadership</td>
<td>1</td>
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<tr>
<td>Approved Electives</td>
<td></td>
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<tr>
<td>AREA II</td>
<td>Social/Behavioral Science*</td>
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**Eighth Semester—12 hours**

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<td>Drafting/Design Management</td>
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<tr>
<td>ET 485</td>
<td>Senior Design Project</td>
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<td>Approved Electives</td>
<td></td>
<td>3</td>
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<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts*</td>
<td>4</td>
</tr>
</tbody>
</table>

* At least two of these courses must be at the 300-400 level.

**Engineering Metallurgy**

Bachelor of Science Degree

The engineering metallurgy curriculum is an applied program of study in materials including process control, product development, production, and supervision. Selection of approved electives allows tailoring the program toward business, supervision, or technical areas such as cast metals and metal fabrication.

**Baccalaureate Writing Requirement**

Students who have chosen the Engineering Metallurgy curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 351 Chemical Metallurgy and ET 452 Die Casting.

**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—15 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ET 452</td>
<td>Die Casting</td>
<td>3</td>
</tr>
<tr>
<td>EE 454</td>
<td>Physical Metallurgy I</td>
<td>3</td>
</tr>
<tr>
<td>ET 457</td>
<td>Mechanical Behavior of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ET 485</td>
<td>Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>IE 402</td>
<td>Supervision of Industrial Operations</td>
<td>3</td>
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**Second Semester—17 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ET 381</td>
<td>Thermo-Fluid Dynamics</td>
<td>4</td>
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<tr>
<td>ET 450</td>
<td>Engineering Polymers and Composites</td>
<td>3</td>
</tr>
<tr>
<td>IE 322</td>
<td>Safety in Industry</td>
<td>3</td>
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<td>Metallurgy/Processing Elective</td>
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**Third Semester—14 hours**

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<tbody>
<tr>
<td>ET 351</td>
<td>Thermodynamics of Materials</td>
<td>4</td>
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<tr>
<td>ET 483</td>
<td>Project Design and Control</td>
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<td>IE 350</td>
<td>Engineering Cost Analysis</td>
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<td>AREA IV</td>
<td>Non-Western World*</td>
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**Fourth Semester—15 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>ET 452</td>
<td>Die Casting</td>
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<td>ET 454</td>
<td>Physical Metallurgy I</td>
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<tr>
<td>ET 457</td>
<td>Mechanical Behavior of Materials</td>
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<tr>
<td>ET 485</td>
<td>Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>IE 402</td>
<td>Supervision of Industrial Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

**Industrial Design**

Bachelor of Science Degree

The curriculum in industrial design is a blend of technology, business, art, and general
students 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 347 Industrial Design Studio and ET 445 Product Design and Development.

**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 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

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
- **ET** 147 Industrial Design Studio
- **MATH** 118 Precalculus Mathematics
- **CHEM** 103 General Chemistry I
- **ART** 101 Foundation Drawing

### Second Semester—18 hours
- **ET** 243 Industrial Design Studio
- **ET** 248 Technical Communication
- **PHYS** 113 General Physics I
- **PHYS** 114 General Physics I Lab
- **ART** 102 Foundation 2D Design

### Third Semester—17 hours
- **ET** 249 Introduction to Manufacturing
- **IE** 102 Introduction to Computers
- **MATH** 200 Calculus with Applications
- **ART** 103 Theory of Art
- **COM** 104 Public Speaking

### Fourth Semester—17 hours
- **ET** 154 Machining Fundamentals
- **ET** 247 Industrial Design Studio
- **ET** 281 Statics/Strength of Materials
- **ART** 231 Sculpture
- **AREA I** Art Elective (200 level or higher)

### Fifth Semester—16 hours
- **ET** 243 Designing for Production
- **ET** 250 Properties and Processing
- **ET** 256 Properties of Materials
- **FTCTY** 210 Principles of Accounting
- **ECON** 201 Principles of Economics

### Sixth Semester—15 hours
- **ET** 343 Industrial Design Studio II
- **ET** 346 Manufacturing Environment
- **ART** 150 Introduction to Graphic Arts
- **AREA II** Social/Behavioral Science

### Seventh Semester—15 hours
- **ET** 347 Industrial Design Studio
- **MGMT** 451 Administrative Behavior
- **ART** 245 Graphic Design
- **AREA IV** Non-Western World
- **PEGN** Physical Education

### Eighth Semester—15 hours
- **ET** 445 Product Design and Development
- **ET** 447 Industrial Design Studio
- **KARTG** 370 Marketing
- **ART** 248 Photography
- **AREA I** Humanities/Fine Arts

* At least two of these courses must be at the 300-400 level.

**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.

**Baccalaureate Writing Requirement**

Students who have chosen the Manufacturing Engineering Technology curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ET 483 Project Design and Control and ET 485 Senior Design Project.

**Requirements**

1. A "C" average or better must be earned in required courses with an EE, ET, ME, 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 133 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

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** 142 Engineering Graphics
- **ET** 147 Industrial Design Studio
- **MATH** 118 Precalculus Mathematics
- **CHEM** 103 General Chemistry I
- **ART** 101 Foundation Drawing

### Second Semester—18 hours
- **ET** 243 Industrial Design Studio
- **ET** 248 Technical Communication
- **PHYS** 113 General Physics I
- **PHYS** 114 General Physics I Lab
- **ART** 102 Foundation 2D Design

### Third Semester—17 hours
- **ET** 249 Introduction to Manufacturing
- **IE** 102 Introduction to Computers
- **MATH** 200 Calculus with Applications
- **ART** 103 Theory of Art
- **COM** 104 Public Speaking

### Fourth Semester—17 hours
- **ET** 154 Machining Fundamentals
- **ET** 247 Industrial Design Studio
- **ET** 281 Statics/Strength of Materials
- **ART** 231 Sculpture
- **AREA I** Art Elective (200 level or higher)

### Fifth Semester—16 hours
- **ET** 243 Designing for Production
- **ET** 250 Properties and Processing
- **ET** 256 Properties of Materials
- **FTCTY** 210 Principles of Accounting
- **ECON** 201 Principles of Economics

### Sixth Semester—15 hours
- **ET** 343 Industrial Design Studio II
- **ET** 346 Manufacturing Environment
- **ART** 150 Introduction to Graphic Arts
- **AREA II** Social/Behavioral Science

### Seventh Semester—15 hours
- **ET** 347 Industrial Design Studio
- **MGMT** 451 Administrative Behavior
- **ART** 245 Graphic Design
- **AREA IV** Non-Western World
- **PEGN** Physical Education

### Eighth Semester—15 hours
- **ET** 445 Product Design and Development
- **ET** 447 Industrial Design Studio
- **KARTG** 370 Marketing
- **ART** 248 Photography
- **AREA I** Humanities/Fine Arts

* At least two of these courses must be at the 300-400 level.

**Cast Metals Option**

(total hours for graduation—137)

Replaces ET 357 plus 9 hours of approved electives with:

- **ET** 353 Physical Metallurgy I
- **ET** 452 Die Casting
- **ET** 455 Advanced Metal Casting
- **ET** 300 Co-op Internship (in Cast Metals Industry)
- **ET** 402 Supervision of Industrial Operations

**Wood Products Option**

(total hours for graduation—136)

Replaces 9 hours of approved electives with:

- **ET** 132 Wood Processing
- **ET** 230 Machine Woodworking
- **ET** 332 Wood Finishing
- **ET** 432 Production Woodworking

**Plastics Option**

(total hours for graduation—136)

Replaces 9 hours of approved electives with:

- **ET** 350 Production Thermoplastic Processing
- **ET** 450 Engineering Polymers and Composites
- **ET** 451 Plastics Assembly and Testing
- **ET** 459 Mold Design and Construction
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 103 and 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

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ET 110</td>
<td>Fundamentals of Electronics and Machines</td>
<td>3</td>
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<tr>
<td>EE 100</td>
<td>Fundamentals of Circuits and Electronics</td>
<td>3</td>
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<tr>
<td>EE 101</td>
<td>Fundamentals of Electronics and Machines</td>
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<tr>
<td>EE 250</td>
<td>Digital Logic I</td>
<td>3</td>
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<tr>
<td>IE 326</td>
<td>Operations Planning and Control</td>
<td>3</td>
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<tr>
<td>IE 328</td>
<td>Quality Assurance and Control</td>
<td>3</td>
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<tr>
<td>ET 154</td>
<td>Machining Fundamentals</td>
<td>3</td>
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<tr>
<td>ET 352</td>
<td>Metal Casting</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 354</td>
<td>Paper Industry Processes</td>
<td>3</td>
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</tbody>
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APPROVED ELECTIVES—6 hours

Select two (2) courses.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
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</tbody>
</table>

Engineering Technology Courses (ET)

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours). The first digit of a course number indicates level of study as follows:

1. Aviation
2. Automotive
3. Construction and Woods
4. Graphical Art and Design
5. Materials and Processes
6. General
7. Special

ET 100 Private Pilot Ground School (3-0) 3 hrs.

A beginning course for students engaged in primary flight instruction or interested in such instruction. Topics include flight theory, federal air 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.

ET 110 Aeroscience (3-0) 3 hrs.

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.

ET 116 Aircraft Propellers (1-3) 2 hrs.

Theory, operation, troubleshooting, and servicing of aircraft propeller systems for reciprocating and turbine engines. For students seeking the A and P license. Prerequisite: ET 110 or consent of department.

ET 117 Aircraft Reciprocating Powerplants (3-2) 4 hrs.

Reciprocating aircraft engine principles, designs, and operations. Laboratory work includes disassembly and inspection of engines and components and engine operation. Prerequisite: ET 110 or concurrent.

ET 118 Aircraft Structures (2-2) 3 hrs.

Airframe structures and coverings including fabric, sheet metal, honeycomb, plastics, and hardware. Laboratory practice in preventive maintenance and inspection. Prerequisite: ET 110 or taking concurrently.

ET 119 Reciprocating Powerplant Overhaul (0-5) 2 hrs.

Comprehensive laboratory study of aircraft reciprocating engines. Prеparation, operation, and overhaul procedures for students selecting the A and P license. Prerequisite: ET 117.

ET 121 Automotive Chassis (2-3) 3 hrs.

The design, operation, and service of automotive suspension, wheel alignment, steering, brakes, clutches, standard transmissions, drivelines, differentials, and air conditioning. Laboratory work will involve disassembly, inspection, calculation of loads, and operations needed to restore to service.

ET 124 Automotive Engines (2-3) 3 hrs.

The design, dynamic characteristics, elementary thermodynamics, and basic service techniques for automotive engines. Theory is supplemented with laboratory work involving disassembly, visual and mechanical inspection of parts, plotting charts and graphs of engine characteristics, performing service operations, assembly, and engine operation. 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. An introduction to computer activities in construction is practiced.

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 Studio (0-3) 1 hr.

Industrial design methods, sketching and introduction to rendering.

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 Industrial Design Studio (0-3) 1 hr.

Advanced sketching, rendering, introduction to model building. Prerequisite: ET 143

ET 149 Introduction to Architectural Drawing (3-0) 3 hrs.

Introduction to the tools and techniques to enable the student to read, compose and create architectural drawings related to interior design and construction.

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 automotive 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 205 Aviation Safety (2-0) 2 hrs.

Physiological and psychological factors relating to flight safety emphasizing cause and effect of airplane accidents and related problem-solving processes. Includes a system's approach to safety program development and management. Prerequisite: ET 110 or consent of department.

ET 213 Airframe Hydraulics, Pneumatic, and Auxiliary Systems (2-4) 4 hrs.

Classroom and laboratory study of aircraft hydraulic and pneumatic components and systems, air conditioning and pressurization, fire detection and extinguishing systems and other auxiliary systems. Prerequisites: ET 110, CS 106 or concurrently.

ET 216 Aircraft Structural Repair (0-6) 3 hrs.

Major structural repair methods including procedures for metal, plastics, composites, and welded structures. Prerequisites: ET 118, ET 256.

ET 221 Automatic Transmissions (2-2) 3 hrs.

Torque converters, pumps, controls, gear trains, and holding devices used in automatic transmissions. Emphasis will be placed on principles of operation, application, and service of major components as well as limitations and requirements relating to lubrication, sealing and bearings. Laboratory work will involve disassembly, inspection, service operations,
calculation of torque capacities, and plotting of test results on an operating unit. Prerequisite: PHYS 113 and PHYS 114.

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 octave requirements, octave 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 Automotive Fuel and Electrical Systems (3-4) 4 hrs.
Theory and practice in diagnosing, adjusting and tuning modern automotive engines and electrical accessories. Laboratory practice is provided using oscilloscopes, distributor testers, generator test benches, and other engine and electrical testing equipment. Prerequisite: ET 101.

ET 230 Machine Woodworking (2-3) 3 hrs.
Analysis and design of wood products, utilizing the structural, mechanical, and environmental effects on wood properties. Basic cutting theories, woodworking machinery 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 and steel framing systems for residential and commercial building. Includes traditional and non-traditional methods of framing and construction practices, emphasizing cost-effective techniques. Prerequisite: ET 131.

ET 236 Construction Measurements and Layout (1-6) 3 hrs.
Construction surveying, building layout and structural alignment. Includes route alignment, topographic surveys, earthwork volume surveys, and preparation of reports. Prerequisites: ET 143, IE 102, MATH 200.

ET 237 Concrete Construction and Masonry (2-3) 3 hrs.
Design and control of concrete mixtures. 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 239 Interior Trim and Finishes (2-3) 3 hrs.
Installation of interior wall, floor, and ceiling coverings. Interior trim, cabinet construction, hanging doors, and working with plastic laminate is practiced. Also involves kitchen layout and design activities. Prerequisites: ET 230.

ET 242 Designing for Production (2-3) 3 hrs.
Engineering documentation as it relates to the product development and manufacturing methods required to bring a quality product to market. ANSI and ISO standards will be studied to acquaint the students with the documentation necessary to develop assembly and part drawings and to control the changes that will affect the assembled parts. Material specifications and cost studies will be combined with geometric dimensioning and tolerancing to be applied to parts gages and tooling. The use of CAD is a major part of the course. Prerequisites: ET 142, ET 154, and ET 246.

ET 243 Industrial Design Studio (0-3) 1 hr.
Assimilation of market, manufacturing, and design information leading to presentation renderings and model. Prerequisite: ET 147.

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. Prerequisites: ET 142 and CS 105.

ET 247 Industrial Design Studio (0-3) 1 hr.
Applied ergonomics in product design and development, sketching, rendering, and advanced model building. Prerequisite: ET 243.

ET 248 Technical Illustration I (2-3) 3 hrs.
Paralel and perspective drawing, charting use of varied black and white media, texture, and percentage films and tapes as they apply to catalogs, 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 280 Transportation in the United States (3-0) 3 hrs.
A survey of transportation in the United States including ground, air, and sea transportation systems. Historical origins, current status and problems, and alternatives for the future are discussed.

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 297 Elementary Flight (0-3) 1 hr.
Flight instruction leading to private pilot certification. Arranged to meet individual needs. May be repeated as necessary. Credit/No Credit only. Prerequisite: ET 100 or concurrent.

ET 300 Navigation Systems (3-0) 3 hrs.
Advanced navigation systems and equipment including area navigation, pictorial displays, flight directors, and airborne radar application and interpretation. Prerequisites: ET 205, MATH 200, CS 106.

ET 301 Commercial Flight I (0-5.5) 3 hrs.
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.

ET 302 Aircraft Systems and Operations (1-0) 1 hr.
Aircraft pre-flight and post-flight requirements, specifications, equipment requirements, maintenance systems, airworthiness determination, special operation needs, dispatching, winter operations, and related topics.

ET 303 Commercial Flight II (0-5.5) 3 hrs.
Continuing flight, ground, and simulator instruction in aeronautical skills, knowledge, and experience pursuant to commercial-instrument pilot certification. Particular emphasis upon use of air traffic control facilities and airways in visual as well as instrument environment. Prerequisite: ET 301.

ET 305 Commercial Flight III (0-5.5) 3 hrs.
Completion of instruction and experience requirements for commercial and instrument pilot certification. Includes flight, ground, and simulator instruction. Prerequisites: ET 303, ET 300 or taking concurrently.

ET 309 Air Traffic Control (2-0) 2 hrs.
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.

ET 310 Airport Management (3-0) 3 hrs.
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.

ET 311 Powerplant Systems Evaluation and Testing (3-2) 4 hrs.
Principles of reciprocating engine fuel, induction, exhaust, ignition, and propeller systems. Classroom and lab experiences covering engine instruments, engine operation and testing. Prerequisites: ET 117, EE 101.

ET 312 Powerplant Service and Management (2-10) 5 hrs.
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: ET 311, MGMT 300, and consent of department.

ET 313 Aircraft Electrical Systems (2-3) 3 hrs.
A review of basic electricity, study and laboratory practice in aircraft electrical components and systems, electrical instrumentation, and auto pilot systems. Prerequisite: ET 110, EE 101.

ET 315 Propulsion System Performance (0-6) 3 hrs.
Operation, testing, and diagnosis of aircraft engines and accessory systems. Application of instrumentation, dymanometers, and service test equipment. Prerequisites: ET 312, EE 101.

ET 316 Avionics Systems (2-2) 3 hrs.
Advanced topics in airborne electrical and electronics systems including multiplexing, flight control, and navigation applications. Prerequisite: ET 313.

ET 317 Air Transportation (3-0) 3 hrs.
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.

ET 318 Aircraft Service and Management (2-10) 5 hrs.
Airframe inspection, repair, and servicing including routine and 100-hour inspections, minor repairs, and preventive maintenance. This study will also include management aspects of FBO service centers and related service management problems and solutions. Prerequisites: ET 213, ET 216, ET 312.

ET 322 Automotive Service Management (2-0) 2 hrs.
Principles involved in management of automotive repair shops including establishing objectives, organizational problems, controls, personnel management, merchandising, pricing, and customer relations. Prerequisites: Junior standing, ACTY 210, MGMT 300.

ET 326 Automotive Diagnosis (2-3) 3 hrs.
Procedures and techniques used in evaluating performance and identifying malfunctions in automotive systems. Laboratory equipment as well as service shop test equipment will be used in diagnostic procedure. Prerequisites: ET 121, ET 124, ET 221, ET 222, ET 224.

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, adhesives and fasteners, 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 final finishing. Environmental regulations pertaining to furniture finishing. Scheduling, repair, and refinishing 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, caissons, lateral earth pressures, and soil pressure distribution. Design problems and soil testing will be included. Prerequisites: ET 237, ET 281, GEOI 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 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 and methods are practiced. Utility designs are drawn by students and installed at a job site. Prerequisites: ET 131, ET 149, ET 235, CS 105.

ET 342 Advanced Product and Machine Design (2-3) 3 hrs.
Advanced projects in the application of geometric dimensioning and tolerancing to complex parts and assemblies. Mechanical components are analyzed and applied to meet design requirements for applied motion and force transmission projects. CAD application will be an important part of this course. Prerequisites: ET 144, ET 242, and ET 481.

ET 343 Industrial Design Studio (1-3) 2 hrs.
Design and development of a transportation product with sketches, renderings and clay models. Prerequisite: ET 247.

ET 344 Tool Design I (2-3) 3 hrs.
Basic practices, standards, and components will be applied to tooling. Tooling considerations for group technology. Prerequisite: ET 342.

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 Industrial Design Studio (1-3) 2 hrs.
Design and development of an industrial trade show with sketches, rendering and model. Presentation will include market and cost studies. Prerequisite: ET 247.

ET 348 Tool Design II (2-3) 3 hrs.
Part analysis for design of metal stampings, and the design of dies to produce stamped metal parts. Wire forming, cold forming, forging, and NC punching centers will be studied. Prerequisite: ET 344.

ET 349 Residential Architectural Design (2-3) 3 hrs.
The study of architectural plans and principles of residential structures. Plans produced and studied include floor plans, plot plans, foundation plans, electrical plans, elevations, and all necessary details and specifications. Prerequisites: ET 149, ET 131.

ET 350 Production Thermoplastic Processing (2-3) 3 hrs.
Injection molding, blow molding, extrusion and thermoforming. 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 and construction using a variety of materials and production techniques. Theory and practice in metalcasting principles using green sand, plaster, investment, centrifugal, and vacuum processes. Prerequisites: ET 154, ET 256.

ET 353 Physical Metallurgy I (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 102, 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 (3-3) 4 hrs.
Principles of operation of numerically-controlled systems for manufacturing. CNC, DNC, and computer-assisted part programming. Application of CAD/CAM systems and graphics NC in programming. Prerequisites: ET 154, ET 246.

ET 359 Welding Design Analysis (3-0) 3 hrs.
Production methods and design using modern techniques of electron beam welding, inerteria welding, and application of lasers for welding. Use of various protective enclosures, plasma arc welding, automated electronic welding, weld testing techniques. Prerequisites: ET 256, ET 281.
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EE 361 Thermofluid Dynamics (4-0)
4 hrs.
Fundamentals of fluid mechanics, thermodynamics, and heat transfer using a unified approach. Prerequisites: ET 281, PHY 113 and PHY 114.

EE 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.

EE 387 CAD/CAE Fundamentals (2-3)
3 hrs.
Application of computer graphics to drafting and design, translation of drawings to part programs for CNC machine control. Considerations for computer-integrated manufacturing. (Not for majors in EGR and MFT.)

EE 399 Field Experience
1-3 hrs.
A program of practical experience and independent study to supplement and enrich classroom learning. Written reports are required. May be repeated to a maximum of eight semester credit hours. Credit/No Credit status only. Prerequisite: Consent of department.

EE 400 Aerodynamics and Flight Principles (2-0)
2 hrs.
Aerodynamics and flight principles related to airplane operation and performance. An advanced course for pilots to enable them to understand and predict airplane performance in a wide range of flight applications. Prerequisites: ET 303, MATH 260, CS 106.

EE 402 Multi-Engine Flight (0-1.3)
1 hr.
Principles of flight in multi-engine airplanes. Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operation. Prerequisite: ET 305 or equivalent.

EE 403 Flight Instructor Fundamentals (1-1)
2 hrs.
An introduction to techniques and responsibilities of flight instruction. Includes classroom reparation in fundamentals of learning and teaching theory. Features instruction and proper supervision of instructional scenarios in flight situations.

EE 404 Instrument Flight Instructing (1-1)
1 hr.
Techniques of flight instruction applied to instrument flying. Designed to upgrade an airplane flight instructor to an instructor rating. 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: ET 403.

EE 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: ET 300, ET 305, ET 400 or concurrent.

EE 406 Flight Instructor Certification (1-2)
2 hrs.
A study and application of airplane performance skills, flight maneuvers, and pilot operations pursuant to qualification as flight instructor. Involves flight and ground instruction, lesson planning and execution, and analysis of common student errors. Prerequisite: ET 403, which must be completed at grade “C” or above.

EE 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: MATH 122 or MATH 200, ET 263 or ET 311.

EE 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: ET 312, ET 318.

EE 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: ET 311, ET 318, MATH 260, CS 106.

EE 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.

EE 421 Automotive Analysis (2-2)
3 hrs.
Analysis of current designs of major automotive systems concentrating on rationale for various design approaches and combinations used when considering engineering parameters such as standards, operating limitations, manufacturing restrictions, and reparability. Prerequisite: ET 326.

EE 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.

EE 433 Specifications and Estimating (3-0)
3 hrs.
Reading and interpretation of the contract documents for construction. Plane and specifications for a variety of structures will be utilized. Principles and theories of estimating, classifications of work and quantity survey techniques applied to different types of structures and projects will be covered. Estimating quantities and listing of work items in a standard quantity survey will be practiced. Computer application in construction estimating will be emphasized. Prerequisites: ET 335, ET 337, ET 339.

EE 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 affect structural integrity. Computer systems will be used in statistical analysis and graphing of experimental data. Prerequisite: ET 230 or department approval.

EE 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.

EE 436 Problems in Woodworking (1-3)
2 hrs.
Advanced theory and practice working with new materials and methods. Written reports and discussions based on current literature are required. Tools, utilization, exterior design, and structural needs of the participants. Prerequisite: Consent of department.

EE 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 and materials, subcontracts, and general conditions will be discussed. Preparation of complete bid packages using plans and specifications will be performed. Prerequisite: ET 433.

EE 438 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 applied to the construction contractor will be emphasized. Prerequisites: ET 433, MGMT 200, MGMT 300.

EE 442 Tool Design III (2-3)
3 hrs.
Designing tooling systems for producing plastic parts. A study of part design for efficient part production and considerations for tooling secondary operations. Prerequisites: ET 250, ET 348.

EE 443 Commercial Architectural Design (2-3)
3 hrs.
Experience in designing light commercial structures. Study of systems planning, traffic flow and area utilization, structural analysis and material selection, site design and documentation. Prerequisite: ET 441.

EE 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.

EE 446 CAD Application (2-3)
3 hrs.
Parametric micro 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 447 Industrial Design Studio (1-3) 2 hrs.
Development of a final critique portfolio of student work for presentation at a graduating senior show. Prerequisite: Senior standing in Industrial Design.

ET 448 Technical Illustration II (2-3) 3 hrs.
Advanced illustrating, new techniques and presentation methods. Laboratory work will center around industrial illustrating methods and computer aided illustrating aids. Prerequisite: ET 248.

ET 449 Drafting/Design Management (2-0) 2 hrs.
Organization, administration, procedures, and methods involved in personnel, planning, management, equipping an industrial drafting/design department. Includes scheduling, estimating, referencing, numbering, and changing relative to existing documentation. Will also include material related to CAD/CAM. Prerequisite: Senior standing.

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 455 Advanced Metal Casting (2-3) 3 hrs.
Metallurgical factors affecting iron and aluminum melting, solidification patterns, and final microstructures. Casting failure analysis, multi-directional load analysis, and resulting design considerations. Current and emerging casting techniques. Prerequisites: ET 281, ET 352.

ET 456 Studies in Cast Metal Technology 1-2 hrs.
Spring schedule course offered during the week between winter and spring. Transportation charge is required. Student will tour industrial cast metal facilities to study management, current applications, and opportunities. Prerequisite: Consent of department.

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. Prerequisite: ET 256, ET 281, MATH 200, and department approval for EE and CSE students.

ET 458 Advanced Manufacturing Systems (3-0) 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 undercuts, threads, tool-making processes, testing, 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 461 Metrology (2-3) 3 hrs.
Precision measurement, its relationship to geometric tolerances, critical dimensions, and calibration. Statistical process control and quality assurance using manual and automated gauges, checking fixtures, non-destructive testing, and coordinate measuring systems. Use of vision, laser, and other non-contact measuring systems. Prerequisites: ET 242, MATH 260.

ET 463 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 465 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. Prerequisite: ET 483 and approved project.

ET 467 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 497 Special Flight Instruction 1-3 hrs.
Instruction tailored to the individual needs of students pursuing the professional pilot course sequence. Develop skills to progress efficiently in normal course sequence. Credit/No Credit only. May be repeated.

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.
Industrial Engineering

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 Manufacturing Administration 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.

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 in experience for a wide variety of positions in the manufacturing and service industries. A student majoring in industrial engineering may work in areas such as planning, product development, quality control, and maintenance management in major companies.

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 department 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, Kohrman 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 heading of the College of Engineering and Applied Sciences section of the catalog. Enrolment is not to 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 arrangement has 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.

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 in experience for a wide variety of positions in the manufacturing and service industries. A student majoring in industrial engineering may work in areas such as planning, product development, quality control, and maintenance management in major companies.

Admission

1. To be admitted to this Engineering curriculum, a student must complete all pre-engineering requirements with grades of "B" or better. The pre-engineering 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.

Industrial Engineering Program Requirements

Candidates for the Bachelor of Science in Engineering (Industrial) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation, 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 the 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. If the University General Education requirements have been otherwise satisfied, these courses may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

4. Complete the following program of 129 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in darker italic print.

Baccalaureate Writing Requirement

Students who have chosen the Industrial Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IE 318 Report Preparation.

First Semester—15 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101 OR 102 General Chemistry</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHYS 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 122</td>
<td>Introduction to Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 107</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
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Second Semester—18 hours

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</thead>
<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 205</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 206</td>
<td>Mechanics and Heat Lab</td>
<td>1</td>
</tr>
<tr>
<td>EC ENGR 206</td>
<td>Engineering Computations</td>
<td>2</td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Accounting Concepts and Applications</td>
<td>3</td>
</tr>
<tr>
<td>AREA I General Education</td>
<td>3</td>
<td></td>
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<tr>
<td>PEGN</td>
<td>Physical Education</td>
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Third Semester—16 hours

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGR 251</td>
<td>Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 207</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 208</td>
<td>Electricity and Light Lab</td>
<td>1</td>
</tr>
<tr>
<td>PC 251</td>
<td>Engineering Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Statics and Mechanics of Materials</td>
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Fourth Semester—17 hours

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PEGN 201</td>
<td>Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>PC 205</td>
<td>Work Design</td>
<td>4</td>
</tr>
<tr>
<td>PC 262</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>CPE 210</td>
<td>Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>PC 250</td>
<td>Materials Science I</td>
<td>3</td>
</tr>
<tr>
<td>PC 258</td>
<td>Dynamics</td>
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Fifth Semester—17 hours

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<tbody>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Algebra and Differential Equations</td>
<td>4</td>
</tr>
<tr>
<td>EE 307</td>
<td>Computer Controlled Manufacturing Systems</td>
<td>4</td>
</tr>
<tr>
<td>PC 310</td>
<td>Engineering Economy</td>
<td>3</td>
</tr>
<tr>
<td>EE 316</td>
<td>Report Preparation</td>
<td>3</td>
</tr>
<tr>
<td>PC 211</td>
<td>Machines and Electronic Circuits</td>
<td>3</td>
</tr>
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Sixth Semester—17 hours

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EE 308</td>
<td>Comp. Controlled Manufacturing Design Lab</td>
<td>2</td>
</tr>
<tr>
<td>PC 311</td>
<td>Introduction to Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>PC 318</td>
<td>Statistical Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>PC 232</td>
<td>Thermodynamics I</td>
<td>3</td>
</tr>
<tr>
<td>PC 310</td>
<td>Approved Electives**</td>
<td>3</td>
</tr>
<tr>
<td>AREA II</td>
<td>General Education*</td>
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</table>

Seventh Semester—16 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EE 410</td>
<td>Senior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PC 414</td>
<td>Material Handling and Facilities Design</td>
<td>4</td>
</tr>
<tr>
<td>PC 416</td>
<td>Operations Control in Industry</td>
<td>4</td>
</tr>
<tr>
<td>PC 416</td>
<td>Approved Elective (Health, Fine Arts, Social Sciences, or Behavior Sciences)**</td>
<td>3</td>
</tr>
<tr>
<td>AREA IV</td>
<td>General Education*</td>
<td>4</td>
</tr>
</tbody>
</table>
Manufacturing Administration

Bachelor of Science Degree

The Manufacturing Administration 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 manufacturing administrators may direct production employees working on line operations or may direct staff personnel specifically assigned to assist the line in meeting its objectives.

A selection of a group of courses provides the student an opportunity to concentrate in one of the several specialized areas listed below:

- CAD/CAM
- Plastics
- Metal Casting
- Metal Working
- IE Staff
- Technical Sales
- Small Business Management

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
- General Business
- Marketing
- Management
- International Business

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 Manufacturing Administration curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing IE 316 Report Preparation.

First Semester—14 hours

- MATH 111 Algebra II

Second Semester—15 hours

- MATH 200 Calculus with Applications
- COM 170 Interpersonal Communication
- ET 142 Engineering Graphics
- ECON 201 Principles of Economics
- Free Elective

Third Semester—17 hours

- MATH 260 Elementary Statistics
- PHYS 113 General Physics I
- PHYS 114 General Physics II Lab
- ET 403 Industrial Labor Relations
- IE 205 Work Design
- Technical Elective
- Free Elective

Fourth Semester—15 hours

- PHYS 115 General Physics II
- PHYS 116 General Physics II Lab
- ACTY 210 Principles of Accounting
- PEGN Physical Education
- Technical Elective
- AREA II General Education

Fifth Semester—16 hours

- IE 305 Work Analysis
- IE 320 Engineering Cost Analysis
- IE 326 Operations Planning and Control
- IE 322 Safety in Industry
- IE 256 Properties of Materials

Sixth Semester—16 hours

- IE 328 Quality Assurance and Control
- IE 316 Report Preparation
- ECL 340 Legal Environment
- Technical Elective
- AREA I General Education

Seventh Semester—13 hours

- IE 422 Conference Leadership
- IE 405 Senior MAD Design Project
- Technical Elective
- AREA IV General Education

Eighth Semester—16 hours

- IE 402 Supervision of Industrial Operations
- IE 403 Industrial Labor Relations
- IE 404 Plant Layout and Material Handling
- Technical Elective
- AREA I, General Education

Spring Semester of Senior Year—6 hours

- IE 420 Modern Industrial Practices

* 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

Fifteen 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 300 Co-op 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 282 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, EE 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 306 or IE 306, 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 queuing theory, game theory, linear, and dynamic programming. Prerequisite: IE 261, IE 262.

IE 316 Report Preparation (3-0) 3 hrs.
Learning techniques and procedures for preparation of technical documents. Intensifying critical, analytical process of thinking, and executing writing and oral strategies for different situations. 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 206, 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 326 Operations Planning and Control (3-0) 3 hrs.
Methods of controlling and coordinating production using production planning, scheduling, control, and dispatching. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 216 or MATH 260 or MATH 366.

IE 328 Quality Assurance and Control (3-0) 3 hrs.
Techniques of controlling quality in manufacturing systems. Topics include organization of quality, methods of measuring quality, and basic statistical tools. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 216 or MATH 260 or MATH 366.

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 (3-3) 4 hrs.
Comprehensive design of an industrial production system. Problems involved in and the interrelationship of plant location, product analysis, process design, equipment selection, materials handling, and plant layout. Assignments include projects designed to include the application of previous instruction to the problem and be used for the following courses. NOT FOR ENGINEERING CREDIT. Prerequisites: IE 305, IE 326, senior standing.

IE 405 Senior MAD 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 305, senior standing.

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 414 Material Handling and Facilities Design (3-3) 4 hrs.
Methodology for planning and designing manufacturing and service-related facilities, facilities location, material handling analysis and design, and warehouse design. Includes an intensive semester project to plan and design a manufacturing facility. 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 manufacturing system 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 420 Modern Industrial Practices (4-6) 6 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 COM 170, upperclass standing.

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 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 Design Project 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 organization, and management. Particular emphasis is placed on collective bargaining procedures, issues, and applications through case studies. Prerequisite: IE 403 or permission of instructor.

IE 505 Advanced Work Analysis (3-0) 3 hrs.
Synthesis of effective work methods using a predetermined basic motion-time system. Methods-Time Measurement, standard data system development, and administration. Prerequisite: IE 205, IE 305 or permission of instructor.
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 328, or permission of instructor.

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, factorials, 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. (Cross listed with PSY 542).

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 scheduled. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

MECHANICAL ENGINEERING

Jerry H. Hamelink, Chair
Judah Ari-Gur
Christopher S.K. Cho
Jay Easwaran
Mashulam Groper
Philip J. Guichelaar
Jerome H. Hennyme
Raymond N. House, Jr.
Iskender Sahin
Richard C. Schubert
Rameshwar P. Sharma
William J. Stiefel III
Dennis J. VanderBrink
Molly W. Williams
Adjunct Faculty
Martin P. Schroeder

The Department of Mechanical Engineering offers a program leading to the degree of Bachelor of Science in Engineering (Mechanical). The program is designed to provide engineering expertise appropriate to the diversity in modern engineering. It includes mathematics, general education subjects, the basic sciences, the engineering sciences, design, and an integrated computer experience. Electives may be used to deepen or broaden the program.

Mechanical engineers are found in almost every industry. Examples of areas for career opportunities include manufacturing, machine tool design, and product development; land, sea, air, and space vehicles and systems; energy conversion and energy distribution; computer hardware and computer software; environmental systems; and construction and urban development. Opportunities for mechanical engineers continue to develop with the rapid expansion of our knowledge base and population growth.

Academic Advising

Students should contact a mechanical engineering academic advisor as early as possible. Advisors are available to assist in individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental advisor, the curriculum committee, and the department chair. The academic advisors are located in Room 2938, Kohrman Hall, (616) 387-4033.

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, Durametallic Corporation, Society of Manufacturing Engineers, H. H. Harris Foundation, and the College itself. Program announcements are distributed during the application period.

The Department of Mechanical Engineering also annually presents several awards, which include:

- Dean E. Bluman Memorial Award—presented to an outstanding student of mechanical engineering who has demonstrated interest and ability in liberal studies. This is in honor and recognition of the late Dr. Bluman who, during his tenure as Professor and Chairman of Mechanical Engineering, was an active supporter of liberal education for engineering students.
- Outstanding Mechanical Engineering Scholar Award—presented to a mechanical engineering student who is outstanding scholarship, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with mechanical engineering.
- Mechanical Engineering Presidential Scholarship Award—presented to an outstanding mechanical engineering student who is selected using University-wide criteria which includes academic standing, superior scholastic ability, extra-curricular involvement, and professional promise.

Cooperative Education

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which mechanical engineers may be found.

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 this 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.

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 six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. This requirement must conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide an interdisciplinary approach, and must 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" can be earned in courses presented for graduation. The student may be required to retake courses.

4. Complete the following program of 132 semester hour credits. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in regular italic print.

Baccalaureate Writing Requirement
Students who have chosen the Mechanical Engineering curriculum will satisfy the Baccalaureate Writing Requirement by successfully completing ME 335 Mechanical Engineering Laboratory, or ME 355 Machine Design I, or ME 453 Machine Design II, or ME 460 Mechanical Engineering Project.

First Semester—16 hours

- MATH 122 Calculus I .
- ET 142 Engineering Graphics .
- CHEM 101 OR 102 General Chemistry I .
- AREA V Writing Requirement* .
- PEGN Physical Education .

Second Semester—17 hours

- MATH 123 Calculus II .
- PHYS 205 Mechanics and Heat .
- PHYS 206 Mechanics and Heat Lab .
- ME 220 Processes and Materials in Manufacturing .
- AREA II General Education* .
- PEGN Physical Education .

Third Semester—18 hours

- MATH 272 Vector/Multivariate Calculus .
- PHYS 205 Electricity and Light .
- PHYS 208 Electricity and Light Lab .
- AREA I General Education* .
- ME 232 Thermodynamics I .
- ME 256 Statics .

Fourth Semester—17 hours

- MATH 374 Introduction to Linear Algebra and Diff. Equations .
- PHYS 212 Introduction to Modern Physics OR
- PHYS 342 Electronics OR
- CHEM 120 General Chemistry II .
- ME 250 Material Science I .
- ME 258 Dynamics .

Fifth Semester—16 hours

- ME 356 Fluid Mechanics .
- ME 357 Mechanics of Materials II .

Sixth Semester—18 hours

- ME 335 Mechanical Engineering Laboratory .
- ME 358 Mechanism Analysis .
- ME 365 Machine Design I .
- EE 211 Electronic and Circuits .
- ME 431 Heat Transfer .
- AREA I General Education* .

Seventh Semester—17 hours

- ME 350 Material Science II .
- ME 360 Control of Thermal Systems .
- ME 439 Fluid Mechanics and Heat .
- ME 453 Machine Design II .
- ME 459 Mechanical Engineering Project Plan I .
- AREA II General Education* .

Eighth Semester—13 hours

- ME 460 Mechanical Engineering Project .
- IE 310 Engineering Economy .
- AREA IV General Education* .

- * At least two of these courses must be at the 300-level. 
- ** IE 102 or BIS 142 or ENGL 105.
- *** Design elective options include ME 359, ME 433, ME 451, or ME 553.

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.
Prerequisite: CS 106 and ET 142.

ME 232 Thermodynamics I (3-0)
3 hrs.
Fundamental laws of classic thermodynamics including ideal and non-ideal processes. Application of the principles 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, stress distribution, deflection, and buckling.
Prerequisites: MATH 123, CS 106; 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.
Compressions, 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 335 Mechanical Engineering Laboratory (2-3)
3 hrs.

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 processes. 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 256, MATH 374.

ME 357 Mechanics of Materials II (2-3)
3 hrs.
Combined loading, unsymmetric bending, shear stresses in beams, elastic and inelastic columns, beams with changes in cross section, beams-columns, fatigue and 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 256.

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 multicylinder engines.
Gyrosopic 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 256, MATH 374, EE 211.

ME 362 Theory of Engineering Experimentation (3-0) 3 hrs.
Principles of experimental design using a statistical approach. Statistical analysis of experimental data with computer applications. Prerequisites: MATH 123, CS 106.

ME 365 Machine Design I (2-3) 3 hrs.
The application of engineering principles to the fundamental design of machine mechanisms and basic systems. Prerequisites: ME 220, ME 250, ME 257, ME 358. (ME 359 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 CREDIT. Prerequisites: ET 261, 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, distribution, and ventilation. Computer simulation of buildings and systems. Prerequisites: ME 431, ME 432.

ME 436 Energy Systems Laboratory (1-3) 2 hrs.
Experimentation and theory verification in thermodynamics, fluids, and heat transfer including planning, testing, and computer analysis of data with report preparation. ME 436 and ME 437 are to be taken as prerequisite and corequisite to ME 460 in either combination. Prerequisites: ME 335, ME 431.

ME 437 Mechanical Systems Laboratory (1-3) 2 hrs.
Experimentation and theory verification in solid mechanics and system dynamics including planning, testing, and computer analysis of data with report preparation. ME 436 and ME 437 are to be taken as prerequisite and corequisite to ME 460 in either combination. Prerequisites: ME 335, ME 365.

ME 438 Energy Systems Design (3-0) 3 hrs.
Application of energy concepts to thermal-fluids design problems. Open ended projects in incompressible and compressible flows, thermodynamics, heat transfer power generation, alternate energy systems, including computer simulations. Prerequisites: ME 356, 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 335, 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 357, ME 362, ME 365.

ME 459 Mechanical Engineering Project Planning (1-0) 1 hr.
Selection of a design project to meet the Mechanical Engineering Departmental requirements in either the energy or the mechanical systems stem. Includes a formal project proposal, development of a bibliography and a time, material and equipment resource analysis. Prerequisites: ME 439 or ME 453; either course may be taken concurrently.

ME 460 Mechanical Engineering Project (1-6) 3 hrs.
To provide an engineering experience emphasizing an open-ended project design in either the energy or mechanical systems stem. Both formal written report and a public oral paper presentation are required. Concurrent enrollment in either ME 436 or ME 437 will be allowed. Prerequisites: ME 459 and admission to the ME curriculum.

ME 490 Independent Research and Development 1-4 hrs.
Individual research or special project. Available only by special arrangement with an instructor and approved by the department chair. Prerequisite: Consent of department.

ME 495 Topics in Mechanical Engineering: Variable Topics 1-4 hrs.
A specialized course dealing with some particular area of mechanical engineering not included in other course offerings. May be repeated for credit with a different topic up to six credits. Prerequisite: Consent of department.

ME 498 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 553 Advanced Product Engineering (3-0) 3 hrs.
An engineering design project from concept to production. 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 linkages, cams, and shafts; dynamics of reciprocating engines, balancing, and spatial mechanisms. Prerequisite: ME 356.

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 2D finite differencing, boundary element methods to the solution of complex equations of heat transfer, fluid flow, and solid mechanics. Prerequisite: MATH 506 or equivalent.

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: ET 257.
Paper Science
Bachelor of Science Degree

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:
1. Students must earn a "C" or better grade in 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 an example 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 Research, PAPR 470 Senior Thesis I, and PAPR 471 Senior Thesis II.

First Semester—16 hours
- MATH 122 Calculus I 4
- CHEM 101 General Chemistry I 4
- OR CHEM 102 General Chemistry II 4
- LWPAPR 100 Introduction to Pulp and Paper 4
- LC 106 BASIC for Engineers 1
- AREA I General Education* 3
- PEGN Physical Education 1

Second Semester—16 hours
- MATH 123 Calculus II 4
- CHEM 120 General Chemistry II 4
- LWPAPR 101 Lab Problems in Pulp and Paper Manufacturing 1
- WLS 102 Technical Communication 3
- LECON 201 Principles of Economics 3
- PEGN Physical Education 1

Third Semester—19 hours
- MIE 261 Engineering Statistics 3
- PHYS 205 Mechanics and Heat 3
- PHYS 206 Mechanics and Heat Lab 1
- PAPR 203 Pulp Manufacture 4
- LCHEM 222 Quantitative Analysis 4
- AREA I General Education* 3

Fourth Semester—19 hours
- MATH 272 Vector and Multivariate Calculus 4
- PHYS 207 Electricity and Light 4
- PHYS 208 Electricity and Light Lab 1
- PAPR 204 Paper Manufacture 4
- LWPAPR 261 Industrial Environmental Engineering 4
- AREA II General Education* 3

Fifth Semester—16 hours
- LWPAPR 305 Mechanics and Optics of Fiber Systems 4
- LWPAPR 306 Process Engineering I 4
- LWPAPR 333 Chemistry of Wood and Pulp 3
- LCHEM 360 Organic Chemistry I 4
- LWPAPR 440 Current Topics in Paper and Pulp 1

Sixth Semester—17 hours
- LWPAPR 307 Process Engineering II 4
- LWPAPR 342 Coating Processes 4
- LCHEM 361 Organic Chemistry II 4
- LWPAPR 352 Fiber Resource Conservation and Recycling 3
- LWPAPR 371 Introduction to Independent Research 1

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: PAPR 100, PAPR 101, PAPR 203, PAPR 204, PAPR 340 and PAPR 342.
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. 3
- **ECON 106** Basic Business Mathematics. 3
- **AREA I** General Education*. 3
- **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. 3
- **ECON 201** Principles of Economics. 3
- **PEGN** Physical Education. 1

### Third Semester—16 hours

- **PHYS 205** Mechanics and Heat. 4
- **PAPR 203** Paper Manufacturing. 3
- **ME 251** Statics and Mechanics of Materials. 3
- ** AREA II** General Education*. 3

### Fourth Semester—16 hours

- **MATH 272** Vector and Multivariate Calculus. 4
- **PHYS 207** Electricity and Light. 4
- **PAPR 204** Paper Manufacturing. 3
- **PAPR 261** Industrial Environmental Engineering. 3
- **AREA I** General Education*. 3
- **OR** Environmental Processes—18 hours
- **MATH 272** Vector and Multivariate Calculus. 4
- **PHYS 207** Electricity and Light. 4
- **PAPR 204** Paper Manufacturing. 3
- **PAPR 261** Industrial Environmental Engineering. 3
- **BIOS 105** Environmental Biology. 3

### Fifth Semester—16 hours

- **PAPR 305** Mechanical and Optical Properties of Fiber Systems. 3
- **PAPR 306** Process Engineering I. 4
- **PAPR 333** Chemistry of Wood and Pulp. 3
- **PAPR 440** Senior Topics in Pulp and Paper. 3
- **ME 258** Dynamics. 3
- **OR** Environmental Processes—18 hours
- **PAPR 305** Mechanics and Optical Properties of Fiber Systems. 3
- **PAPR 306** Process Engineering I. 4
- **PAPR 333** Chemistry of Wood and Pulp. 3
- **PAPR 350** Water Quality and Microbiology. 3
- **PAPR 440** Current Topics in Paper and Pulp. 3
- **PAPR 450** Solid Waste Treatment. 3
- **PAPR 451** Air Pollution Control. 3

### Sixth Semester—17 hours

- **PAPR 307** Process Engineering II. 4
- **PAPR 342** Coating Processes. 3
- **PAPR 352** Fiber Resource Conservation and Recycling. 3
- **PAPR 371** Introduction to Independent Research. 1
- **PAPR 440** Current Topics in Paper and Pulp. 3
- **EE 210** Circuit Analysis. 4
- **OR** Environmental Processes—17 hours
- **CHEM 365** Introduction to Organic Chemistry. 4
- **PAPR 307** Process Engineering II. 4
- **PAPR 352** Fiber Resource Conservation and Recycling. 3
- **PAPR 353** Waste Water Treatment Systems. 3
- **PAPR 371** Introduction to Independent Research. 1
- **PAPR 440** Current Topics in Paper and Pulp. 3

### Seventh Semester—18 hours

- **MATH 374** Introduction to Linear Algebra and Differential Equations. 4
- **PAPR 310** Science/Engineering Experience. 1
- **PAPR 340** Converting Processes. 3
- **PAPR 472** Senior Engineering Problem I. 2
- **PAPR 481** Instrumentation and Process Control. 3
- **EE 211** Machines and Electronic Circuits. 3
- **Technical Elective**. 3
- **OR** Environmental Processes—17 hours
- **MATH 374** Introduction to Linear Algebra and Differential Equations. 4
- **CHEM 430** Physical Chemistry I. 3
- **PAPR 310** Science/Engineering Experience. 1
- **PAPR 450** Solid Waste Treatment. 3
- **PAPR 451** Air Pollution Control. 3
- **PAPR 472** Senior Engineering Problem I. 2
- **PAPR 481** Instrumentation and Process Control. 3

### Eighth Semester—16 hours

- **PAPR 360** Printing Processes. 2
- **PAPR 460** Pulp and Paper Process Design. 4
- **PAPR 473** Senior Engineering Problem II. 3
- **PAPR 482** Application of Control Systems. 3
- **AREA IV** General Education*. 4
- **OR** Environmental Processes—17 hours
- **PAPR 460** Pulp and Paper Process Design. 4
- **PAPR 473** Senior Engineering Problem II. 3
- **Technical Electives**. 3
- **AREA I** General Education*. 3
- **AREA IV** General Education*. 4
- **OR** Environmental Processes—17 hours
- **PAPR 460** Pulp and Paper Process Design. 4
- **PAPR 473** Senior Engineering Problem II. 3
- **Technical Electives**. 3
- **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 356 Flexographic Presswork, PAPR 359 Gravure Presswork, and PAPR 454 Advanced Lithographic Technology.

### MARKETING OPTION

<table>
<thead>
<tr>
<th>First Semester—17 hours</th>
<th>MATH 116 Finite Mathematics</th>
<th>3</th>
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<tbody>
<tr>
<td>PAPR 150 Introduction to Graphic Arts</td>
<td>3</td>
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<tr>
<td>PAPR 157 Line and Halftone Photography</td>
<td>3</td>
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<tr>
<td>AREA I General Education*</td>
<td>4</td>
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<tr>
<td>AREA V General Education Writing Requirement (IE 102 or BIS 142 or ENGL 105 recommended)</td>
<td>3</td>
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<tr>
<td>PEGN Physical Education</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Second Semester—17 hours

| BIS 102 Introduction to Information Processing | 3 |
| CS 105 Introduction to Computers | 3 |
| L-CHM 103 General Chemistry | 4 |
| ECON 201 Principles of Economics | 3 |
| PAPR 253 Imaging | 3 |
| AREA I General Education* | 4 |

### Third Semester—16 hours

| PAPR 151 Typographic Layout and Design | 3 |
| MATH 216 Business Statistics | 3 |
| PAPR 250 Lithographic Presswork | 3 |
| PAPR 251 Computer Typesetting | 3 |
| PAPR 259 Introduction to Gravure | 3 |
| PEGN Physical Education | 1 |

### Fourth Semester—16 hours

| PAPR 357 Color Separation Processes | 3 |
| PAPR 258 Introduction to Flexography | 3 |
| BIS 260 Programming and Applications with Microcomputers | 3 |
| ECON 202 Principles of Economics | 3 |
| AREA II General Education* | 4 |

### Fifth Semester—16 hours

| PAPR 160 Introduction to Industrial Environmental Control | 4 |
| PAPR 340 Converting Processes | 3 |
| PAPR 362 Estimating | 3 |
| MKTG 370 Marketing | 3 |
| Approved Elective*** | 3 |
| AREA IV General Education* | 4 |

### Sixth Semester—15 hours

| PAPR 354 Paper Industry Processes | 3 |
| PAPR 452 Computer Estimating | 2 |
| MKTG 371 Marketing or Typographic | 3 |
| MKTG 372 Purchasing Management | 3 |
| General Education Elective** | 4 |

### Seventh Semester—16 hours

| PAPR 359 Gravure Presswork | 3 |
| PAPR 466 Printing Production Management | 3 |
| MKTG 374 Advertising | 3 |
| MKTG 376 Sales Administration General Education Elective** | 4 |
Eighth Semester—14 hours
- PAPR 358 Flexographic Presswork 3
- PAPR 454 Advanced Lithographic Technology 3
- MKTG 470 Industrial Marketing 3
- MKTG 574 Marketing Logistics 3
- Approved Elective*** 2

* 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.
*** Electives to be selected with the approval of the PAPR curriculum advisor.

Paper and Printing Science and Engineering Courses (PAPR)

Courses described in italics are approved for General Education. Numbers following course titles indicate lecture and laboratory per week during a semester (lecture hours-lab hours).

PAPR 100 Introduction to Pulp and Paper Manufacture (2-3) 3 hrs.
A lecture-laboratory consideration of the fundamentals of paper manufacturing processes and equipment. Some time will also be spent on coating, printing, and other uses of paper. The student should acquire a basic understanding of the nature and scope of the paper industry. Prerequisite: High school chemistry, CHEM 101 or CHEM 102 concurrent.

PAPR 101 Laboratory Problems in Pulp and Paper Manufacture (Arr.) 1 hr.
A continuation of the laboratory studies of PAPR 100. The student should acquire an understanding of the basic tests and test procedures used in the pulp and paper industry and their significance. Prerequisite: PAPR 100.

General Education Elective** 3

- IE 322 Safety in Industry 3
- Approved Elective*** 2
- General Education Elective** 3

MANAGEMENT OPTION

First Semester—16 hours
- MATH 116 Finite Mathematics 3
- PAPR 150 Introduction to Graphic Arts* 3
- PAPR 157 Line and Halftone Photography 3
- AREA V General Education College Writing (IE 102 or BIS 142 or ENGL 105 recommended) 3
- AREA I General Education** 3
- IE 322 Safety in Industry 3

Second Semester—16 hours
- CHEM 103 General Chemistry I 4
- PAPR 253 Imaging 3
- BIS 102 Introduction to Information Processing or
- CS 105 Introduction to Computers 3
- ECON 201 Principles of Economics 3
- AREA I General Education** 3

Third Semester—18 hours
- PAPR 151 Typographic Layout and Design 3
- PAPR 250 Lithographic Presswork 3
- PAPR 251 Computer Typesetting 3
- PAPR 259 Introduction to Gravure 3
- MATH 216 Business Statistics 3
- ET 150 Introduction to Manufacturing 3
- PAPR 250 Imaging 3

Fourth Semester—16 hours
- PAPR 358 Flexographic Presswork 3
- VACTY 201 Accounting Concepts and Applications 3
- IE 305 Work Analysis 3
- ECON 202 Principles of Economics 3
- PAPR 250 Imaging 3
- PAPR 250 Imaging 3

Fifth Semester—15 hours
- PAPR 160 Introduction to Industrial Environmental Control or
- PAPR 340 Converting Processes 3
- PAPR 362 Estimating 3
- MGMT 300 Fundamentals of Management 3
- IE 326 Operations and Control 3
- IE 328 Quality Assurance and Control 3

Sixth Semester—15 hours
- PAPR 354 Paper Industry Processes 3
- PAPR 462 Computer Estimating 3
- IE 402 Supervision of Industrial Operations 3
- AREA II General Education** 3
- AREA IV General Education** 4

Seventh Semester—17 hours
- PAPR 359 Gravure Presswork 3
- PAPR 406 Printing Production Management 3
- IE 403 Industrial Labor Relations 3
- General Education Electives** 3

Eighth Semester—14 hours
- PAPR 358 Flexographic Presswork 3
processes. Prerequisites: CHEM 101 or CHEM 102, PHYS 205.

PAPR 305 Paper Physics (3-3) 4 hrs.
Lecture and laboratory study of the fundamental properties of fibers and fiber systems. Theories and techniques for evaluating paper properties are discussed. Subjects include mechanical strength testing, stress-strain behavior of fiber systems, basics of color measurement and light scattering, and the use of the Kubelka-Munk Theory. Prerequisite: PAPR 204, IE 261, or MATH 364.

PAPR 306 Process Engineering I (3-3) 4 hrs.
Fundamentals of chemical engineering dealing with behavior of gases, thermophysical properties of gases, liquids and solids, thermodynamics, and associated problem solving. Emphasis is on mass and energy balances. The laboratory period is utilized as a problem solving workshop. Prerequisites: CHEM 101 or CHEM 102, MATH 123, PHYS 205.

PAPR 307 Process Engineering II (3-3) 4 hrs.
A continuation of PAPR 306 dealing with the unit operations of chemical engineering in the areas of fluid mechanics and heat transfer. Emphasis is on principles and equipment design and application. The laboratory period is devoted to problem solving and equipment design. Prerequisite: PAPR 306.

PAPR 310 Science/Engineering Experience 1 hr.
Full-time employment in a pulp, paper, printing, or related industry that provides first-hand exposure in a job capacity directly related to the student’s major. A written report is required. Departmental consent is required. Open only to department majors. Prerequisite: Junior standing.

PAPR 333 Chemistry of Wood and Pulp (3-0) 3 hrs.
Consideration of the chemistry of wood, pulp, and pulping by-products. Included topics are cellulose, lignin, measurement carbohydrates, extractives, and spent liquor utilization. Prerequisite: PAPR 203.

PAPR 340 Converting Processes (2-3) 3 hrs.
Covering the machinery and processes involved in the converting of paper and board. Also covered will be the application of the principles of materials handling and process flow to the design and operation of the converting equipment. Laboratory time will be devoted to converting plant visits and evaluation techniques. Prerequisite: PAPR 204.

PAPR 342 Coating Processes (3-3) 4 hrs.
A lecture-lab course dealing with the fundamentals of pigmented and functional coating of paper and board. Coating rheology, evaluation of coated paper, and the performance of paper in the graphics arts will also be covered. Prerequisite: PAPR 305.

PAPR 350 Water Quality and Microbiology (2-3) 3 hrs.
A study of the physical, chemical, and biological characteristics of water. Topics stressed include hydrology, treatment of water, water quality, governmental regulations, treatment, and the microbiology of water. Prerequisite: CHEM 101 or CHEM 102.

PAPR 351 Water Quality and Microbiology (2-0) 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. (This is a non-laboratory course offered for adult education. Credit may not be earned in PAPR 351 by paper science or paper engineering majors.)

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 wastewater processes and operations employed in waste water treatment. Physical, physiochemical, and biological treatment processes 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, paper making, coating, and evaluation of materials, especially as they relate to printing. Prerequisites: CHEM 103, and junior standing.

PAPR 357 Color Separation Processes (2-3) 3 hrs.
An analysis of various production color separation techniques, color correction, under color removal, and color proofing system. Color theory, masking systems, direct and indirect separations, and electronic scanner techniques will be investigated. Prerequisite: PAPR 157.

PAPR 358 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 359 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 systems and 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 and energy balances, power distribution, evaluation of equipment performance, and environmental concern. Prerequisites: PAPR 203, PAPR 204, PAPR 261, PAPR 207.

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 (3-0)
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 use this analysis to 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, are required. Prerequisites: PAPR 371, paper engineering major.

PAPR 473 Senior Engineering Problem II (0-6 Min.)
3 hrs. A continuation of PAPR 472, including completion of laboratory or design 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. Prerequisite: PAPR 472.

PAPR 481 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 or 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 pulping 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.

Three undergraduate degrees in art are offered: Bachelor of Science and 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 watercolor. 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 three undergraduate degrees: Bachelor of Fine Arts in Dance; Bachelor of Science 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 elementary education; and Bachelor of Arts with a major in music and a minor in one of the departments in the College of Arts and Sciences. 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 degree.

Theatre programs lead to the Bachelor of Arts and Bachelor of Science degrees, both of which provide the option to earn certification to teach theatre at the secondary level. The department also participates with other University departments in offering a music theatre performer program, and a theatre-as-an-elective option.

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.

The following list of designated courses may be used to fulfill the 70 hour requirement for the Bachelor of Arts degree:

**ART**
- 103 Theory of Art
- 120 Introduction to Art
- 220 History of Art
- 221 History of Art

**DANCE**
- 110 Beginning Ballet
- 120 Beginning Jazz
- 140 Tap

**MUSIC**
- 160 Basic Music
- 161 Basic Music
- 260 Basic Music: Twentieth Century Techniques
- 270 Music History and Literature
- 271 Music History and Literature
- 360 Style Analysis
- 572 Baroque Music (1600-1750)
- 573 Classical Music (1750-1800)
- 574 Romantic Music (1800-1910)
- 577 Symphonic Literature
- 578 Chamber Music Literature
- 579 Operatic Literature
- 581 Choral Music Literature
- 583 Jazz History and Literature

**THEATRE**
- 100 Introduction to Theatre
- 170 Script Analysis
- 370 Theatre History I
- 371 Theatre History II
- 470 Development of Theatre Art

### Interdisciplinary Program

**Music Theatre Performer**

**Bachelor of Fine Arts Degree**
81 credit hours

**REQUIRED COURSES IN DANCE—9 hrs.**
- DANC 110 Beginning Ballet I.2
- DANC 120 Beginning Jazz I.2
- DANC 104 Tap I

**OR**
- DANC 114 Tap II.1
- DANC 400 Practicum.1
- DANC 495 Performance Workshop (Prereq: 395) 4 semesters, 2 credits each.8

Plus 4 credit hours from Level I or higher of Ballet, Jazz, or Modern Technique.4
ART

Phillip Vander Weg, Chair
Jerry Abramson
T.D. Argyropoulos
John M. Carney
Joseph V. DeLuca
Jordan G. Griewe
Edward Harkness
Tricia Hennessy
Richard J. Keaveny
Donald E. King
Albert Laverque
John Link
Paul S. Mergen
John M. Metheney
Bruce Naftei
Mary Eleanor Nau
Curis A. Rhodes
Louis B. M. Rizzolo
Paul A. Robbert

The Department of Art offers many programs with various purposes and objectives. These programs are outlined in the prospectus 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 to increase artistic awareness among students in other areas. Extracurricular activities include many exhibits, lectures by visiting artists, student-operated gallery, and studios for advanced BFA candidates. There are approximately 475 undergraduate and 20 graduate art majors active during the academic year. Approximately 90 art degrees are awarded annually.

Programs

The Department of Art offers programs leading to the following three degrees: Bachelor of Fine Arts with a emphasis in one of the areas of the department; Bachelor of Arts or Bachelor of Science with a major in art; Bachelor in Art Science with a major in art teaching. All these programs are within the art curriculum, which is composed of the General Education requirements of the University and the major requirements of the B.A., B.S., or B.F.A. degrees.

The Department of Art also offers courses for students in other areas including non-art major courses in Drawing, Acrylic 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 credit 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 and intermediate 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.

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.

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 ART 325 Writing About Art.

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 hookups, modern software, and state of the art visual art software. Computer usage and design play 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 art work before receiving a grade for their graduation presentation.

Grading

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Studies

Advanced undergraduates are occasionally given studies. All other students may work in the regular classroom studies 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.
Programs

Bachelor of Fine Arts Degree
85 credit hours

This degree is designed for qualified students who intend to become professional artists or pursue graduate study in art. Art majors must make specific application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art, one semester residency in the department, and at or above the 300 level in the area they are applying to.

Areas of emphasis: ceramics, graphic design, jewelry and metalsmithing, painting/watercolor, photography, printmaking, and sculpture. Art teaching students must complete the requirements of one of the studio areas of emphasis in addition to the certification requirements of the College of Education and the art education sequence in the Art Department: ART 252, 352, 452, and 552.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:

- 12 hours in the basic program (101, 102, 103)
- 6 hours in Fine Arts (231; 240 or 242)
- 15 hours in Art History, including 220 and 221
- 3 hours in Writing About Art (325)
- 6 hours in Advanced Drawing (210, 310)
- 2 hours in Art Seminar (425)
- 21 hours in the studio area of emphasis
- 22 hours of other elective and required art courses determined in consultation with a faculty advisor in the studio area of emphasis
- 9 hours in ART 490, 491, 492, 493, 494, 495, 496, or 497. Approval of the presentation by a reviewing committee and submission of slides is necessary for the granting of the B.F.A. degree.

Art Major

Bachelor of Arts or Bachelor of Science
64 credit hours

This program is designed for the liberal arts-oriented students who want to major in the visual arts. It provides maximum flexibility in terms of electives in art and non-art courses. Professionally oriented art students may start in this program and apply for admission to the B.F.A. program when eligible.

Areas of studio emphasis for this program include: ceramics, graphic design, jewelry and metalsmithing, painting/watercolor, photography, printmaking, and sculpture.

The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Sixty-four hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:

- 9 hours in the basic program (101, 102, 103)
- 6 hours in Fine Arts (231; 240 or 242)
- 15 hours in Art History, including 220 and 221
- 3 hours in Writing About Art (325)
- 6 hours in Advanced Drawing (210, 310)
- 12 hours in one area of studio emphasis
- 13 hours in Art electives, to include one course from the Crafts division (ceramics, jewelry and metalsmithing) and one course from the Print Media division (graphic design, photography and printmaking) and one course from the Fine Arts division (painting/watercolor and sculpture). Courses taken within the student’s area of emphasis will satisfy the requirement that one of the electives be taken within that division, but they do not change the requirement that the Art electives total 13 hours.

Art Teaching Major

Bachelor of Science
61 credit hours

This program is intended to develop artist-teachers certified to teach art at the elementary and secondary levels and prepared to continue their studies at a graduate school.

Areas of concentration for this program include: ceramics, graphic design, jewelry, and/or metalsmithing, painting/watercolor, photography, printmaking, and sculpture.

The requirements of the secondary curriculum of the College of Education must be satisfied. Sixty-one credit hours in art satisfy the major and minor requirements of this curriculum and are distributed as follows:

- 9 hours in the basic program (101, 102, 103)
- 6 hours in the Fine Arts (231; 240 or 242)
- 3 hours in Advanced Drawing (210)
- 9 hours in Art History (220, 221, elective)
- 12 hours in Art Education (252, 352, 452, 552)
- 12 hours in one area of concentration
- 10 hours in elective art courses, determined in consultation with the art advisor.

Art teaching courses (252, 352, 452, 552) must be taken in sequence and may not be taken concurrently. Therefore, Art Teaching majors must enroll in Art 252 in the fall semester of the sophomore year and continue taking one art education course, in sequence, in each subsequent semester. This is necessary in order to complete the directed teaching in the senior year and complete the degree in a four-year span. One semester of directed teaching in art, preferably in both elementary and secondary situations, is required.

Art Minor

24 credit hours

This program is designed to expose the student to the field of art and satisfy the minor requirements of the liberal arts, arts and sciences, or education curricula. Art minors must register with the art advisor before completing any art courses. A minor slip is required.

- 9 hours in the basic program (101, 102, 103)
- 3 hours in Fine Arts (231 or 240 or 242)
- 12 hours in art electives, including ART 252 and 352 for education majors and minors.

Art History Minor

18 credit hours

This program is designed for liberal arts students interested in art history and satisfies the minor requirements of the liberal arts and arts and sciences curricula. A minor slip is required. The 18 credit hours are distributed as follows:

- 6 hours of Art History 220 and 221
- 12 hours of electives chosen from the remaining Art History courses in the department, in consultation with the Art advisor.

Art Courses for Non-Art Majors or Minors

Elementary education majors are advised to take ART 130, 140, or 150, except for those students in the integrated creative arts minor, who are required to take ART 200.

Any course with no prerequisites 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, 148, and Art History 220 are open with no prerequisites to non-art majors and can satisfy the humanities requirements of General Education.

Basic Program

Courses required of all majors and minors in art as prerequisites to other advanced courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>101 Foundation Drawing</td>
<td>3</td>
</tr>
<tr>
<td>102 Foundation 2D Design</td>
<td>3</td>
</tr>
<tr>
<td>103 Theory of Art</td>
<td>3</td>
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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, sculpture and the crafts. Discussions and slide presentations on such themes as the meaning of modern art, art as cultural and sociological expression, as symbol, as play and as form. This course will enable the non-art student to develop an art vocabulary and gain insights into 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. Classroom discussions are held following the student's participation in the various art events scheduled each semester, with students expected to write journals and response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross listed with DANCE 148, MUS 148, THEA 148. May be taken only once from College of Fine Arts Departments.

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 handmade 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 the synthesis into a coherent drawing attitude. Prerequisite: ART 101, ART 102, ART 103 and ART 240 or 242, or ART 240 or 242 concurrently.

ART 220 History of Art 3 hrs.
An historical survey of art from prehistoric ages to the Renaissance.

ART 221 History of Art 3 hrs.
An historical survey of art from the Renaissance through the contemporary period. 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 101, ART 102, ART 103 and ART 231, or ART 231 concurrently.

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.

Prerequisites: ART 101, ART 102, and ART 103.

ART 238 Jewellery and Metalsmithing 3 hrs.
A survey of jewellery projects with instruction in design and metal craft. Copper, brass, and sterling are the principal materials. Basic stone setting and casting procedures are usually included. Students generally fashion several jewelry pieces in this class.

Prerequisite: ART 101, ART 102, ART 103, and ART 231 or ART 231 concurrently.

ART 240 Painting 1 3 hrs.
A fundamental course in painting to assist the student in realizing visual observations, compositional sensitivities, and personal expression through basic painting techniques. Seeing color, mixing color, and making specific color decisions are the vehicles for studying basic painting methods and space. An overview of historical painting styles will be presented. Prerequisites: ART 101, ART 102, and ART 103.

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 101, ART 102, ART 103 and ART 240 or 242, or ART 240 or 242 concurrently.

ART 242 Watercolor Painting 3 hrs.
A survey of the application, techniques, and limitations of the watercolor painting medium. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 concurrently.

ART 243 Lithography 3 hrs.
A basic, confidence-building, introduction to Lithography through Aluminum Plate techniques. Fundamental discussion of Stone lithography and artistic possibilities of the medium. Prerequisite: ART 101, ART 102, ART 103 and ART 240 or 242, or ART 240 or 242 concurrently.

ART 244 Hand Papermaking 3 hrs.
An introduction to the basic techniques of hand papermaking as an art form. Prerequisites: ART 101, ART 102, and ART 103.

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 communicative potential of color and structure. Prerequisite: ART 101, ART 102, ART 103 and ART 240 or 242, or ART 240 or 242 concurrently.

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 101, ART 102, ART 103 and ART 240 or 242, or ART 240 or 242 concurrently.

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 101, ART 102, ART 103.
and ART 240 or 242, or ART 240 or 242 concurrently.

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 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 media. 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, directive, and decorative imagery for posters, covers, promotions, magazine and newspaper advertising. Includes thematic development, graphic planning, comprehensive and finished art production. Prerequisite: ART 245.

ART 346 Screenprint II 3 hrs.
An intermediate course continuing the investigation of basic and advanced screenprint 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 1/4 X 2 1/4 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 425 BFA Seminar in Art 2 hrs.
The seminar investigates and evaluates contemporary topics and trends in art. Students will be exposed to how artists express their ideas through current and ongoing visiting artist programs, exhibitions and workshops. Students will be encouraged to select and develop their own research topic. Graded credit/no credit only. Prerequisite: BFA candidacy.

ART 445 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 392 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 Presentation—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 1-8 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 539 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 339. 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 with the human arts at all levels of the public school; the human person, product, process, and press (environmental, perceptional, and 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 561 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 563 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 565 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 566 History of Baroque Art
3 hrs.
Art of the late Sixteenth, Seventeenth, and early Eighteenth Centuries. Major artists and architects discussed are Caravaggio, the Carracci, Rembrandt, Rubens, Poussin, Velasquez, Bernini, Borromini, and Neumann. Prerequisite: ART 221

ART 567 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 style. Prerequisite: ART 221.
DANCE
Trudy Cobb, Chair
Jane Basa
Wendie Crance
Lyle Juracek
Eugene Mills
Nina Nelson
Lindsey Thomas

The Department of Dance seeks to fulfill its responsibility to further the development of the arts and the University 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. The department faculty is committed to the ongoing renewal of teaching resources and skills while contributing to the field through the practice of the art and service to professional organizations. 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. Of utmost importance, through teaching and 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 upon which to carve their own careers, who have the conviction to hold firm in their aesthetic goals and who have the skills necessary for survival in an ever-changing field. 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 Science or 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. The Bachelor of Science or Bachelor of Arts degrees offer courses to students who are considering a professional career in dance. 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 Science or Bachelor of Arts degrees program offers a student the opportunity to explore the diversity of the dance profession and the requirements of a major or minor program outside the dance area. The University allows the student the option to elect either the BA or BS degree, dependent upon both the depth and breadth of liberal education coursework (refer to Degrees and Curricula at the beginning of this bulletin). Graduates of this program will be equipped to contribute to the growth of the art of dance. The Bachelor of Science or Bachelor of Arts degree program requires students to elect a minor with a foundation in dance. The Department of Dance Minor is designed for students who wish to continue their dance education 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 $9 fee is required for each student enrolled in DANCE 101 and 111 in order to provide a musical accompanist. A $2 fee is required for each student enrolled in DANC 102.

Admission
Admission to Western Michigan University is granted only by the Office of Admissions and Orientation for undergraduate students. Application for admission must be obtained by writing to the Office of Admissions and Orientation. Enrollment in the dance degree programs at WMU is contingent upon admission to the University and approval of the Department of Dance. Department approval is obtained by participation in placement classes and submission of a completed department application form. Placement classes are held each semester normally in October or November and February or March, as well as the weekday preceding the first day of Fall Semester. It is strongly recommended that prospective students attend the fall or winter placement sessions. Students will not be enrolled in dance technique courses before the beginning level until they have been placed. Students interested in pursuing the Bachelor of Fine Arts program may petition for entrance after completion of at least one semester each of ballet, jazz and modern major technique courses; DANC 180 Choreography I; DANC 181 Improvisation and at least one dance major theory course. The 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 for admission. Placement class 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 minor 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, 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 develop 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 on- and off-campus offices qualified to assist.

Graduation requirements must be completed as stipulated in the Catalog. Requirements cannot be added during the student’s enrollment, but the student may take advantage of course and curriculum alterations if these changes enhance the student’s education. Each student is responsible for knowing the requirements of the degree and for taking the steps necessary for completion of these requirements. All dance students are urged to take advantage of advising services in the Department of Dance for assistance in making educational choices and for interpretation of requirements stated in the Catalog.

Miscellaneous
FOCUS OF MAJOR TECHNIQUE COURSES
Ballet courses are taught according to the Russian method and piano accompaniment is provided. Modern courses utilize the principles of the Normative technique associated with Erick Hawkins, supplemented by material from other modern technique styles such as Cunningham and Limon. Percussion or piano accompaniment is provided. Jazz courses utilize technique principles of both ballet and modern through a stylistic blend of lyrical and percussive movements which reflect the rhythms inherent to jazz music, from traditional to pop. Recorded accompaniment is used in jazz courses.

MAJOR STUDIO COURSE PROGRESSION
It is expected that the dance major/minor will spend at least two semesters in each level of technique. This is consistent with level advancement in professional schools. A passing grade in a technique class does not imply automatic progression to the next level.

CLASS FEES FOR MAJOR TECHNIQUE CLASSES
A $25 fee is required from each student enrolled in DANC 110, 130, 210, 230, 310, and 330 in order to provide a musical accompanist.

SCHOLARSHIPS
Scholarships, awards and assistantships are available for new and current students. Awarded are selected by the faculty on the basis of outstanding achievement in the field and overall academic excellence. Applicants for New Dance Major Scholarships, the Robert Christianson Male Dance Major Scholarship, and the Ethnic Minor Male Dance Major Scholarship must audition and interview with the faculty. For specific information, contact the Department of Dance.

ANNUAL MEETING
A department meeting is held during the second week of each fall semester to prepare the student for the academic year. At this meeting, students will receive a calendar of events and information regarding Department policies and procedures. Attendance is mandatory for all dance majors and minors.

ADDITIONAL STUDY OPTIONS
Students are encouraged to study with dance professionals whenever possible and to afford themselves the opportunity for study with artists-in-residence or Western's...
campus. Limited scholarships may be available for this purpose. Information will be posted and announced in appropriate classes.

**PERFORMANCE AND CHOREOGRAPHIC OPPORTUNITIES**

Students have a variety of opportunities to perform in department concerts, studio evenings, graduating presentations, special class-related performances, University musicals and operas, and the department performing ensemble. 465 University Dance Theatre. Students must be enrolled in at least one major/minor technique course in order to perform in department concerts. The Department is also committed to publicly presenting the dances of students who demonstrate choreographic proficiency. In addition, special opportunities in performance and choreography are available on- and off-campus and are posted as they occur.

**Program Requirements**

**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. Petitions are available from the Department of Dance upon request.

Continuation in the BFA program will be determined by the dance faculty during the second semester of the student’s enrollment as a BFA candidate. In order to continue in the BFA, the student must: have completed and/or be currently enrolled in at least one technique course in ballet, jazz and modern; have achieved 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 petition again 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 matriculate, 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.

**REQUIRED COURSES IN TECHNIQUE AND PERFORMANCE—31 total hours**

BFA candidates must enroll in two major technique courses (DANC 110, 120, 130, 210, 220, 230, 310, 320, 330) each semester of the freshman, sophomore, and junior years. During the senior year, candidates must enroll in at least one major technique course and serve as a teaching assistant in a major technique course each semester. Courses must be selected to ensure the student is participating in technique courses five days per week. At least three hours must be selected from performance courses (DANC 460, 465). The candidate must complete at least one semester of two of the following: DANC 310, 320, 330.

**REQUIRED COURSES IN CHOREOGRAPHY—10 total hours**

DANC 180 Choreography I (Prereq: consent of advisor) 2
DANC 181 Dance Improvisation 1
DANC 280 Choreography II (Prereq: 180, 181) 2
DANC 380 Choreography III (Prereq: 280) 2
DANC 480 Graduating Presentation (Prereq: 380) 3

**REQUIRED COURSES IN THEORY—21 total hours**

DANC 245 Dance History I 3
DANC 295 Kinesiology for the Dancer 3
DANC 345 Dance History II (Prereq: 245) 3
DANC 385 Introduction to Dance Notation (Prereq: 110, 130, and MUS 185) 2
DANC 389 Dance Production 2
DANC 445 Special Studies in Dance History (Prereq: 345) 2
DANC 489 Dance Management 2
MUS 165 Music Fundamentals for Dancers 2
MUS 285 Musical Style and Form for Dancers (Prereq: MUS 185) 2

**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 regarding his/her progress in selecting courses from the courses listed below, some of which may also meet General Education requirements:

**ANTH**

ANTH 220 Cultural Anthropology 3
ANTH 370 Culture and Communication 3

**ART**

ART 140 Studio Experience (2-D) 3
ART 210 History of Art 3
ART 220 History of Art 3
ART 221 History of Art 3

**BIOS**

BIOS 112 Introduction to Biomedical Sciences 3
BIOS 211 Human Anatomy (Prereq: BIOS 112) 4

**ENGL**

ENGL 105 Thought and Writing: Variable topics 4
ENGL 110 Literary Interpretation 4
ENGL 150 Literature and Other Arts 4
ENGL 305 Practical Writing 4

**FREN**

FREN 100 Basic French 4
FREN 101 Basic French (Prereq: 101 or equivalent) 4

**GNUM**

GNUM 102 Direct Encounter with the Five Great Universes 4

**HIST**

HIST 315 Popular Art and Architecture in America 3

**MGMT**

MGMT 210 Small Business Management 3

**MUS**

MUS 352 Non-Western Music 4
MUS 450 Music Appreciation: The Symphony 3

**PHIL**

PHIL 200 Introduction to Philosophy 4

**PHIL**

PHIL 312 Philosophy of Art 4

**REL**

REL 311 Myth and Ritual 4

**THEA**

THEA 100 Introduction to Theatre 3

**Bachelor of Science or 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.

**REQUIRED COURSES IN TECHNIQUE AND PERFORMANCE—18 total hours**

BA/BS 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.

**REQUIRED COURSES IN CHOREOGRAPHY—7 total hours**

DANC 180 Choreography I (Prereq: consent of advisor) 2
DANC 181 Dance Improvisation 1
DANC 280 Choreography II (Prereq: 180, 181) 2
DANC 380 Choreography III (Prereq: 280) 2

**REQUIRED COURSE IN THEORY—17 total hours**

DANC 245 Dance History I 3
DANC 295 Kinesiology for the Dancer 3
DANC 345 Dance History II (Prereq: 245) 3
DANC 385 Introduction to Dance Notation (Prereq: 110, 130, and MUS 185) 2
DANC 389 Dance Production 2
MUS 165 Music Fundamentals for Dancers 2
MUS 285 Musical Style and Form for Dancers (Prereq: MUS 185) 2

**Dance Minor**

24 hours

**REQUIRED 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).
Electives—6 total hours
Six hours to be elected from the following courses, in consultation with the dance academic advisor:

- **DANC 280** Choreography II (Prereq: 180, 181) ........................................... 2
- **DANC 290** Teaching of Dance in the Elementary School ........................................... 3
- **DANC 295** Kinesiology for the Dancer ....................................................... 3
- **DANC 345** Dance History II (Prereq: 245) .................................................. 3
- **DANC 380** Choreography III (Prereq: 280) ...................................................... 3
- **DANC 385** Introduction to Dance Notation (Prereq: 110, 130 and MUS 185) ....... 2
- **DANC 389** Dance Production .............................................................................. 2
- **DANC 445** Special Studies in Dance History (Prereq: 345) ................................. 2
- **DANC 460** Performance (Prereq: Advisor consent) ............................................ 2
- **DANC 465** University Dance Theatre (Prereq: by audition) ............................... 3
- **DANC 489** Dance Management ............................................................................ 2
- **MUS 185** Music Fundamentals for Dancers ...................................................... 2
- **MUS 285** Musical Style and Form for Dancers (Prereq: MUS 185) ..................... 2

**Dance Courses (DANC)**

**DANC 101** Beginning Ballet I ($9) .................................................. 1 hr.
An introduction to ballet technique for the beginning general student.

**DANC 102** Beginning Jazz I ($2) .................................................. 1 hr.
An introduction to jazz technique for the beginning general student.

**DANC 103** Beginning Modern I .................................................. 1 hr.
An introduction to modern technique for the beginning general student.

**DANC 104** Beginning Tap I .................................................. 1 hr.
An introduction to tap technique for the beginning general student.

**DANC 110** Ballet Technique I ($25) .................................................. 2 hrs.
An introduction to the art of ballet, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on developing control, balance, musicality and strength of movement through the Russian method of training. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: Advisor consent.

**DANC 111** Beginning Ballet II ($9) .................................................. 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 learn simple jump, turn and adagio combinations. Previous ballet training is required. Prerequisite: DANC 101.

**DANC 112** Beginning Jazz II .................................................. 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 .................................................. 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 .................................................. 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 ($25) .................................................. 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, basic vocabulary and integrated movement combinations. 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 ($35) .................................................. 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 .................................................. 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 220** Jazz Technique II .................................................. 2 hrs.
A development of jazz technique at the intermediate level. Emphasis is on lyrical integration of isolated movements, sequential combinations involving multiple turns, and skills in performance and quick study. Students will continue in DANC 220 until advanced to DANC 320 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique I instructor.

**DANC 230** Modern Technique II ($25) .................................................. 2 hrs.
A development of modern technique at the intermediate level. Emphasis is on normative theory, performance and ensemble awareness. 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 ($25) .................................................. 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 II .................................................. 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 developing the student's own dynamic style. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique II instructor.

**DANC 330** Modern Technique III ($25) .................................................. 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. Repeatable for credit. Prerequisite: Placement audition or approval of Modern Technique II instructor.
The study of the production aspects of special effects, designing lighting, costumes and practice, the student will have an opportunity to explore a topic of interest in areas not included in American dance, pre-classic dance forms, and dance for the exceptional student. May be offered with a visiting instructor or artist-in-residence. Prerequisites: DANC 110, 2 hrs., MUS 185.  

An approved concentrated study of available literature in an area of dance selected by the student. Prior to registration, the Department Chair will review the topic and will assign a faculty advisor under whose supervision the student will complete the course requirements. Course guidelines are available from the Department and should be reviewed by students at least one semester prior to enrollment. Prerequisite: DANC 345.  

DANC 465 University Dance Theatre (UDT) 3 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 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 and approved application.  

DANC 488 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 areas of special interest. Prerequisite: Approved application required.  

DANC 499 Non-Reading Independent Study in Dance 1-4 hrs.  
Advanced undergraduate students with good academic standing may elect to independently pursue the study of some area of dance through the creative process. Topics are chosen and arrangements are made to suit the needs of each particular student. 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. 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. Prerequisite: Approved application required.
Education. The School's program in music therapy is certified by the National Association of Music Therapists.

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 performance, composition, jazz studies, music education, music history, music theory, or music therapy. The Bachelor of Arts and Bachelor of Science degrees afford the student the opportunity to major in music and minor in another academic area. All requirements for these degrees in music may be completed within the 122-124 semester-credit-hour minimum that is required for a degree at Western.

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/or to teach as a music specialist in the classroom, grades K-8.

A music minor program is offered through the School of Music for students who have a background in music and who wish to extend their formal education in that field of study. Those students seeking a music minor must secure a minor slip from the advisor in the School of Music in order that the declaration of the minor be official. Official declaration of the music minor must be made prior to registration for the final eight hours of music course work which will apply to that minor.

Admission

Admission to Western Michigan University is granted only by the Office of Admission and Orientation for undergraduate students. Application forms may be obtained by writing to the Office of Admission and Orientation.

Enrollment in a music curriculum is contingent upon admission to the University and approval of the School of Music. School approval is obtained through the music audition program. Students 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 prior to making application to the University by obtaining an Audition Confirmation Form from the School of Music. 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/or academic ability 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 musical potential and not upon desire to enter a specific professional area of music. All students commence a major in music with common “core” requirements and are, therefore, considered for entry into the major with this common basis in mind. A student considering a music major should have 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 required. Prior to entry into Basic Music 160, which is required of all music majors in the first year of study, the student must demonstrate knowledge of fundamentals. A fundamentals examination will be administered to the time the student is initially advised about classes.

The School of Music's audition and testing program has helped many students make a more intelligent choice regarding their educational careers. Further information regarding admission to a music curriculum may be obtained by writing the Music Student Advisor in the School of Music. The School welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Transfer Credit

Music credit from another institution is normally acceptable if course substance is equivalent to a similar course required in the student's curriculum at Western and the student has earned a grade of “C” or better in that course. No credit hours exceeding the number granted for parallel work at Western will be accepted for transfer from another institution. In order to earn a Bachelor of Music degree from Western Michigan University, a student may not transfer more than thirty-seven (37) semester credit hours in music courses taken at a community college toward music curriculum requirements. If the “Performance Electives” requirement has not been completed at the time of the transfer, at least two of the remaining hours must be completed in music electives. 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 enrollment. Acceptance in the major will be automatic but certain requirements must be taken by the student in order to remain in that major. In order to maintain good standing as a major in music performance, composition, jazz studies, music history, music theory, or music theater, a student must maintain a minimum grade point average of 3.25 in the first two courses that apply to the major area of concentration. The student who elects music education as a major must maintain a grade point average of 3.0 in all courses in the major area of concentration in order to be recommended for direcd teaching (music education) or music therapy internship. All transfer students must take a Piano Placement Examination before admission in order to project the feasibility of completion of piano proficiency requirements.

For further information regarding the transfer of music credits, contact the Music Advisor in the School of Music.

Advising

Advisor: Margaret J. Hamilton

Appointments: 2146 Dalton Center

(616-387-4672)

The Music Student Advising Office provides one-stop advising for all students in a music curriculum. Advice on general education and major/minor requirements can be provided by consulting the music student advisor. Only when a student pursues a minor outside of the School of Music is an appointment required with another advisor.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog, which is in effect at the time the student is admitted.

Requirements may not be added in the midst of the student's enrollment, but the student may take advantage of course and curriculum alterations that may occur while work on the degree is in progress if these changes enhance the student's education. Each student is responsible for knowing the requirements that must be completed for the degree and for taking the steps necessary for completion of requirements. All music students are urged to take advantage of the advising services in the School of Music for assistance in making educational choices and for interpretation of requirements as they are stated in the Undergraduate Catalog.

Miscellaneous

In addition to required coursework, all students must satisfy additional requirements in recital performance and recital attendance.

The requirement 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 recital shall be a requirement in the student's file. Absences must be made up by attending other pre-approved School of Music recitals in which the student is not a participant. Absences in the student's record which have not been made up will prevent graduation.

The requirement(s) for recital performance are as follows:

1. Bachelor of Music candidates with a major in music performance must present a Senior Recital which is approved by and acceptable to the faculty of the respective performance area.

2. Bachelor of Music candidates with a major in areas other than music performance must present at least one successful solo performance on a student recital (scheduled public recitals, convocations, or area recitals) prior to graduation. Individuals students may be required to give additional performances on student recitals at the discretion of their private teachers.

Prerequisite to performance on any student recital shall be a recommendation by the student's applied teacher. Prerequisite to the presentation of Junior and/or Senior Recitals is an approved hearing of that recital by the
student's area faculty. Recitals should be scheduled in the Concerts Office in the School of Music as far in advance as possible.

Competency Examinations are available to students who qualify for advanced placement or a waiver of requirements in music courses even if no formal education at the college level may have been completed. Common areas of competency are applied music, secondary instruments, and music theory. Examinations may be scheduled in these areas to allow qualified students to demonstrate competency.

In the event that a student demonstrates competency in an area of study that is required in the curriculum, the student may elect two alternatives for fulfilling degree requirements: (1) request a waiver of the requirement and elect an equivalent number of hours in music courses of the student's choice and (2) receive credit for the course(s) in which competency is demonstrated by passing an examination fee according to the schedule approved by the Board of Trustees.

Scholarships and Grants in Music are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these stipends at the time of their audition for admission to the music curriculum. For a listing of music grants and scholarships and application forms, contact the undergraduate advisor in the School of Music. Early application for awards is advised.

Music majors may also be eligible for any number of general University scholarships as described in the Student Financial Aid and Scholarships section of the Undergraduate Catalog.

Curricula

When a student is admitted to the music curriculum, a major area of concentration is usually not declared. Before any student may declare a major area of concentration the student must complete requirements in the music "core", which are courses required of all students, regardless of professional or vocational interests in the field. Core requirements will normally be taken in the first two years. For students who are interested in entering the School of Music as a music major, a test once 88 credit hours have been completed.

Core Requirements—Bachelor of Music Degree

MUSIC 241

Core Requirements—Bachelor of Music Degree


Please note: All keyboard majors are required to elect one semester of MUS 190 Accompanying (therapy majors excepted).

The student is expected to complete one performance elective during each term of enrollment.

Theory electives may be selected from the following: MUS 262, 300, 518, 555, 556, 560, 565, 566, 567.

Music History/Literature electives may be selected from the following list of courses: MUS 375, 570, 571, 572, 573, 574, 577, 578, 579, 580, 581, 585, 586, 598.

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/ Music The student must have met the standards of the College of Education; must have completed all Music Core courses, with no grades of less than a "C" and a 2.3 average in those courses; and must complete the formal admission procedure as described in the Music Student Handbook.

Music Therapy and Music Education students must earn a minimum grade point average of 3.0 in course work in the area of the major in order to be recommended for an internship (music therapy) or 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 application 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 or Bachelor of Science degree with a major in music.

Music Education: Choral/ General Major

Methods Elective I ........................................... 2
Select one from the following: Choral Methods (340), Instrumental Methods I (334), String Methods (345), Teaching and Learning in Music (348), Conducting 330 ........................................... 2
Instrument elective ........................................... 1
Select one from the following: Fundamentals of Guitar (128); Instruments of the Band and Orchestra (279); Instruments of the Classroom (280).
Methods Elective II ........................................... 2
Select from the following: Music for the Special Student (385); Technology in Music Education (386).
Second Instrument ........................................... 4
Plan A, Keyboard Musicianship 220, 221, 320, 321 and/or pass the exam administered by the Keyboard and Professional Education areas. Students who do not qualify for entry at 200 entry level must complete Keyboard Fundamentals (120 and 121) as a deficiency. No class is to be counted twice. Those students who test out of a course or courses in the Keyboard Musicianship sequence will select courses from the instrument or methods elective areas to complete course requirements.
Voice Pass exam for Keyboard Musicianship 321, given by the Keyboard and Professional Education areas. The student should take Vocal Techniques for Music Educators 117 as part of four semesters of voice study. Four semesters of study are required, with one semester at 200 level.
College of Education Courses ................................ 27
Human Development 250 .................................. 3
Teaching of Reading 301 .................................... 3
Teaching/Learning in Jr. and Sr. High Schools 302 ........................................... 4
School and Society 395 ..................................... 3
Seminar in Student Teaching 410 .......................... 2
Directed Teaching ........................................... 10
Physical Education ........................................... 2
Students can complete this requirement by completing 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 Education: Instrumental Emphasis
Grants certification to teach music at any grade level (K-12) ............................. 16 hrs.
Methods Elective I ........................................... 2
Select from the following: String Methods (345), Instrumental Methods II (347), Choral Methods (340), or General Music Methods (336), Teaching and Learning in Music (348), Conducting 331 ........................................... 2
Choral Instruments ........................................... 6
Band—Complete these courses: Flute/Saxophone (145); Oboe/Bassoon (142); Trumpet/French Horn (143); Trombone/Tuba (144); Piano (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 one major string instrument, or complete MUS 128 and 129 plus four courses from those listed above for band emphasis.
Note: Those who test out of any of the above must fulfill their class instrument requirements by completing one or more of the following:
String Class—Cello, Double Bass (128); String Class—Violin, Viola (129); Vocal Techniques for Music Educators (117); Music 135, 133, 142, 143, 144, 145.
Methods Elective II ........................................... 2
Select from the following: Music for the Special Student (385); Technology in Music Education (386).
Keyboard Musicianship 220-221 .................................. 2
Those who "comp out" of keyboard will complete this requirement by selecting courses from the class instrument or methods elective areas. Students who do not qualify for entry at the 220 level must complete Keyboard Fundamentals (120) and/or 121 as a deficiency.
College of Education ........................................... 27
Human Development 250 .................................. 3
Teaching of Reading 301 .................................... 3
Teaching/Learning in Secondary (302) .......................... 4
School and Society 395 ..................................... 3
Seminar in Student Teaching 410 .......................... 2
Student Teaching 475 ...................................... 10
Physical Education ........................................... 2
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 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) ........................................... 2
Courses in Music Therapy 260, 270, 290, 320, 380, 381, 383, 472, 473, 479, 480, 481 ........................................... 22
* Keyboard Musicianship 220, 221, 320, 321 ........................................... 4
Fundamentals of Guitar 126 ................................ 1
Voice Class 117 ........................................... 1
Instruments of the Band and Orchestra 279 ........................................... 4
Music Electives 2 ........................................... 2
Professional Electives (selected from electives listed under Core Requirements) ........................................... 5
Psychology 100 and 250 .................................... 5
Special Education 530 ..................................... 3
* All music therapy majors who have passed a piano competency exam may be exempted from any Keyboard Musicianship requirements except MUS 322.
The student must achieve a 3.0 grade point average in the music therapy major in order to be recommended for MUS 481. In completing the General Education requirements the music therapy major must complete BIOS 112 and SPPA 200. In completing Physical Education requirements the music therapy major must complete at least one course in dance which qualifies as a physical education "activity" course.
Music Performance: Instrumental Major
In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 200 and pass a performance qualifying examination (see "Electing a Major Area of Study").

Music Performance: Vocal Major
In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.25 in Applied MUS 200 and pass a performance qualifying examination (see "Electing a Major Area of Study").
All Bachelor of Music: Music Theory candidates must pass a piano proficiency examination as outlined below.

**Music History**

- Composition 262-263 ........................................... 4
- Musical Acoustics 566 ........................................... 3
- Seminar in Music Composition 362 ............................. 8
- Seminar in Electronic Music ..................................... 8
- 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 262-263. All Bachelor of Music: Composition candidates are required to present a Senior Recital consisting of thirty minutes of original compositions which are an outgrowth of the candidate's 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.

**Jazz Studies**

- Applied Music (in addition to Core Requirements) 300 ........................................... 2
- Jazz Ensembles 118, 119, 210, 212, 218 .......................... 4
- Jazz Composition 264 ........................................... 2
- Jazz Arranging 555, 556 ......................................... 4
- Jazz improvisation 558, 559 .................................... 4
- Jazz History and Literature 563 ................................ 4
- Keyboard Musicianship 220, 221, 320, 322 ......................... 4
- Counterpoint 560, 561 ........................................... 4
- Professional Electives (choose from Piano 100, Conducting 330/331, Composition 262/263, Seminar in Composition 564, Orchestration 567/568, Musical Acoustics 566, Electronic Music 564) .......................... 3

**Keyboard Requirements for Composition, Theory, and Music History Majors**

All composition, theory, and music history 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.ing 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: folk song
   - Book III.
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: second, dominant, borrowed chords, augmented sixth chords.
   - Diminished sevenths.
   - Half diminished seventh chords.

**Music History**

1. Two compositions of contrasting style at the level of Bach Two-Part Inventions or Bartok Mikrokosmos, Vol. III or IV. One composition must be selected from the Baroque or Classical repertoire; the other from the Romantic or Contemporary period.
2. Score-reading: Emphasis shall be placed on reading from string quartet scores.
3. Sight-reading: Read music which is easier than the level of literature which the student is performing.

**Bachelor of Science Degree or Bachelor of Arts Degree Music Curriculum**

124 total hours

- General Education Electives .................................. 35
- Physical Education (Marching Band) 109 substitute .............. 2
- A major in Music: Music Convocation 101 (6 semesters) ........................................... 0
- Applied Music 200 (must pass sophomore hearing) .................. 8
- Basic Music 160-181, 260-261, 360-361, Aural Comprehension 162, 163, 259 ........................................... 3
- Keyboard Fundamentals 120-121 .................................. 2
- Music History/Literature 270-271 ................................ 8
- Performance Electives (major ensemble) .......................... 4
- Music Electives .................................................. 14
- A minor in another department in University (minimum) 15

(Note: In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the student may make an appropriate adjustment in the hours allowed for free electives.)

5. Free Electives .................................................. 22

The award of the Bachelor of Arts or the Bachelor of Science degree is dependent upon coursework taken in foreign language and extra credits earned in General Education, language and literature, science, and social science.

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. The student completing requirements as outlined above, including a minimum of 35 hours in General Education, language and literature, science, and social science, is eligible for the Bachelor of Science degree.

**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 ...................................... 2
- Basic Music 160 .................................................. 3
- Aural Comprehension 162 ...................................... 1

Minor must choose one of the following two groups:

- Applied Music 100 ................................................. 2
- Performance Electives ........................................... 2

(Select from 107, 108, 110, 111, 112, 113)

OR

- Music Appreciation: Live Music 150 .......................... 4
- American Music 350 ............................................. 4

*Personal auditions required*

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: Conducting 125, 130, 331, Composition 262, 263, 362, 564
- Music History and Literature 270, 271

*Other electives as approved by the music advisor*

**THE SCHOOL OF MUSIC DOES NOT OFFER A MINOR FOR STUDENTS WHO WILL RECEIVE ELEMENTARY OR SECONDARY TEACHING CERTIFICATION.**
Music Courses (MUS)

(Courses described in italics are approved for General Education.)

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 by audition.

MUS 110 Symphonic Band 1 hr.
The University Symphonic Band is dedicated to the performance of outstanding literature, including original works for band, compositions for wind ensemble and orchestral transcriptions. An emphasis is placed on understanding the pieces performed from an aesthetic and stylistic basis as well as from a technical point of view. This ensemble maintains an active performance schedule on campus and in the community, as well as throughout Michigan and the surrounding states. Membership by audition.

MUS 111 University Orchestra 1 hr.
The orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and played during the year, and the orchestra joins with other campus organizations in joint programs. Instruments are available for the use of students. Membership 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.

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 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 develop their vocal skills while performing challenging contemporary choral literature. A small instrumental combo accompanies the ensemble, and choreography and specialty acts are included. This 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-of-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 are a regular part of Lab Band Concerts. The Ensemble performs regularly on campus and in the surrounding community. Membership by audition.

MUS 211 Studio Accompanying 1 hr.
A laboratory experience in accompanying student singing. 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 performs 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 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, wind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

MUS 317 Opera Workshop 1 hr.
A production experience in the acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.

MUS 514 Instrumental Chamber Music 1 hr.
Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

MUS 516 Music Theatre Practicum 1 hr.
A production experience in music theatre. Each semester culminates in an opera or musical comedy production. Open to singers, actors, accompanists, instrumentalists, and persons interested in production techniques. Admission by audition or permission of the instructor. May be repeated for credit.

MUS 517 Collegium Musicum 1 hr.
Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing, and conducting of early music is required of Music History majors. Graduate students may count not more than two hours of this course for graduation. Membership by audition.

Applied Music

Private lessons (applied music) in organ, piano, voice, and all orchestral and band instruments are offered to all University students to the extent that instructor time and practice facilities are available. Priority in applied music study is given first to music majors, second to music minors, and third to students wishing to take the study on an elective basis. All students who take private lessons must register for applied music by reporting to the Music Office. Only students enrolled in other classes at Western are eligible to receive applied music instruction. An audition or interview is necessary in order to be approved for study.

Students are required to make arrangements for a lesson time with the private teacher in the first days of 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 held and graded by a panel of members of the music faculty.

Students who register for one hour of credit per semester receive one 25-minute
lesson per week; two credit hours, one 40-minute lesson; four credit hours, one 60-minute lesson. The more credit a student receives in applied music, the more is expected in practice time and materials. A $7 fee is required for those enrolled in applied music at the 200, 300, 500, and 600 level in order to bring guest artists/performers to campus for additional musical instruction and enrichment.

MUS 100 Applied Music 1-2 hrs.
This level of applied music indicates private music study at a fundamental level. Credit earned may be applied to a Bachelor of Music degree only by special arrangement through the School of Music.

MUS 199 Applied Music-Music Theatre (voice) 1-4 hrs.
This level of Applied Music indicates "lower division" standing for music theatre students who have been approved for this level. Prerequisite: MUS 116.

MUS 200 Applied Music 1-4 hrs. ($7)
This level of applied music indicates "lower division" standing for music students who have been approved for this level through auditions or jury examinations.

MUS 201 Sophomore Hearing 1 hr.
An examination in applied music. All vocal majors must pass this to qualify for upper-level applied study.

MUS 300 Applied Music 1-4 hrs. ($7)
This level of applied music indicates "upper division" standing in applied music and is used to designate junior- and 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 instrument (alum 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 techniques, sight-reading, and harmonization.

MUS 103 Piano Class II 2 hrs. ($5 fee)
A continuation of MUS 102 Piano Class I. Because course goals do not align with other keyboard 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 develop the ability to perform simple phrases with directed 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 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 secondary 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 a Folk or Classical type guitar.

MUS 125 Guitar Class II 2 hrs.
This class is intended for the student who has completed Guitar Class I or the student with some guitar ability who wishes to further develop his/her skills. The course will enable the student to use the guitar as a solo or melody-playing instrument. Instructions will be provided on tablature and transposition as it applies to the guitar and on various techniques as used in both the Classical and Folk idioms for melody or single-note playing. The student will be required to own or have access to a Folk or Classical type guitar. Prerequisite: Completion of MUS 124 or instructor consent.

MUS 126 Fundamentals of Guitar 1 hr.
This class is for the music major or minor who has an ability to read music and a basic knowledge of harmony but who cannot already play the guitar. The class will focus on the use of guitar in the music education and music therapy professions and will cover the different styles of beginning guitar playing, including an overview of basic chords, barre chords and the various strumming and picking patterns. The student must own or have access to Folk or Classical type guitar. Prerequisite: MUS 160.

MUS 128 String Class—Cello, Double Bass 1 hr.
A course in the fundamentals of pedagogy and performance for the cello and double bass presented through materials commonly used in classes in the public schools. Prerequisite: Music Education major.

MUS 129 String Class—Violin, Viola 1 hr.
A course in the fundamentals of pedagogy and performance for the violin and viola presented through materials commonly used in classes in the public schools. Prerequisite: Music Education major.

MUS 130 Percussion Class 1 hr.
Fundamentals of percussion instrument pedagogy and performance. The student is required to perform on the snare drum in an acceptable manner and 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 131 Flute Class 1 hr.
Fundamentals of flute pedagogy and performance. For music majors only.

MUS 132 Oboe Class 1 hr.
Fundamentals of oboe pedagogy, performance and reeding-making. For music majors only.

MUS 133 Clarinet Class 1 hr.
Fundamentals of clarinet pedagogy and performance. For music majors only.

MUS 135 Saxophone Class 1 hr.
Fundamentals of saxophone pedagogy and performance. For music majors only.

MUS 136 Trumpet Class 1 hr.
Fundamentals of trumpet pedagogy and performance. For music majors only.
MUS 137 French Horn Class 1 hr.
Fundamentals of French horn pedagogy and performance. For music majors only.

MUS 138 Trombone Class 1 hr.
Fundamentals of trombone pedagogy and performance. For music majors only.

MUS 139 Tuba Class 1 hr.
Fundamentals of tuba pedagogy and performance. For music majors only.

MUS 140 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 141 Music in Special Education 3 hrs. ($10 fee)
Designed for teachers of exceptional children. Study of methods and materials for singing, rhythmic, and creative activities in classes for emotionally, mentally, and physically handicapped. The student learns functional use of piano and informal instruments. Values of musical activities for all exceptionalities are emphasized. Substitutes for MUS 140 for Special Education majors.

MUS 142 Oboe/Bassoon Class 1 hr.
Fundamentals of oboe and bassoon pedagogy and performance. Prerequisite: Music majors only.

MUS 143 Trumpet/Horn Class 1 hr.
Fundamentals of trumpet and horn pedagogy and performance. Prerequisite: Music majors only.

MUS 144 Trombone/Tuba Class 1 hr.
Fundamentals of trombone and tuba pedagogy and performance. Prerequisite: Music majors only.

MUS 145 Flute/Saxophone Class 1 hr.
Fundamentals of flute and saxophone pedagogy and performance. Prerequisite: Music majors only.

MUS 148 Direct Encounter with the Arts ($35 fee) 4 hrs.
A course that uses a direct approach to introduce students to their cultural world by gaining their understanding through first-hand experiences in a number of arts: cinema, photography, theater, sculpture, music, poetry, dance, and architecture. Classroom discussions are held following the students’ participation in the various art events scheduled each semester, with students expected to write journals or response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross listed with ART 148, DANC 148, THEA 148. May be taken only once from College of Fine Arts Departments.

MUS 150 Music Appreciation: Live Music 4 hrs.
An introduction to music and music literature in conjunction with attendance at music concerts and recitals on campus. Classroom discussion and readings will guide the student through a variety of listening experiences that will stimulate perception and enjoyment of music on a visual as well as aural level. This approach will also insure a wide sampling of musical styles and media while encouraging the student to become more aware of his/her musical surroundings. A schedule of the musical events required for the semester will be issued during the first week of the semester. MUS 150 may not be elected by music majors to fulfill General Education requirements.

MUS 151 Music Appreciation: Jazz/Pop 4 hrs.
A study of the development of jazz and its importance as an American art form. The course includes a survey of the beginnings of jazz as a blending of the musical cultures of Africa and Europe. The development of jazz from the late nineteenth century to the present will be traced. Current trends in jazz and rock, as well as electronic influences in contemporary pop music will be emphasized. Studies will include sociological and cultural trends and their influence on the evolution of the various styles and forms of jazz and rock. Indications 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 harmony and rhythm, 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 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 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 1 hr.
Training in the basic skills of music reading and ear-training. Prerequisite: Acceptance into MUS 160.

MUS 163 Aural Comprehension 1 hr.
A continuation of MUS 162. Prerequisite: MUS 162 with a grade of "C" or better.

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 lieder.

MUS 259 Aural Comprehension 1 hr.
Continuation of MUS 163. Prerequisite: MUS 163 with a grade of "C" or better.

MUS 260 Basic Music 3 hrs.
A continuation of MUS 161 designed to reinforce the melodic, harmonic and rhythmic concepts of traditional music by means of the composition and performance of several original works in specific forms, employing a variety of vocal and instrumental combinations. Prerequisite: MUS 161 with a grade of "C" or better.

MUS 261 Basic Music: Twentieth Century Techniques 2 hrs.
The study of the music of the twentieth century, particularly those melodic, harmonic, and rhythmic characteristics which define the music of that period. Important aspects of twentieth century music history will be discussed. Prerequisite: MUS 161 with a grade of "C" or better.
MUS 282 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 283 Composition
2 hrs.
A continuation of MUS 282. Prerequisite: MUS 282.

MUS 284 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 form, forms, and more complicated sectional forms. All compositions created in class will be performed by class members or by the appropriate ensemble outside of class. Prerequisite: MUS 158 (or instructor consent); MUS 280 or concurrent.

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 harp, 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 time will be primarily used for instruction with some selected help times to allow for more individualized instruction. Exams will be of written, playing, and/or presentational format. Prerequisite: MUS 126 and MUS 281, or both may be taken concurrently.

MUS 290 Music Therapy Activities for Adults
2 hrs.
This class will examine labels and categorizations involved in adult populations, offer instruction in social-recreational instruments (e.g., guitar, ukulele, etc.), allow for a more indepth study of appropriate music materials and activities and allow for experience in designing and implementing music therapy treatment procedures for individualized instruction. Exams will be of a written, playing and/or presentational format. Prerequisite: MUS 126 and MUS 281, or both may be taken concurrently.

MUS 320 Advanced Keyboard Musicianship
1 hr.
Course emphasis is on the development of accompanying and harmonization skills and an introduction to four-part, open-score reading. Prerequisite: MUS 221 with a grade of "C" or better, or instructor consent.

MUS 321 Keyboard Skills for Vocalists
1 hr.
A course designed to concentrate on piano skills necessary for vocal majors. The course will include accompanying techniques, sight-reading, transposition and open score reading, as well as general piano techniques and some functional piano skills. Prerequisite: "C" or better in MUS 321 or instructor consent. Note: Required for Music Education: Choral/General and Applied Voice majors.

MUS 322 Keyboard Harmonization Skills
1 hr.
A course devoted to developing harmonization/improvisation skills necessary for music therapy and elementary education majors. Emphasis will be on the playing of folk and popular music. The coursework will include the use of guitar symbols, playing by ear, some functional keyboard harmony and figured bass, as well as sight-reading and general technique. The course will also be open to piano majors wishing to increase their functional skills on the piano. Prerequisite: "C" or better in MUS 320 or instructor consent. Note: Required for Jazz Studies, Elementary Music, and Music Therapy majors.

MUS 330 Choral Conducting and Literature
2 hrs.
The fundamentals of choral conducting are presented, including patterns and rehearsal techniques. The study and selection of literature appropriate to various levels of junior and senior high school choirs is included. Prerequisite: MUS 215 with a grade of "C" or better.

MUS 331 Instrumental Conducting and Literature
2 hrs.
Beginning methods for homogeneous and heterogeneous groups will be used with students acting as conductor-teachers and playing secondary instruments. Literature appropriate to various levels of junior and senior high school bands and orchestras will serve as materials for conducting students performing on major instruments. Prerequisite: MUS 215 with a grade of "C" or better.

MUS 336 General Music Methods
2 hrs.
A study and survey of sequential musical experiences in general music classes in grades K-8. The course will include education objectives, philosophical concepts, instructional methods and materials and various innovative approaches used in the general music class. Administration and implementation of the class will be examined. The course is especially designed to acquaint the student with various teaching techniques. Each student will have an opportunity to participate in general music classes in area schools one-half day a week. Prerequisite: Acceptance into Music Education curriculum.

MUS 339 Choral Techniques
2 hrs.
A course which develops the principles of vocal pedagogy, diction, and improvisation as they apply to choral settings. Study will include the development of the child's and adolescent's voice, selecting and arranging appropriate music for those voices, the problem of vocal abuse, and the rationales behind group vocal warm-up practices. Prerequisite: MUS 330 or concurrent.

MUS 340 Choral Methods
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.

MUS 344 Instrumental Methods
2 hrs.
Students will apply various teaching theories, behaviorist techniques, and cognitive learning skills to the instrumental music lesson. Students will participate in designing a beginning instrumental music program and a system for initiating goals for program development. Administrative skills needed to implement and maintain an instrumental program will be developed. Various philosophies of music education and curriculum development will be discussed. Field experiences in the schools will constitute some of the assignments in this course. Prerequisite: Acceptance into Music Education curriculum.
MUS 345 String Methods
2 hrs.
Extensive involvement with actual teaching of strings in public schools is a central part of this course. The course presents the theoretical, pedagogical, and practical aspects of string instruction in the elementary, middle, and senior high schools. Administrative duties needed to maintain string programs will be examined. Job seeking and professional growth will also be discussed. Prerequisite: MUS 344.

MUS 347 Instrumental Methods II
2 hrs.
Advanced study of the materials and methods needed for successful teaching of instrumental music in the schools. Extensive involvement with actual teaching of bands in public schools is a central part of this course. Students will focus on the development of aesthetic behaviors and performance objectives for junior and senior high instrumental ensembles. Highly specialized ensemble techniques such as marching band, arranging, jazz ensemble, solo and ensemble contest and festival preparation, etc., will be discussed. Job seeking and professional growth will be discussed. Prerequisite: MUS 344.

MUS 348 Teaching and Learning in Music
2 hrs.
This course is designed to teach students to write outcome statements, to plan and prepare learning activities to reach those outcomes, and to evaluate and assess the process used and outcomes. Classroom management, questioning techniques, conceptual hierarchies, sequencing techniques, program goals, short and long term goals related to program goals, and lesson planning will be discussed. Application will be in the junior high/middle school music classroom. 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.

MUS 350 American Music
4 hrs.
A survey of the diverse styles of the music of the United States from the Pilgrims to the present. The development of popular music and jazz will be explored as well as that of church, band, and concert music. Folk song and regional styles will be observed as social-musical statements. Cultural change in this country's music will be viewed from the perspective of its musical heritage. 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 Aborigine, African, and Micronesian. One or several cultures will be selected for close study and a particular attempt will be made to understand the customs and attitudes of a people through their music.

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 compositional and creative concepts. May be repeated for credit. Prerequisite: MUS 263.

MUS 366 Instrumental Arranging
2 hrs.
A course designed to give the student experience in arranging music for instrumental groups with emphasis placed on making effective use of the resources available in the average junior high and high school music situation. Prerequisite: MUS 161.

MUS 375 Twentieth Century Music Literature
2 hrs.
A chronological survey of twentieth century music literature through listening and analysis.

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 194.

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 348 or concurrent.

MUS 386 Technology in Music and Music Education
3 hrs.
MUS 366 will prepare students to use computers and other related tools for professional tasks in music and music education. The class will acquaint students with the historical and potential impact of computers on society, 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, and 3) for managing musical learning through Computer Based Instruction in music.

MUS 395 Performance Development and Technique
3 hrs.
A workshop format utilizing exercises, scene rehearsals and performances in order to develop students' performing ability in musical theatre. Content includes sound and motion exercises, routines of a song or aria, and projection and auditioning techniques. Prerequisite: Consent of advisor.

MUS 450 Music Appreciation: The Symphony
3 hrs.
The course in THE SYMPHONY is a general music course which presents music for symphony orchestra from the listener's point of view. It deals with the materials, structure, texture, sonority, and style of orchestral music since the mid-eighteenth century as well as the cultural milieu which gave rise to and brought about changes in musical style. Music reading ability not required. MUS 450 may not be elected by music majors to fulfill General Education requirements. Not open to graduate music majors.

MUS 472 Clinical Practicum in Music Therapy I
2 hrs.
A lecture/lab course to provide an opportunity for the music therapy student to apply music therapy principles with assigned individual/group clientele in the Music Therapy Clinic and/or affiliated community agencies. Prerequisites: MUS 281, MUS 289, MUS 290, or MUS 383. Reserve time for clinical participation.

MUS 473 Clinical Practicum in Music Therapy II
2 hrs.
A continuation of MUS 472. Prerequisite: MUS 472. Reserve time for clinical participation.

MUS 479 Influence of Music on Behavior
3 hrs.
Justification for the use of music to change human behaviors through analysis of historical evidence, theoretical assumptions, and published research. Description of the therapeutic process with the intervention of music from 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 480 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 518 Improvisation
2 hrs.
A course in the fundamentals of instrumental improvisation. Assignments will be made in such areas as improvisation in the early music tradition, improvisation on given melodic, harmonic, and/or rhythmic
materials, as well as "free" improvisations. Prerequisite: MUS 161.

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: MUS 330.

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: MUS 331.

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 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 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 559 Jazz Improvisation I 2 hrs.
A study and directed application of the fundamentals of jazz improvisation including basic chord and scale construction and recognition, harmonic function, chord-scale relationships and basic blues and popular song forms. All students will be required to develop aural and performance skills relative to the theory skills. Prerequisite: MUS 158 (or instructor consent) and MUS 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, with periodic guidance and criticism from the instructor. May be repeated for credit. Lab fee required ($30). Prerequisite: MUS 263 or permission of the instructor.

MUS 565 Seminar in Music Theory 2 hrs.
Research projects in music theory. Research methods and analytic discipline are stressed. Study will be focused in an area of the student's need or interest. Prerequisite: MUS 261.

MUS 566 Musical Acoustics 3 hrs.
A course designed for the music student. Discussion as well as laboratory demonstration of such concepts as: simple vibrating systems, waves and wave propagation; complex vibrations, resonance; intensity and loudness levels; tone quality; frequency and pitch; intervals and scales; turning and temperament; auditorium and room acoustics; psychoacoustics. In addition, the instruments of the orchestra, the human voice, and recent developments in sound system components will be investigated. Prerequisite: MUS 161.

MUS 567 Orchestration 2 hrs.
A study of the characteristics of instruments, and of arranging for the various individual choirs, for combinations of choirs, and for full orchestra. Prerequisite: MUS 261.

MUS 568 Orchestration 2 hrs.
A continuation of MUS 567. Prerequisite: MUS 567.

MUS 570 Introduction to Musicology 3 hrs.
History, purposes, scope of musicology; leading historians, past and present; modern methods of research, with special emphasis on primary sources and bibliography of the field.

MUS 571 Introduction to Musicology 3 hrs.
A continuation of 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 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 575 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. All periods in jazz history, from its earliest roots in Africa and the slave culture in the United States, up through the blues, dixieland, swing, bop, mainstream and the most recent period of jazz rock and free-form jazz will be explored. Important works will be examined from each period in order to grasp the essentials of a particular style. Prerequisite: MUS 558 or department's consent.

MUS 585 Medieval Music 2 hrs.
A survey of music in Western Europe from the end of Antiquity to the early fifteenth century. The major developments in style, theory, and notation will be explored within the context of the general cultural and political environment of the era. Problems of performance practice will receive special attention with emphasis on primary manuscript sources and scholarly performing editions. Prerequisites: MUS 270 and MUS 271.

MUS 586 Renaissance Music 2 hrs.
A survey of music in Western Europe from the early fifteenth century to the early seventeenth century. The major musical genre of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be provided. Prerequisites: MUS 270 and MUS 271.
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. Equipment includes microphones, tape recorders, control equipment, 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 microphones selected 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.

THEATRE

D. Terry Williams, Chair
Phillip D. Adams
James Daniels
Beverly R. David
C. J. Gianakaris
David Karsten
Gwen Nagle
Greg D. Roehrich
Sharon Seabrook
Lyda Stillwell
Vern Stillwell
Von H. Washington
Judith K. Massie, Administrative Assistant

The Department of Theatre offers programs leading to Bachelor of Arts and Bachelor of Science degrees. Students should refer to degree and General Education requirements within this catalog for specifics. The Department of Theatre concentrates on undergraduate programs that stress the interdependency of academic and production experiences, the importance of a broad theatre background, and the mastery of the elements in preparation for the more advanced 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 classes. 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 graduation are in accordance with the published guidelines of NAST.

Admission as a major
Enrollment in the theatre curriculum is contingent upon admission to the University and the approval of the Department of Theatre. Information regarding application is available on request through the department office. Information regarding admission and transfer credit may be obtained by contacting the theatre academic advisor at the Department of Theatre office in Shaw Theatre.

Advising
Advisor: Dr. Vern Stillwell
Shaw Theatre: (618)367-3220

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 two minors.

Theatre Major
Bachelor of Arts or Bachelor of Science
57 Credit Hours

This program is designed for the students who want to prepare for graduate study in theatre, in advanced specialization, or professional training. It offers a program combining a broad background in theatre with concentration in performance or design and technical production.

Required Courses
Hrs.
THEA 120 Stagecraft I 3
THEA 141 Improvisation 3
THEA 142 Acting I 3
THEA 170 Script Analysis 3
THEA 232 Scene Design 3
THEA 290 Theatre Practicum 6
THEA 331 Costume Design 3
THEA 332 Lighting and Sound Design 3
THEA 351 Directing I 3
THEA 370 Theatre History I 3
THEA 371 Theatre History II 3
THEA 470 Development of Theatre Art 3

Required Course of Study in Performance
THEA 241 Voice and Movement I 3
THEA 242 Voice and Movement II 3
THEA 341 Acting II 3
THEA 342 Acting III 3
THEA 441 Acting Studio 3
THEA 442 Period Styles of Acting 3

Required Course of Study in Design and Technical Production
THEA 220 Stagecraft II 3
THEA 231 Drafting and Color Media 3
THEA 420 Advanced Technical Problems 3
THEA 431 Advanced Design 3
Electives (Art, Engineering, Consumer Resources, English, Theatre) 6

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

All Performance students following this course of study are reviewed by the Performance faculty at the end of the second year. Satisfactory review is necessary for the student to elect upper-level courses.
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 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, 352, 370, 290

THEA 341, 351, 370, 290

Fourth Year—Fall
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 (2D) 3 hrs.
ART 201 Drawing 3 hrs.
ART 202 Acrylic Painting 3 hrs.
ART 208 Watercolor 3 hrs.
ART 220 History of Art 3 hrs.
ART 221 History of Art II 3 hrs.
CRT 124 Clothing Construction 3 hrs.
CRT 328 History of Stage Lighting 3 hrs.
CRT 327 History of Costume Design 3 hrs.
ENG 105 Thought and Writing 3 hrs.
ET 141 Introduction to Technical Drawing 3 hrs.
ET 142 Engineering Graphics 3 hrs.
ET 190 Crafts and Adapted Techniques 3 hrs.
ET 248 Introduction to Computer Design 3 hrs.
THEA 356 Directing II 3 hrs.
THEA 390 Professional Theatre Internship 3 hrs.
THEA 400 Special Topics in Theatre 3 hrs.
THEA 490 Individualized Study 3 hrs.

Musical 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. ($15 fee)
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 Western 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. ($15 fee)
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. ($35 fee)
A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of areas: cinema, photography, theatre, sculpture, music, poetry, dance and architecture. Classroom discussions are held following the student's participation in the various art events scheduled each semester, with students expected to write journals and response papers about the major events of the course. There will be a course charge in lieu of textbooks. Cross listed with DANCE 148, MUS 148, ART 148. May be taken only once from College of Fine Arts Departments.

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...
THEA 322 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 324 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, operetta, singspiel, vaudeville, dance theatre, musical comedy), especially from 1600 to the present. The performing arts are integrated with the life and times of the people involved.

THEA 290 Theatre Practicum 1-8 hrs. ($20 fee)
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 232 recommended).

THEA 322 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. (Lab fee required for materials.)

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.

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, 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 western 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 the 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 our 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.

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.

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.
Interdisciplinary Program

Integrated Language Arts Minor (ILAM)

Maryellen Hains, Coordinator
924 and 623 Sprau Tower
(616) 387-2927

An interdepartmental program of:
COLLEGE OF ARTS AND SCIENCES
Communication
English
COLLEGE OF EDUCATION
Education and Professional Development
COLLEGE OF HEALTH AND HUMAN SERVICES
Speech Pathology and Audiology

This 24-hour interdepartmental 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. In general, ED 250 Human Development and Learning (or its equivalent) and ENGL 282 Children's Literature are prerequisite for admission to the program. A program bulletin and application form are available in the Advising Offices of the College of Arts and Sciences or the College of Education, and from the Integrated Language Arts (ILAM) Coordinator, Maryellen Hains, 6th floor Sprau Tower. A minor slip is required.

Students must see an advisor for entrance into the minor. A 2.75 GPA is required. A minor slip is required.

Program

This 24-hour interdepartmental 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.

BLIND REHABILITATION

William R. Wiener, Chair
Robert O. LaDuke
David Guth
Paul Ponchillia
Susan Ponchillia
James Leja
Marvin Weessies

The Department of Blind Rehabilitation offers professional education programs in orientation and mobility, and rehabilitation teaching. In addition, the department provides direct services to students on campus who have severe visual impairments and, in cooperation with the Michigan Commission for the Blind, provides training to visually impaired individuals within the community. Through a federal grant the department is able to offer assistance with tuition and provide stipends to qualified students who enter graduate study in either of the specialties. Part of the department's function is to conduct workshops for professionals working in the field, provide consulting services, and initiate pertinent research.

Blind Rehabilitation Courses (BLRH)

BLRH 301 Visual Impairment and Blindness: An Overview 2 hrs.

The purpose of this course is to provide basic information to graduate 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 undergraduate students who may be interested in entering a career in blind rehabilitation and would like to further explore their interest. Tests and assignment will be different for the graduate and undergraduate students. The graduate student will have additional readings and will be expected to conceptualize the relationship between their discipline and blindness services. 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.
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, explanation, 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 educated in current theories and techniques for dealing with aging, mobility, and change. Health and disease related experiences and 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 way 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 health care management and decision making. Prerequisite: ECON 517 or equivalent.

HHS 513 Special Studies in Health Care Organization and Delivery
Variable Credit
This course deals with intensive analysis of the organization, design, and delivery of health care services in specialized areas. The specialized areas cover long-term, mental health, and mental retardation services, as well as group medical practice.

HHS 514 Basic Principles and Organization of Health Planning
3 hrs.
This course is an introduction to the principles and methods of planning in the health system. It includes a descriptive analysis of the significance of planning, effective health care services, alternative planning frameworks, and technical approaches to the planning process. In addition, the course studies 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
1-3 hrs.
This course covers selected theories which form the foundation for health and human services 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 services practice. It is a skills and development course which helps students to become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biofeedback, clinical practice in genetic counseling, the role of the health team in clinical practice, the patient and clinical laboratory services, basic clinical skills for the substance abuse setting, and community health education practice are among the possible areas of study. The specific areas are announced each semester.

HHS 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 settings, 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 3 hrs.
This course is intended to provide a historical perspective and an 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 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 assistance and guidance 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.

GERONTOLOGY MINOR

Advisors
Billye Cheatham
Physical Education
Geraldine Frey
Occupational Therapy
Ellen K. Page-Robin, Director
Gerontology

Gerontology, the study of the aging process and of old age, is offered as a multidisciplinary minor at Western Michigan University. Gerontology includes the study of aging through a disciplinary perspective, as well as the medical specialty known as geriatrics.

The minor in gerontology has burgeoned in the United States with the recognition that currently our population includes more than 30,000,000 persons beyond age 65—and that 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, physical 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 courses listed, of which four are required courses. 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

SOC 352 Introduction to Social Gerontology 3
SWRK 464 Problem Solving in Gerontology 3
OT 470 Functioning of the Older Adult 3

Field Education: Either HHS 570 4
Or practicum in a participating department 3 or 4

Electives:

ANTH 531 Medical Anthropology 3
BIOS 531 Biology of Aging 3
BIS 292 Consumer Principles and Practices 3
FCL 326 Investment Analysis 3
ECON 513 Poverty and Economic Security 3
ECON 518 Economics of Medical Care 3
ED 504 Adult Development 3
ED 505 The Adult Learner 3
GSCI 434 Biomedical Ethics and Society 4

CRT 260 Nutrition
OR
CRT 266 Food and Society
CRT 413 Marriage and Family in Maturity
PEGR 572 Recreation for the Aging
SWRK 563 Work Concepts in Rehabilitation

SWRK 572 Community Agency Resources
SOC 122 Death, Dying and Bereavement
SOC 373 Sociology of Health and Illness
SOC 552 Sociology of Aging
SPPA 552 Communication Problems of the Aged

*PHYSICIAN ASSISTANT PROGRAM

Program Staff
James B. Hammond, Director
Sherill Busboom, Clinical Coordinator
Barbara Hoppes-Bronson, Clinical Coordinator
Samuel G. Shorter, Clinical Coordinator

The Physician Assistant Program 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 Michigan University 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 and direction 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 to (1) obtain extensive 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 diagnoses 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 (62) 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 B301 Ellsworth 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 application. Selection is based on all aspects of the academic record, assessment of previous health care experience, evidence of good character, and the 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
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 3
MDSC 314 Patient Evaluation II 3
MDSC 324 Patient Evaluation III 3
MDSC 334 Patient Evaluation IV 3

Curriculum Requirements

All courses listed (103 hrs.) are required.

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. Students are required to successfully pass a comprehensive examination in medical terminology at the start of the fall semester of their junior year. Students must meet Intellectual Skills and Computer Literacy requirements.

Junior (Pre-Clincial) Year

Fall Semester

MDSC 303 P.A. History and Legislation Seminar 1
MDSC 314 Patient Evaluation II 3
MDSC 317 Internal Medicine I 6
MDSC 306 Pathophysiology 3
MDSC 327 Medical Terminology 1
MDSC 302 General Surgery Lecture 1 hr.

Spring Session

MDSC 304 Patient Evaluation III 3
MDSC 409 Allergy 1
MDSC 413 Dermatology 1

Summer Session

MDSC 334 Patient Evaluation IV 3
MDSC 327 Internal Medicine II 3
MDSC 312 Community and Mental Health Seminar 1 hr.

Senior (Clinical) Year

Fall Semester

MDSC 307 Techniques of Patient Counseling 1
MDSC 422 Pediatrics Clerkship 4
MDSC 415 Emergency Medicine Lectures 3

Spring Session

MDSC 308 Techniques of Patient Counseling 1 hr.

Physician Assistant Program Courses (MDSC)

MDSC 433 Obstetrics and Gynecology Seminar 2
MDSC 424 Internal Medicine Clerkship 4
MDSC 434 Internal Medicine Seminar 2
MDSC 425 Surgery Clerkship 4
MDSC 435 Surgery Seminar 2
MDSC 426 Community and Mental Health Clerkship 4
MDSC 436 Community and Mental Health Seminar 2
MDSC 438 Elective Seminar 2

Summer Session

MDSC 427 Family Medicine 6
MDSC 437 Family Medicine Seminars 2

Community Health Services

Pre-Requisites: MDSC 317 and PA curriculum.

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 acquiring 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 II 3

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 327.

MDSC 324 Patient Evaluation III 3 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 major 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 337 Pediatric Medicine Lecture 3 hrs.

This course deals with a systematic developmental approach to the etiology, clinical presentation of signs and symptoms, diagnosis and treatment of common medical disorders in pediatrics, and topic 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 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 Ob/Gyn patient. While on the obstetric service, the management principles of pregnancy, labor and delivery, including prenatal and postnatal care, 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 outpatient 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 the outpatient and inpatient surgical services. Students perform admission histories and physicals and participate in discussions regarding diagnosis and treatment of common patient care. The student then follows 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 diagnosis, 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 outpatient and inpatient situations. The student becomes acquainted with the community 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  
6 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 a correct problem list, 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 problems. This includes areas of preventive medicine in health education.

MDSC 428 Elective Rotation: Variable Title  
2-6 hrs.  
This six-week rotation is intended to cover the many sub-specialties of medicine, including emergency medicine, dermatology, ortho/intraxyngology, opthalmology, 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 429 Pediatrics Seminar  
2 hrs.  
During the six-week clinical rotation in pediatrics, the student reviews selected readings which include major areas of pediatrics: newborns, disorders of the newborn, infectious diseases of the newborn, musculoskeletal system, neurologic system, infectious diseases, poisons, 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 and health assessment of well children, immunizations, patient and parent education.

MDSC 430 Family Medicine Seminar  
2 hrs.  
This is a self-directed seminar in obstetrics and gynecology which accompanies the obstetrics and gynecology rotation. The student must complete reading assignments in obstetrics and gynecology. Here again, the emphasis is on common problems in obstetrics and gynecology with which a physician assistant would be involved, including preventive medicine and patient education.

MDSC 431 Community and Mental Health 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 432 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 433 Community and Mental Health Seminar  
2 hrs.  
This is a directed, self-study seminar which accompanies the community 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 434 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, nephrology, endocrine, genetic, mental health, surgical, obstetric, and gynecologic.
MDSC 438 Elective Seminar: Variable Title

2 hrs.

This independent study seminar takes place during the elective rotation. Through readings and discussion with the precepting physician, emphasis is placed on academic knowledge of the elected area of medicine.

Prerequisites: PA curriculum.

SPECIALTY PROGRAM IN ALCOHOL AND DRUG ABUSE

Advisor:
Jan Dekker
Room 329, Ellsworth Hall

Western Michigan University offers a program for the professional education of substance abuse specialists through the Graduate Specialty Program in Alcohol and Drug Abuse (SPADA). The departments of Biological Science, Counselor Education and Counseling Psychology, Psychology, Sociology, and Occupational Therapy, the School of Social Work, and the Center for Public Administration Programs provide a multidisciplinary and interdisciplinary basis to the specialty. 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 completion of the eighteen-hour SPADA curriculum: Abnormal Psychology, 3 credit hours; Human Anatomy, 3-4 credit hours; and Human Physiology 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 (See Occupational Therapy—Program for complete list).
Students who do not successfully complete departmental probation will not 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.

**FIELDWORK REMEDIATION AND CONTINUANCE POLICY**

1. Successful completion of OT 353 is a prerequisite for OT 453.
2. Students who receive a failing grade in fieldwork level I (OT 353, 453) or level II (OT 430, 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 491.
4. Successful completion of all undergraduate coursework required 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.

**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

**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
- OT 312 Adapted Activities
- OT 321 Life Skills and Personal/Environmental Adaptations
- OT 355 Occupational Therapy Practicum I
- OT 451 Applied Theory and Treatment Process
- OT 453 Occupational Therapy Practicum II
- OT 460 Research Methodology
- OT 480 Administration-Supervision Consultation
- OT 490 OT Fieldwork I
- OT 491 OT Fieldwork II

Program leading to the Combined Bachelor of Science and Master of Science in Occupational Therapy

**Admission**
Since students are selected from those who are admitted to the Occupational Therapy undergraduate curriculum, the same minimum criteria for admission are required (see above). Students intending to apply for admission to the combined track will be encouraged to make a declaration of intent anytime up to the point of formal application. No more than eight students per year will be admitted to this program. Students will be admitted in the first semester of their senior year. Late admission will be possible if space is available.

Students will be required to take the Graduate Record Examination. Students must meet the current automatic admission criteria for the graduate program in Occupational Therapy with a set of approved GPA-GRE scores. There also will be an approved procedure for faculty recommendations.

**Minimum hours required**

| Undergraduate | 122 |
| Graduate | 50 |

**Course Requirements:**

**General Education Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
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<tbody>
<tr>
<td>General Education</td>
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**Physical Education Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
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<tr>
<td>Physical Education</td>
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**Courses Required for Admission**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
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<tr>
<td>Remediation Requirements</td>
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**Professional Curriculum**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Orientation to Occupational Therapy</td>
<td>2</td>
</tr>
<tr>
<td>Professional Language and Interaction</td>
<td>3</td>
</tr>
<tr>
<td>Adapted Activities</td>
<td>4</td>
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<tr>
<td>Integrated Medical Sciences</td>
<td>6</td>
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<tr>
<td>Assessment Principles and Instruments</td>
<td>3</td>
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<tr>
<td>Disabling Conditions</td>
<td>4</td>
</tr>
<tr>
<td>Introduction to Theory and Treatment Process</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Theory and Treatment Processes</td>
<td>2</td>
</tr>
<tr>
<td>Life Skills and Personal/Environmental Adaptations</td>
<td>4</td>
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<tr>
<td>Occupational Therapy Practicum I</td>
<td>3</td>
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<tr>
<td>Applied Theory and Treatment Process</td>
<td>2</td>
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<tr>
<td>Occupational Therapy Practicum II</td>
<td>3</td>
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<tr>
<td>Research Methodology</td>
<td>3</td>
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<td>Administration-Supervision Consultation</td>
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<td>OT Fieldwork I</td>
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**Graduate Curriculum**

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<th>Requirement</th>
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<tr>
<td>OT 610 Professional Issues</td>
<td>3</td>
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<tr>
<td>OT 633 Administration in Occupational Therapy</td>
<td>3</td>
</tr>
<tr>
<td>OT 640 Theory in Occupational Therapy</td>
<td>3</td>
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<tr>
<td>OT 660 Research in Occupational Therapy</td>
<td>3</td>
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<tr>
<td>OT 686 Graduate Seminar</td>
<td>3</td>
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<tr>
<td>OT 700 Masters Thesis</td>
<td>3</td>
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<tr>
<td>OR 710 Independent Research</td>
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Cognates in occupational therapy, related fields, or areas of specific interest selected with the advice and consent of the Graduate Coordinator.

Electives | 3 |
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, physiology of aging, 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. 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 musculo-skeletal, neurological, and neuro-muscular systems. Prerequisite: 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 hrs.
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. Student 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
3 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 OTI, RPT, or consent.

OT 597 Studies in Occupational Therapy
2-4 hrs.
Examine selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit. Prerequisites: Advanced OT major or departmental permission.
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 prepare students for social treatment and 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. 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 for program planning for the gerontology minor. A concentration in corrections is also available to social work majors.

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 theories 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 student majoring in social work are admitted into a pre-social work curriculum at the time of admission to the University. On completion of 45 semester hours (midway through their sophomore year) and SWRK 210 Social Work Services and Professional Roles, students submit an application to the Director of Admissions of the School of Social Work for processing into the major. SWRK 210 should be taken in the first semester in which field work is to be taken.

**Program**

**MINIMUM HOURS REQUIRED FOR GRADUATION:** 122 hrs.

**Course Requirements:** 122 hrs.

**General Education** 35 hrs.

- **Requirements for the undergraduate Social Work major:** 32 hrs.
  - Completed applications are due at least 15 weeks prior to the semester in which field work is to be taken.

- **SWRK 210 Social Work Services and Professional Roles**
- **SWRK 300 Social Welfare as a Social Institution**
- **SWRK 350 Individual and Family Behavior**
- **SWRK 351 Group, Community and Group Behavior**
- **SWRK 400 Social Work Practice: The Problem Solving Process**
- **SWRK 401 Social Work Practice: Values and Problem Analysis**
- **SWRK 402 Social Work Practice: Policy Analysis and Organizational Context**
- **SWRK 410 Field Experience and Seminar I**
- **SWRK 411 Field Experience and Seminar II**
- **SWRK 433 Dynamics of Race and Culture for Social Work Practice**

- **Required Research Component**
  - **SOC 382 and 383 Methodologies of Sociological Inquiry** 6 hrs.

- **Guided Interdisciplinary Minor** 22-23 hrs.
  - Includes:
    - **COM 170 Interpersonal Communication**
    - **ENGL 305 Practical Writing**
    - **BIOS 112 Introduction to Biomedical Sciences**
    - **Any one of the following:**
      - **ECON 100 Contemporary Economic Problems**
      - **ECON 313 Poverty and Economic Security**
    - **Any one of the following:**
      - **PSCI 202 State and Local Government**
      - **PSCI 300 Urban Politics**
    - **Any one of the following:**
      - **PSY 100 Introduction to Human Behavior**
      - **PSY 160 Child Psychology**
      - **PSY 250 Abnormal Psychology**
    - **Any one of the following:**
      - **SOC 210 Modern Social Problems**
      - **SOC 300 Sociological Theory**
      - **SOC 352 Introduction to Social Gerontology**

- **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, or sociology. The following Social Work courses are also available as electives for undergraduate students.

- **SWRK 100 Introduction to Social Services**
- **SWRK 464 Problem Solving in Social Work**
- **SOC 465 Correctional Process and Techniques**
- **SWRK 512 Social Policy and Service Delivery in Selected Problem Areas**
- **SWRK 513 Social Welfare and the Law**
- **SWRK 561 Community Development in Selected Countries**
- **SWRK 562 Community Organization in Urban Areas**
- **SWRK 563 Work Concepts in Rehabilitation**
- **SWRK 564 Special Studies in Social Welfare Practice**
- **SWRK 566 Social Service in the Schools**
- **SOC 567 Institutional Corrections**
- **SOC 568 Non-institutional Corrections**
- **SOC 569 Juvenile Justice**
- **SWRK 572 Community Agency Resources**
- **SWRK 579 Teaching Apprenticeship in Selected Social Work**
- **SWRK 598 Readings in Social Work**

- **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 will complete all required social work major courses with a grade of "C" or better.
2. The student can repeat only one required social work major course to obtain a grade of "C" or better and such a course may be repeated one time only.

The school may refuse to permit a student to continue in the curriculum at any time it is deemed that the student is exhibiting a pattern of professionalism 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, and with the community. Further details on this policy and procedure may be obtained from the School of Social Work undergraduate advisor.

**Social Work Minor**

**15 credit hours**

- **SWRK 210 Social Work Services and Professional Roles**
- **SWRK 300 Social Welfare as a Social Institution**
- **plus**
  - 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 laboratory 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 value base and code of ethics. The course provides an examination of professional social work roles and the professional responsibilities in the delivery of social work services to minority and majority groups at various levels of government and within a variety of settings. Required for social work majors and minors. Prerequisite: Sophomore status or consent of instructor.

SWRK 300 Social Welfare as a Social Institution
3 hrs.
Course objective is to enable the student to develop a perspective on the growth of welfare services and their relationship to welfare needs. It is a critical examination of the forces (e.g., social, economic, historical, political, and philosophical) that have led to the institutionalization of social welfare. Prerequisites: SWRK 210.

SWRK 350 Social Work Concepts in Individual and Family Behavior
3 hrs.
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. Examines socialization and its influence on human behavior. Identifies significant physical, mental, emotional, social, and cultural factors which affect the development of the personality, biological, and family systems. Prerequisite: SWRK 210 and junior status.

SWRK 351 Social Work Concepts in Group, Community and Organizational Behavior
3 hrs.
Provides the student with an understanding of human behavior related to small group process, role theory, communications theory, social conflict constructs, systems concepts, formal organization and community dynamics. Examines the interplay of various forces which affect the development of social groups, communities, and organizations, and the effects of these interdependent systems on the client system. Prerequisites: SWRK 210, SWRK 350, and junior status.

SWRK 400 Social Work Practice: The Problem Solving Process
3 hrs.
This is the first of a sequence of three courses in social work practice for social work majors. It focuses on the problem solving process as a conceptual framework for social work. It also examines issues related to professionalism, social work values, and the impact of race, gender, and other differences on practice. The student will learn to identify problems at various system levels, including individual, small group, organization, and community. The course presents all phases of the problem solving process, with particular emphasis on problem identification, assessment, and data collection. Role plays, simulations, and other classroom activities provide practice in basic skills necessary for engaging clients, interviewing, and conducting assessments. Prerequisites: SWRK 300, SWRK 350, and C-card.

SWRK 401 Social Work Practice: Intervention and Evaluation
3 hrs.
This is the second in a sequence of three social work practice courses. It presents the application of the problem solving process through specific interventions and roles at various system levels (individual, group, organization, and community). These interventions and roles will include, but not be limited to crisis counseling, short term practice models, and case management. Students will learn to implement and appraise interventions in reported and simulated situations and to evaluate the effectiveness of their intervention skills. Prerequisites: Senior status, completion of SWRK 400, enroll in SWRK 410 concurrently, majors only.

SWRK 402 Social Work Practice: Policy Analysis and Organizational Context
3 hrs.
This course combines conceptual analysis and training in practice skills. It focuses on the effects of social and organizational context on social work practice. It examines the basic process of policy development and the relationship between policy, ideology, and values. It pays particular attention to the impact of social agency on human service organizations, analyzing the effects of specific policies on workers, clients, and organizational structure and goals. It helps students develop effective functioning in the organizational environment, including organizational change and utilization of organizational resources for effective service delivery. Prerequisites: Senior status, completion of SWRK 401, enroll in SWRK 411 concurrently.

SWRK 410 Field Experience and Seminar I
4 hrs.
Two hundred and twenty-five (225) clock hours in the field and fifteen (15) hours in a campus-based seminar. In a social work or allied service agency, students develop a working knowledge of the agency's functions, structure, and processes and its service provider role within a total community. Students apply knowledge and develop skills in problem assessment and goal formulation within the context of social work values. Prerequisites: Senior status, submission of field experience application to the Director of Field Education at least fifteen (15) weeks prior to the semester field work is to be taken; arrangement of class schedule so that the student is in a field agency on Tuesdays and Thursdays of each week; concurrent enrollment in SWRK 401 and enrollment in SWRK 411 the following term, majors only. Credit/No Credit only.

SWRK 411 Field Experience and Seminar II
4 hrs.
A continuation of SWRK 410. Two hundred and twenty-five (225) clock hours in the field and fifteen (15) hours in a campus-based seminar. Students engage in social work interventions and practice interventive behaviors with special issues with individuals, groups, organizations, and/or a community. Prerequisites: Senior status, completion of SWRK 401 and 410 and concurrent enrollment in SWRK 402. Field experience application not required if student submitted one for SWRK 410, arrangement of class schedule so that the student is in a field agency on Tuesday and Thursday of each week, majors only. Credit/No Credit only.

NOTE: "Completed applications for 410 and 411 are due at least 15 weeks prior to the semester field work is to be taken.

SWRK 433 Dynamics of Race and Culture for Social Work Practice
3 hrs.
This course focuses upon ethnic/racial groups who are among social welfare consumers and social work clientele. Individual and institutional racism are examined. Racial/cultural characteristics and group strengths, needs, priorities, and experiences in the context of social welfare and social work are also explored. The course reviews implications of ethnic factors for social work practice, social policy, and social work education. Prerequisite: Consent of instructor.

SWRK 464 Problem Solving in Gerontology
3 hrs.
This course provides the student with information about social welfare programs, both institutional and non-institutional, which are available to our aged population. The student is introduced to different approaches to service delivery and 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: Open only to senior undergraduates and graduate students.

SWRK 513 Social Welfare and the Law
3 hrs.
The legal bases of organized social welfare and social work practice are examined through the study of selected examples of social legislation and judicial decisions, the legislative process, development of administrative regulations, and court organization. Illustrative case studies are used to demonstrate how social workers can manage within the restrictions and opportunities presented by legal institutions and practices in social and individual case situations. Prerequisite: Consent of instructor.

SWRK 561 Community Development in Selected Countries
3 hrs.
This course is intended to provide basic information needed in understanding community life in developing countries. It places emphasis on the history and philosophy of community development in the context of differential socio-economic systems. Includes evaluation and analysis of organizational and administrative problems involved in implementing programs. Prerequisite: Consent of instructor.

SWRK 582 Community Organization in Urban Areas
3 hrs.
Social welfare planning and social action methods are studied as approaches for preventing and resolving aspects of social problems in medium and larger size urban communities. Emphasis is placed on the
SPEECH PATHOLOGY AND AUDIOLOGY

John M. Hanley, Chair
Harold L. Bate
Susan K. Boersma
Connie C. Carlson
Michael J. Clark
Robert L. Erickson
James M. Hillebrand
Gary D. Lawson
Frances E. Lohr
Nickola W. Nelson
Donna B. Oas
Karen S. Seelig
Shirley N. Sparks
Candis Warner

Adjunct Faculty
William L. Dawson
Ronald W. Kelley
William L. Locke

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 and 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. 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 admission requirements and procedures may be obtained by contacting the department directly.

Transfer Students

It is recommended that transfer students enroll at Western in the beginning of the first semester of the sophomore year. Those who enroll at a later stage may find that an additional semester 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, 2504 Sangren Hall. Students must obtain an approved minor slip signed by an approved elementary education advisor.

Completion of the 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 audiology 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 that 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 34 to 36 hours in speech pathology and audiology plus additional coursework specified by the department. These additional requirements include coursework in general education, physical education, supervised undergraduate courses outside the department, and an academic minor. Each student is responsible for
obtaining information on degree requirements and for taking the steps necessary to meet those requirements. Students interested in a major in speech pathology and audiology should contact the department office in the Speech and Hearing Center on the East Campus for an appointment with an undergraduate advisor. Because the sequencing of courses included in this major is critically important, students should seek academic advising from the department as soon as possible.

Baccalaureate Writing Requirement
Students who have chosen the Speech Pathology and Audiology major will satisfy the Baccalaureate Writing Requirement by successfully completing SPPA 359 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 400 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.

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 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.
During this registration the student is required to participate in structured observations of clinical activities including evaluations, on-going therapy and multidisciplinary diagnostics. 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 skills are viewed from a psycholinguistic orientation. Application to the teaching of the language arts is emphasized. Must be taken concurrently with ILAMED 260. Required for the Integrated Language Arts Minor.

SPPA 351 Phonemic Disorders
2 hrs.
A detailed study of the nature of phonemic disorders; orientation to clinical management. Prerequisite: SPPA 204.

SPPA 353 Fluency Disorders
2 hrs.
A detailed study of the nature of fluency disorders; orientation to clinical management. Prerequisite: SPPA 204 and SPPA 403.

SPPA 354 Language Disorders in Children
3 hrs.
A detailed study of the nature of communication problems associated with congenital or acquired impairment of language function in children; orientation to clinical management. Prerequisite: SPPA 203.

SPPA 358 Disorders of Hearing: Identification and Measurement
3 hrs.
An introduction to the measurement of hearing and the field of audiology. The course includes an introduction to aural pathologies. Prerequisite: Consent of instructor or SPPA 206.

SPPA 359 Special Studies in Communication Disorders
3 hrs.
A survey of neuropathologies and structural deviations which result in communication disorders, including infantile cerebral palsy and cleft palate. Prerequisite: Consent of instructor.

SPPA 400 Practicum in Speech Pathology and Audiology I
2 hrs.
Clinical experience in the management of speech, language, and/or hearing disorders.

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 Vocal Tract Kinetics
3 hrs.
A study of vocal tract kinematics and the neurological bases of speech. The course includes a detailed consideration of speech as the time-varying shaping of the vocal tract. 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 500 Advanced Speech and Hearing Science
2 hrs.
Theories of speech production, reception, and perception are considered in this course from the point of view of experimental phonetics and experimental audiology.

SPPA 551 Neuropathologies of Speech
2 hrs.
This course is concerned primarily with selected communication disorders associated with neuropathologies.

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 555 Hearing Measurement
2 hrs.
This course is designed to acquaint the student with principles, theories, and methods of hearing measurement which provide the base for clinical audiometric procedures.

SPPA 556 Rehabilitative Audiology
3 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment.
SPPA 557 Educational Audiology
3 hrs.
This course deals with the educational, psychological, and vocational needs of the hearing impaired child and the parameters that affect educational programming.

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-seven 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. Nine of these programs—those in Educational Leadership (Educational Evaluation, Measurement, and Research Design), Geology, Mathematics, Mathematics Education, Physics, 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; 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
- Lansing Study Center
  300 N. Washington Square, Suite 200
  Lansing, MI 48933-1204
- Muskegon Regional Center
  444 S. Quarterline Road
  Muskegon, MI 49442-2532
- South Central Regional Center
  Kellogg Community College
  632 North Avenue
  Battle Creek, MI 49017-3299

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, 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/or 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.

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

SOC 200 Principles of Sociology
OR
SOC 210 Modern Social Problems

SOC 260 Introduction to Criminal Justice

SOC 262 Criminology

These courses are prerequisites to the criminal justice curriculum and do not count as a 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

SOC 464 Sociology of Law Enforcement

SWRK 465 Correctional Process and Techniques

SOC 564 Juvenile Delinquency and the Community

FCL 360 Criminal Law and Procedure

SOC 566 Advanced Criminology

Research Methods Requirement

One of the following courses is required.

SOC 382 / 383 Methods of Sociological Inquiry

PSCI 590 Research Methodology

Special Area of Concentration

Completion of one of the following areas is required.

Corrections: (6 hours)

SOC 565 Community Corrections

SWRK 567 Advanced Institutional Administration

SWRK 568 Non-Institutional Treatment of Offenders

Courts: (6-8 hours)

PHIL 313 Philosophy of Law

PSCI 320 American Judicial Process

PSCI 325 Criminal Justice Policy

Applied Liberal Studies
David A. Ede, Advisor

This program, which leads to the Bachelor of Science degree, is available to those who have completed vocational training programs at a business school, community college, technical institute, or other specialized educational institution. 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 18 credit hours, with at least 6 hours selected from three of the following topical areas:
   - A. Community concerns
   - B. Communication skills
   - C. Environmental concerns
   - D. Human relations
   - E. International concerns
   - F. Technical skills mastery
2. An additional 12 hours in the three areas chosen above.

3. Up to 15 hours of work taken previously may be applied toward this concentration. Acceptance of this credit does not imply transferability to other degree programs at Western.

Health Studies
Charles Spaniolo and Patricia Dolly, Advisors

This program is intended for 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 Interaction, 9 hours, and Planning, Organization and Leadership Skills, 3 hours; and
3. 15 semester hours of course work in 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 A. Ede, David Houghton, Advisors

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 to 1890, or HIST 211, American History since 1890; GEOG 205, Our Human World; PSCI 100, Introduction to Political Science; PSY 150, Introduction to Human Behavior; SWRK 210, Social Work Services and Professional Roles; SOC 200, Principles of Sociology, or SOC 300, Sociological 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 by correspondence, television, and magazine. All courses are developed by University faculty. Students may register in person or by mail at anytime during the year, and are given up to one year to complete each 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.
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